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TWELFTH SPECIAL REPORT  
[www.libtool.com.cn](http://www.libtool.com.cn) OF THE  
COMMISSIONER OF LABOR.

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COAL MINE LABOR IN  
EUROPE.

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PREPARED UNDER THE DIRECTION OF  
CARROLL D. WRIGHT,  
COMMISSIONER OF LABOR.



WASHINGTON:  
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LETTER OF TRANSMITTAL.

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DEPARTMENT OF COMMERCE AND LABOR,  
OFFICE OF THE SECRETARY,  
*Washington, January 31, 1905.*

SIR: I have the honor to forward to Congress the Twelfth Special Report of the Commissioner of Labor, which is a compilation of official statistics and other information concerning coal mine labor in the five leading coal and lignite producing countries of Europe.

Respectfully,

V. H. METCALF,  
*Secretary.*

Hon. JOSEPH G. CANNON,  
*Speaker House of Representatives.*

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## LETTER OF TRANSMITTAL.

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DEPARTMENT OF COMMERCE AND LABOR,  
BUREAU OF LABOR,  
*Washington, January 31, 1905.*

SIR: I have the honor to hand you herewith the Twelfth Special Report emanating from this office, entitled Coal Mine Labor in Europe. As explained in the introduction, this report consists of a compilation of official statistics and other information concerning coal mine labor in the five leading coal and lignite producing countries of Europe.

It is to be regretted that the absence of complete official statistics concerning coal mine labor in this country makes it impossible to include the United States in the present compilation. To do so would necessitate an original investigation by this Bureau.

This is the first compilation of its kind undertaken by any Government, and as the statistics are as complete and comparable as it has been possible to obtain from official sources, it is believed that this report will be of much value as a work of reference.

A large part of the data and documents which form the basis of this report was gathered in Europe some time ago by Messrs. W. F. Willoughby and Edward North, 2d. Since that time the material and data have been brought down to date, and the exceedingly tedious and difficult work of research, arrangement, and tabulation has been carried on in the Bureau under my direction. Particular mention should be made of the efficient services of Messrs. G. A. Weber, L. D. Clark, and H. J. Harris in the preparation of the report, and of Mr. G. W. W. Hanger, the chief clerk of the Bureau, who has had practical charge of the work.

I am, very respectfully,

CARROLL D. WRIGHT,  
*Commissioner.*

The SECRETARY OF COMMERCE AND LABOR.



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## INTRODUCTION.

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## INTRODUCTION.

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The present report contains a compilation of statistics and other matter bearing upon coal mine labor in the leading coal and lignite producing countries of Europe, namely, Austria, Belgium, France, Germany, and Great Britain. The statistics have in nearly all cases been obtained from official publications of the countries to which they relate. The text has been compiled from both official and private sources.

In the collection of this material the aim has been to bring together in one volume, in a form as suitable for comparison as possible, all the official information that may be needed in the study of coal mine labor conditions in the countries named.

To this end a thorough search has been made of the annual reports and other publications of the mine offices and labor and other statistical bureaus of the respective countries. All the statistics considered of value in this connection were then compiled from these sources, covering in each case the longest period of time for which it was possible to obtain reliable and comparable data.

An idea of the importance of the coal-mining industry in these five countries may be obtained from the fact that in 1902 their aggregate coal and lignite production was about 460,000,000 long tons, with an estimated value of about \$890,000,000 at the pit's mouth. Over 1,700,000 persons were engaged in this production. These five countries produce about 95 per cent of the total coal and lignite output of Europe and about 60 per cent of the entire output of the world.

These five countries ranked in the following order with regard to the total output of coal and lignite in 1902: Great Britain, 227,095,000 long tons; Germany, 148,222,000 long tons; Austria, 32,661,000 long tons; France, 29,524,000 long tons, and Belgium, 22,516,000 long tons.

In Great Britain, France, and Belgium this output consisted mainly of bituminous coal. In Great Britain 2,923,000 long tons, or but 1.3 per cent of the entire output, was anthracite. Of the French coal production 1,414,000 long tons, or 4.8 per cent, was anthracite, and 622,000 long tons, or 2.1 per cent, was lignite. The entire Belgian coal output was bituminous. In Germany, however, 42,445,000 long tons, or 28.6 per cent of the entire output, was lignite, and in Austria 21,790,000 long tons, or 66.7 per cent of the total output, was lignite.

It may be mentioned, by way of comparison, that, according to the statistics published by the United States Geological Survey, (a) the total coal output in the United States during the year 1902 was 269,277,178 long tons, valued at \$367,032,069, in the production of which 518,197 persons were employed.

The information concerning each country relates to—

1. Output, value, and distribution of product.
2. Employees.
3. Wages.
4. Accidents.
5. Miners' relief funds.
6. Mine workers' unions.
7. Labor disputes.
8. Legislation.

The first section of each chapter contains a brief description of the coal and lignite fields, a history of coal and lignite mining, statistics of production and value of product of the country as a whole and for separate coal fields or administrative districts, coal prices, and the coal and lignite exports and imports.

The statistics of employment show in great detail the number of persons employed above and below ground, their age and sex, and their efficiency. In some instances these figures cover all employees and officials and in others wageworkers only.

The statistics of wages are in many cases unsatisfactory. They are usually shown in the form of annual earnings per employee, there being but few instances where actual wage rates are given. In some cases the gross earnings are shown, while in others only the net earnings are given—that is, actual amounts paid to mine workers after deducting for oil, explosives, insurance, etc. When found in the original reports, statistics of the number of shifts worked and their duration have been reproduced.

The statistics of accidents are presented in both absolute and relative figures, and wherever possible they have been arranged by causes.

In the presentation of information concerning labor disputes it has been necessary in some cases to resort to private publications for the earlier accounts of strikes. For the strikes in recent years, however, only official sources have been used. In addition to summary statistics of strikes and lockouts, detailed accounts are given of all important coal-mine strikes.

The information concerning mine workers' unions and miners' relief funds has been obtained both from official and from private publications, official statistics being used wherever they could be obtained. The sections on relief funds deal with both private and public relief or insurance systems pertaining to mine workers. The

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<sup>a</sup> Mineral Resources of the United States, calendar year 1902.

importance of these systems of relief for miners is indicated by the fact that insurance for miners has been made compulsory in Austria, Belgium, France, and Germany.

In the sections on legislation, digests are given of the mining laws now in force as far as they relate to the mine holdings, the relations of mine operators and their employees, sanitation and security, and inspection.

Whenever statistics have been compiled from the same or different sources and presented in the same table they have been placed upon a comparable basis, and where this could not be done explanatory notes have been inserted.

All figures relating to any one country have been made to harmonize, whenever possible, by making corrections in the original data where errors were apparent and were capable of correction. In those cases where figures seemingly dealing with the same items in different tables do not agree with one another and corrections were impossible, the erroneous figures have been reproduced with notes calling attention to the discrepancies.

The figures for each country have been reduced to the same basis with regard to weights and measures and money values, namely, in Great Britain all measurements of quantity have been presented in long tons (2,240 pounds) and in the other European countries in metric tons (2,204.6 pounds). In all cases, values have been reduced to United States money. Whenever such reductions have been made, the bases used have been indicated in prefatory notes to the tables.

In nearly all cases where averages are given and where the figures from which these averages have been computed are reproduced in this report, the computation has been done in this Bureau. This was necessary on account of frequent errors in computation and typography in the original reports. Whenever these averages represented money values, the computations were made after the foreign values had been reduced to United States money.

The figures showing the average production per employee, or what is sometimes termed "labor efficiency" in this report, do not necessarily indicate the physical capacity, skill, and industry of the workmen. The production per employee depends also upon the formation of the coal beds, the thickness and regularity of the seams, the depth of the workings, the technical equipment of the mines, the number of hours per shift worked, etc.

In the use of the compiled statistics, allowance should be made, in comparing the figures of one country with those of another, for differences in the exact items that enter into the tables presented and in the methods adopted for ascertaining and compiling the facts as published in the original reports. While such differences occur in the statistics of production, value, and distribution, they are more com-

mon in those of employment, wages, accidents, and strikes. When it was possible to obtain, either from the original reports or by correspondence with the authorities, an explanation of the method adopted for ascertaining and compiling the original data, such explanation has been made either in the text or in prefatory notes to the tables.

The sources from which the figures have been obtained are shown in prefatory notes to all the tables. Following is a list of all the publications which were used in the preparation of the text and the tables contained in this report:

#### OFFICIAL PUBLICATIONS.

- Austria. K. K. Ackerbau Ministerium. Statistisches Jahrbuch. Annual reports for the years 1875 to 1903.
- Austria. K. K. Handelsministerium. Arbeitsstatistisches Amt. Arbeiterverhältnisse im Ostrau-Karwiner Steinkohlenreviere. I. Theil. 1904.
- Austria. K. K. Handelsministerium. Arbeitsstatistisches Amt. Arbeitseinstellungen und Aussperrungen in Österreich. Annual reports for the years 1894 to 1903.
- Austria. K. K. Handelsministerium. Arbeitsstatistisches Amt. Die Arbeitervereine in Oesterreich 1900-1904. I Band. Tabellarischer Theil. 1905.
- Austria. K. K. Handelsministerium. Arbeitsstatistisches Amt. Soziale Rundschau. Monthly bulletin, 1901 to 1904.
- Austria. K. K. Statistische Zentralkommission. Österreichisches Statistisches Handbuch. Annual abstracts for the years 1882 to 1903.
- Belgium. Ministère de l'Agriculture de l'Industrie et des Travaux Publics. Section générale des mines. Annales des travaux publics de Belgique. Annual reports for the years 1881 to 1895.
- Belgium. Ministère de l'Industrie et du Travail. Administration des mines. Annales des mines de Belgique. Annual reports for the years 1896 to 1904.
- Belgium. Ministère de l'Industrie et du Travail. Administration des mines. Aperçu de l'histoire économique de l'exploitation de la houille en Belgique depuis 1831. 1900.
- Belgium. Ministère de l'Industrie et du Travail. Administration des mines. Règlement général de police. 1898.
- Belgium. Ministère de l'Industrie et du Travail. Administration des mines. Travail des femmes, des adolescents et des enfants. 1898.
- Belgium. Ministère de l'Industrie et du Travail. Office du travail. Annuaire de la législation du travail. Annual reports for the years 1897 to 1903.
- Belgium. Ministère de l'Industrie et du Travail. Office du travail. Revue du Travail. Monthly bulletin, 1901 to 1904.

- Belgium. Ministère de l'Industrie et du Travail. Office du travail. Section de la statistique. Recensement des industries et des métiers (31 Octobre 1896).
- Belgium. Ministère de l'Industrie et du Travail. Office du travail. Section de la statistique. Statistique des salaires dans les mines de houille (Octobre 1896-Mai 1900).
- Belgium. Ministère de l'Intérieur. Exposé de la situation du Royaume. 1852, 1865.
- Belgium. Ministère de l'Intérieur et de l'Instruction Publique. Annuaire statistique de la Belgique. Annual abstracts for the years 1871 to 1902.
- Belgium. Ministère des Finances et des Travaux Publics. Tableau général du commerce avec les pays étrangers. Annual report for the year 1903.
- Belgium. Ministère des Travaux Publics. Compte rendu publié par le ministre des travaux publics. 1846.
- France. Ministère des Travaux Publics. Direction des mines. Résumé des travaux statistiques de l'administration des mines. Annual reports for the years 1836 to 1872.
- France. Ministère des Travaux Publics. Direction des mines. Statistique de l'industrie minérale et des appareils à vapeur. Annual reports for the years 1873 to 1903.
- France. Ministère du Commerce, de l'Industrie, des Postes et des Télégraphes. Direction du travail. Annales des syndicats professionnels, industriels, commerciaux et agricoles constitués conformément à la loi du 21 Mars 1884 en France et aux colonies. Annual reports for the years 1889 to 1903.
- France. Ministère du Commerce, de l'Industrie, des Postes et des Télégraphes. Direction du travail. Les associations professionnelles ouvrières. Vol. I, 1899.
- France. Ministère du Commerce, de l'Industrie, des Postes et des Télégraphes. Direction du travail. Statistique des grèves et des recours à la conciliation et à l'arbitrage. Annual reports for the years 1890 to 1903.
- France. Ministère du Commerce, de l'Industrie, des Postes et des Télégraphes. Office du travail. Salaires et durée du travail dans l'industrie française. Vol. II, 1894.
- Germany. Kaiserliches statistisches Amt. Statistik der Krankenversicherung im Jahre 1897.
- Germany. Kaiserliches statistisches Amt. Reichsarbeitsblatt. Monthly bulletins for the years 1903 and 1904.
- Germany. Kaiserliches statistisches Amt. Statistisches Jahrbuch für das Deutsche Reich. Annual abstracts for the years 1880 to 1903.
- Germany. Kaiserliches statistisches Amt. Streiks und Aussperungen. Annual reports for the years 1899 to 1903.



- Germany. Kaiserliches statistisches Amt. Vierteljahrshefte zur Statistik des Deutschen Reichs. Quarterly bulletins for the years 1891 to 1903.
- Germany. Reichs - Versicherungsamt. Amtliche Nachrichten des Reichs-Versicherungsamt. Monthly bulletins for the years 1887 to 1904.
- Great Britain. Board of Trade. Coal tables. Parliamentary papers No. 118, session of 1889, and No. 312, session of 1903.
- Great Britain. Board of Trade. Labor department. Annual abstract of labor statistics for the years 1893-94 to 1901-1902.
- Great Britain. Board of Trade. Labor department. Report by the chief labor correspondent on strikes and lockouts. Annual reports for the years 1888 to 1900.
- Great Britain. Board of Trade. Labor department. Report on changes in rates of wages and hours of labor. Annual reports for the years 1893 to 1903.
- Great Britain. Board of Trade. Labor department. Report on standard piece rates of wages and sliding scales in the United Kingdom in 1900.
- Great Britain. Board of Trade. Labor department. Report on standard time rates of wages in the United Kingdom in 1900.
- Great Britain. Board of Trade. Labor department. Report on strikes and lockouts in the United Kingdom and on conciliation and arbitration boards. Annual reports for the years 1901 to 1903.
- Great Britain. Board of Trade. Labor department. Report on trade unions. Annual reports for the years 1881 to 1901.
- Great Britain. Board of Trade. Labor department. Report on wholesale and retail prices in the United Kingdom in 1902, with comparative statistical tables for a series of years. 1903.
- Great Britain. Board of Trade. Return of rates of wages in the mines and quarries of the United Kingdom. 1891.
- Great Britain. Board of Trade. Statistical abstract of the United Kingdom for the years 1854 to 1903.
- Great Britain. Board of Trade. Wages and profits in coal mining. Parliamentary paper No. 197, session of 1903.
- Great Britain. Home Office. Annual general report of the mineral industry. Annual reports for the years 1894 to 1896.
- Great Britain. Home Office. Mines and quarries: General report and statistics. Annual reports for the years 1897 to 1903.
- Great Britain. Home Office. Women and girls and men and boys employed in connection with mines. Parliamentary report. 1887.
- Great Britain. Royal Commission on Coal Supplies. First report. 1903.
- Great Britain. Royal Commission on Mining Royalties. Fourth report. 1893.
- Great Britain. Royal Commission on several matters relating to coal in the United Kingdom, 1871.

- Hungary. Ung. Handelsministerium. Statistisches Central Amt. Ungarisches statistisches Jahrbuch. Annual abstracts for the years 1890 to 1903. [libtool.com.cn](http://libtool.com.cn)
- Prussia. Königliche Bergwerks-Direktion. Die Wohlfahrtseinrichtungen für die Arbeiter auf den Gruben der königlichen Bergwerks-Direktion zu Saarbrücken. 1904.
- Prussia. Ministerium für Handel und Gewerbe. Der Arbeiterschutz in den preussischen Bergpolizeiverordnungen. 1904.
- Prussia. Ministerium für Handel und Gewerbe. Mittheilungen aus der Geschichte des königlichen Oberbergamts zu Dortmund und des niederrheinisch-westfälischen Bergbaues. 1892.
- Prussia. Ministerium für Handel und Gewerbe. Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate. Statistischer Theil. Annual reports for the years 1842 to 1903.
- United States. Department of the Interior. United States Geological Survey. Mineral resources of the United States. Calendar year 1903.
- United States. Treasury Department. Bureau of Statistics. Coal trade of the United States and the world's coal supply and trade. 1902.

## UNOFFICIAL PUBLICATIONS.

- Allgemeiner Knappschafts-Verein zu Bochum. Begründung zu den Satzungen für den allgemeinen Knappschafts-Verein zu Bochum. Dortmund, Prussia, 1898.
- Allgemeiner Knappschafts-Verein zu Bochum. Die Entwicklung des Knappschafts-Vereins zu Bochum, 1860-1902. Bochum, Prussia, 1904.
- Allgemeiner Knappschafts-Verein zu Bochum. Satzungen für den allgemeinen Knappschafts-Verein zu Bochum. Dortmund, 1900.
- Allgemeiner Knappschafts-Verein zu Bochum. Verwaltungsberichte, 1892-1901. Bochum.
- Allgemeiner Knappschafts-Verein zu Bochum. Zum 10jährigen Bestehen des Allgemeinen Knappschafts-Verein zu Bochum, Juli 1, 1890-Juli 1900. Bochum, 1900.
- Arndt, A. Bergbau und Bergbaupolitik. Leipzig, 1894.
- Arsandaux, O. Les retraites ouvrières en Belgique. Paris, 1903.
- Baernreither, J. M. English associations of workingmen. London, 1893.
- Bellom, M. Les lois d'assurance ouvrière à l'étranger. Paris, 1896-1903.
- Berger and Wilhelmi. Reichs-Gewerbe-Ordnung, nebst Ausführungsbestimmungen. Berlin, 1899.

Caisses de prévoyance en faveur des ouvriers mineurs. Statuts. Province de Liège, bassin du Centre, bassin du Couchant de Mons, province de Namur, province de Luxembourg, bassin de Charleroi. Comité central des houillères de France. Circulaires. Paris, 1891-1902.

Congrès international des accidents du travail et des assurances sociales. Bulletin du comité permanent. A quarterly periodical. Paris, 1890-1903.

Crochard, A. L'assurance obligatoire contre la maladie et les sociétés de secours mutuels en France. Paris, 1902.

D'Allemagne, J. Étude sur les pensions ouvrières d'invalidité et de vieillesse. Liege, 1897.

Dammer, Dr. Otto. Handbuch der Arbeiter-Wohlfahrt. Stuttgart, 1902-1903.

Das allgemeine Berggesetz. Vienna, 1897. Nachträge zum Berggesetz. Vienna, 1899.

Der Bergknappe. Zeitschrift für christliche Bergleute.

Engels, Ernst. Allgemeines Berggesetz für die Preussischen Staaten von Juni 1865 und die auf dasselbe bezüglichen Gesetze und Verordnungen. Berlin, 1895.

Étienne, René. Cours de la législation des mines. 1904. St.-Étienne (France), 1904.

Generalkommission der Gewerkschaften Deutschlands. Correspondenzblatt. Monthly periodical. Berlin, 1891 to 1904.

Gewerkschaftskommission Oesterreichs. Die Gewerkschaft. Semi-monthly periodical. Vienna, 1902 to 1904.

Gewerkschaftskommission Oesterreichs. Protokoll des österreichischen Gewerkschaftskongresses. Reports of the third and fourth congresses. Vienna, 1900 and 1903.

Haberer und Zechner. Handbuch des oesterreichischen Bergrechtes. Vienna, 1884.

Hartinann, K. Das Gefahrenariefwesen der Unfallversicherung des Deutschen Reichs. Berlin, 1900.

Hockspill, A. Les caisses de retraites des ouvriers mineurs en France. Paris, 1902.

Howell, George. A handy book of the labor laws. London, 1895.

Hull, Edward. Our coal resources at the close of the nineteenth century. London, 1897.

Knapp, R. Das Bruderladegesetz. Vienna, 1892.

Knapp, R. Das Gesetz über die Errichtung von Genossenschaften beim Bergbaue. Vienna, 1897.

Knappschafts-Berufgenossenschaft. Der Kompass. Organ der Knappschafts-Berufgenossenschaft für das Deutsche Reich. A semi-monthly periodical. 1900.

- Knappschafts-Berufgenossenschaft.** Die ersten 10 Jahre der Sektion II der Knappschafts-Berufgenossenschaft, 1885-1895. Bochum, 1895. [www.libtool.com.cn](http://www.libtool.com.cn)
- Knappschafts-Berufgenossenschaft.** Jahresberichte über die Verwaltung. Annual reports for the years 1890 to 1902.
- Knappschafts-Berufgenossenschaft.** Statistik der Knappschafts-Berufgenossenschaft über die in der Zeit vom 1 Oktober 1885 bis 1 Januar 1895 vorgenommenen Betriebsunfälle. Berlin, 1897.
- Kuhlemann, W.** Die Gewerkschaftsbewegung. Jena, 1900.
- Lancashire and Cheshire miners' permanent relief society.** Rules, 1899. Annual reports for 1900 and 1904. Wigan (England).
- Lass und Zahn.** Einrichtung und Wirkung der deutschen Arbeiterversicherung. Berlin, 1904.
- Leuthold, C. E.** Das oesterreichische Bergrecht. Leipzig, 1887.
- Lozé, Ed.** Les charbons britanniques et leur épuisement. Paris, 1900.
- Mataja, Viktor.** Arbeitseinstellungen in Oesterreich. Article in Conrad's "Handwörterbuch der Staatswissenschaften," second edition.
- Mayer, J.** Bergwerksbruderladen. Article in "Soziale Verwaltung in Oesterreich am Ende des 19. Jahrhunderts, Heft I." Vienna, 1900.
- Midland counties miners' permanent relief fund friendly society.** Rules, 1896. Annual reports for 1899 and 1903. Chesterfield (England).
- Midland District miners' fatal accident relief society.** Actuarial report to the society for the quinquennial period to the 31st of December, 1897. Rules, 1894. Annual reports for 1899 and 1903. Derby (England).
- Monmouthshire and South Wales miners' permanent provident society.** Annual reports for 1899 and 1903. Aberdare (Wales).
- Musée social.** Mémoires et documents. Les résultats de la loi belge sur les retraites ouvrières. Paris, 1902.
- Musée social.** Mémoires et documents. Quelques pages d'histoire syndicale belge. Paris, 1902.
- North Staffordshire coal and ironstone workers' permanent relief society.** Rules, 1894. Annual reports for 1899 and 1903. Stoke-upon-Trent (England).
- Northumberland and Durham miners' permanent relief fund friendly society.** Rules, 1899. Annual reports for 1899 and 1903. Newcastle-upon-Tyne (England).
- North Wales permanent relief society.** Rules, 1890. Annual reports for 1900 and 1904. Wrexham (Wales).
- Oesterreichische Zeitschrift für Berg- und Hüttenwesen.** Weekly periodical. 1900.

- Oldenberg, K. Arbeitseinstellungen in Deutschland seit Aufhebung der Koalitionsverbote. Article in Conrad's "Handwörterbuch der Staatswissenschaften," second edition.
- Pechar, Joh. Coal and iron in all countries of the world. 1878.
- Pieper, Dr. Lorenz. Die Lage der Bergarbeiter im Ruhrrevier. Stuttgart, 1903.
- Roth, Dr. Wilhelm. Zur Reform der Unfallversicherung. Frankfurt-on-the-Main, 1897.
- Saarbrücker Knappschaftsverein. Berechnung der laufenden Belastung des saarbrücker Knappschaftsvereins durch die Invalidenpensionen, Wittwen- und Waisen-Unterstützungen. Saarbrück, 1885.
- Saarbrücker Knappschaftsverein. Berechnung des Betrags für die Pensionskasse des saarbrücker Knappschaftsvereins. Saarbrück, 1895.
- Saarbrücker Knappschaftsverein. Jahresberichte. Annual reports for the years 1893 to 1900. Saarbrück.
- Saarbrücker Knappschaftsverein. Statut für den saarbrücker Knappschaftsverein von Februar 1, 1900. Saarbrück, 1900.
- Simon. Geschichte und Statistik der Wurm Knappschaft. Berlin, 1890.
- Smith, Charles Manley. A treatise on the law of master and servant. London, 1902.
- Soetbeer, H. Arbeitseinstellungen in Belgien. Article in Conrad's "Handwörterbuch der Staatswissenschaften," second edition.
- Stöger, O. Gesetze und Verordnungen über die Arbeiterversicherung von Oesterreich. Vienna, 1896.
- Thorncliffe and Rockingham permanent relief society. Rules. Annual reports for 1900 and 1904. Wakefield (England).
- Vandervelde, Émile. Enquête sur les associations professionnelles d'artisans et ouvriers en Belgique. Brussels, 1891.
- Vereinigte Berg- und Hütten-Bruderlade des ärarischen Montanwerkes Brixlegg. Statut. Imst (Austria), 1895.
- Webb, Sidney and Beatrice. The history of trade unionism. London, 1902.
- Westfälische Bergwerkschaftskasse. Bericht über die Verwaltung der westfälischen Bergwerkschaftskasse. Annual reports for the years 1867 to 1900. Bochum.
- Westfälische Bergwerkschaftskasse. Rückblick auf 25 Jahre berggewerkschaftlicher Selbstverwaltung (1864-1889). Appendix to "Bericht über die Verwaltung," etc., for the year 1890. Bochum.
- Westfälische Bergwerkschaftskasse. Statut, in der am 11 August 1891 genehmigten Fassung. Bochum, 1891.
- West Riding of Yorkshire miners' permanent relief fund friendly society. Rules, 1899. Annual reports for 1899 and 1903.

Williquet, C., et Hubert, H. Code de l'industrie des mines. Mons (Belgium), 1899.

Willoughby, W. F. Workingmen's insurance. New York, 1898.

Zacher, Dr. Die Arbeiterversicherung im Auslande, Erster Band. Berlin, 1900.

Zacher, Dr. Leitfaden zur Arbeiterversicherung des Deutschen Reichs. Berlin, 1904.

Zechner, F. Leitfaden für den Unterricht im oesterreichischen Bergrechte. Vienna, 1890.

Some information was also obtained by correspondence.

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**CHAPTER I.**

**COAL MINE LABOR IN AUSTRIA.**



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## CHAPTER I.

### COAL MINE LABOR IN AUSTRIA.

#### OUTPUT, VALUE, AND DISTRIBUTION OF PRODUCT.

The coal fields of Austria, with one exception, are small and in many cases difficult to work. The coal, however, is of a quality well adapted for use in the smelting industry. The fields extend along a line running east and west from the vicinity of Pilsen, Bohemia, eastward through Silesia and into Galicia, to the Russian frontier. Other coal fields are in Moravia and in south and southeast Hungary. The coal supply of Austria is not sufficient for the demand, and about one-half of the coal consumed is imported.

The lignite deposits of Austria are among the richest in Europe, being easily worked and almost inexhaustible. The lignite is well adapted for domestic use, for steam, for the manufacture of pig iron and steel, and for the reduction of lead ores. The most important lignite field is along the southern slope of the Erzgebirge, Bohemia. Less extensive deposits are found along the eastern slope of the Alps, particularly in Styria and Carniola and in Transylvania and Hungary proper.

Coal and lignite mining has been carried on in Austria since the sixteenth century, the first lignite mine of which there is any record having been opened in Bohemia in 1550 and the first coal mine in 1580. In Styria, Lower Austria, and Moravia mines were opened in the seventeenth and eighteenth centuries, and in the other provinces in more recent years. Until the introduction of railroads the coal and lignite served to supply only a very insignificant local demand; besides, owing to the abundant forests, there was not much occasion to use mineral fuel. When railways and factories were introduced and coke came to be used in the manufacture of pig iron, coal and lignite mining operations rapidly increased in Austria as in the other coal-producing countries.

The Governments of Austria and Hungary publish separate official reports, and it was impracticable to combine the statistics of these two countries. The statistical material presented in the Austrian reports and here summarized relates only to the provinces of Austria,

exclusive of Bosnia and Herzegovina. As the coal and lignite production of Hungary is but small in comparison with the other countries considered in this report, it has been omitted from this compilation except in the tables showing coal and lignite exports and imports.

In the list of coal and lignite producing countries Austria ranks immediately after Germany. The lignite production is about double that of coal. The former is produced mostly in Bohemia. The coal output is obtained mainly from the two provinces of Silesia and Bohemia.

Statistics of coal and lignite production until recent years have been meager. In 1875 the Austrian ministry of agriculture began the publication of mine statistics, and since that time the data published have been of such a character that an almost complete record can be given of all important information concerning coal and lignite production.

The following table shows the total annual production of coal and lignite in Austria during each year, from 1875 to 1903:

PRODUCTION OF COAL AND LIGNITE IN AUSTRIA, 1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. The percentages were computed. A metric ton=2,204.6 pounds.]

Year.	Coal.		Lignite.		Total quantity of coal and lignite produced (metric tons).
	Total product (metric tons).	Per cent of increase over preceding year.	Total product (metric tons).	Per cent of increase over preceding year.	
1875.....	4,549,624	1.75	6,851,266	6.89	11,400,890
1876.....	4,934,385	8.46	6,933,382	1.20	11,867,717
1877.....	4,835,863	a .98	7,126,019	2.78	12,011,882
1878.....	5,078,219	3.94	7,241,103	1.61	12,319,322
1879.....	5,378,605	5.92	7,906,935	9.18	13,284,540
1880.....	5,839,631	9.50	8,420,647	6.51	14,310,278
1881.....	6,343,316	7.70	8,961,498	6.42	15,304,814
1882.....	6,559,002	3.40	8,996,290	.39	15,555,292
1883.....	7,194,096	9.68	9,853,865	9.53	17,047,961
1884.....	7,190,866	a .04	10,008,653	1.57	17,199,519
1885.....	7,378,666	2.61	10,514,153	5.05	17,892,819
1886.....	7,421,278	.58	10,931,352	3.97	18,352,630
1887.....	7,796,151	5.05	11,573,172	5.87	19,369,323
1888.....	8,274,461	6.14	12,860,255	11.12	21,134,716
1889.....	8,592,876	3.85	13,845,863	7.66	22,438,739
1890.....	8,931,065	3.94	15,329,067	10.71	24,260,122
1891.....	9,132,886	2.93	16,183,076	5.57	25,375,961
1892.....	9,241,126	.52	16,190,273	.04	25,431,399
1893.....	9,732,651	5.32	16,815,955	3.86	26,548,606
1894.....	9,572,952	a 1.64	17,332,538	3.07	26,905,490
1895.....	9,722,679	1.56	18,389,147	6.10	28,111,826
1896.....	9,899,522	1.82	18,682,537	2.68	28,782,059
1897.....	10,192,771	5.99	20,458,093	8.34	30,950,864
1898.....	10,947,522	4.33	21,083,361	3.06	32,030,883
1899.....	11,455,139	4.64	21,751,794	3.17	33,206,933
1900.....	10,992,545	a 4.04	21,539,917	a .97	32,532,462
1901.....	11,738,840	6.79	22,473,510	4.33	34,212,350
1902.....	11,045,089	a 5.91	22,139,683	a 1.49	33,184,722
1903.....	11,498,111	4.10	22,157,521	.08	33,655,632

a Decrease.

During the period given the total coal output of Austria increased from 4,549,624 tons in 1875 to 11,498,111 tons in 1903, or 152.7 per cent. The lignite output increased from 6,851,266 tons in 1875 to 22,157,521 tons in 1903, or 223.4 per cent. The table shows that, with few exceptions, there was each year an increased output of coal and of lignite over the year preceding.

The next table shows the total value and the value per metric ton of coal and lignite produced in Austria each year from 1875 to 1903.

TOTAL VALUE AND VALUE PER METRIC TON OF COAL AND LIGNITE PRODUCED IN AUSTRIA, 1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. Conversion of Austrian into United States money was made on the bases of 1 florin or gulden=\$0.4354 in 1875; \$0.4011 in 1876; \$0.3983 in 1877; \$0.4090 in 1878; \$0.4149 in 1879; \$0.4130 in 1880 and 1881; \$0.4069 in 1882; \$0.4055 in 1883; \$0.3993 in 1884; \$0.3896 in 1885; \$0.3862 in 1886; \$0.3844 in 1887; \$0.3918 in 1888; \$0.4071 in 1889; \$0.4193 in 1890; \$0.4167 in 1891; \$0.4079 in 1892; \$0.3931 in 1893; \$0.3902 in 1894; \$0.3992 in 1895; \$0.4050 in 1896; \$0.4067 in 1897; \$0.4046 in 1898; and of 1 crown=\$0.203 in the years 1899 to 1903. The value per metric ton was computed. A metric ton=2,204.6 pounds.]

Year.	Coal.		Lignite.		Total value of coal and lignite.
	Total value.	Value per metric ton.	Total value.	Value per metric ton.	
1875.....	\$8,093,309	\$1.78	\$6,715,825	\$0.98	\$14,809,134
1876.....	7,399,743	1.60	5,906,839	.85	13,306,582
1877.....	6,982,307	1.43	5,770,710	.81	12,753,017
1878.....	7,232,006	1.42	5,656,133	.78	12,888,139
1879.....	7,570,184	1.41	5,932,187	.75	13,502,371
1880.....	7,986,069	1.36	6,350,188	.75	14,336,257
1881.....	8,564,146	1.35	6,616,066	.74	15,180,202
1882.....	8,724,268	1.33	6,891,619	.77	15,615,887
1883.....	9,276,168	1.29	7,415,233	.75	16,691,461
1884.....	9,095,083	1.26	7,219,990	.72	16,315,073
1885.....	8,831,950	1.20	7,113,269	.68	15,945,219
1886.....	8,615,131	1.16	7,212,181	.66	15,827,312
1887.....	8,790,250	1.13	7,296,898	.63	16,087,148
1888.....	9,391,668	1.14	8,126,256	.63	17,517,923
1889.....	10,848,375	1.26	9,306,759	.67	20,155,134
1890.....	12,749,172	1.43	11,589,081	.76	24,338,253
1891.....	13,619,712	1.48	12,821,465	.79	26,441,178
1892.....	12,922,284	1.40	12,276,122	.76	25,198,406
1893.....	13,188,451	1.36	13,284,645	.80	26,473,096
1894.....	12,947,886	1.35	12,599,600	.73	25,547,486
1895.....	13,614,479	1.40	13,941,472	.76	27,555,951
1896.....	14,278,345	1.44	14,672,181	.78	28,950,526
1897.....	15,619,253	1.49	16,302,235	.80	31,921,488
1898.....	16,646,253	1.52	17,597,183	.83	34,243,436
1899.....	18,168,450	1.59	19,318,996	.89	37,487,446
1900.....	19,404,057	1.77	22,864,616	1.06	42,268,673
1901.....	22,260,291	1.90	25,413,075	1.13	47,673,366
1902.....	19,670,725	1.78	22,194,879	1.00	41,865,604
1903.....	19,779,381	1.72	20,377,219	.92	40,156,600

Of the different provinces, Silesia has the largest coal production, 4,912,433 out of a total Austrian output of 11,498,111 metric tons in 1903 being produced in that province. The coal output of Silesia during the period has increased more rapidly than that of any other Austrian province. Bohemia produced 4,114,477 metric tons of coal in 1903. Over four-fifths of the lignite output of Austria in 1902 was produced in Bohemia, where the lignite industry has developed very rapidly during the past twenty years.

The four following tables show the annual production and value of coal and lignite, respectively, in each of the principal coal-producing provinces of Austria from 1875 to 1903:

PRODUCTION OF COAL IN AUSTRIA, BY PRINCIPAL COAL-PRODUCING PROVINCES,  
1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. A metric ton=2,204.6 pounds.]

Year.	Quantity of coal produced (metric tons).					
	Bohemia.	Moravia.	Silesia.	Galicia.	Other provinces.	Total.
1875	2,586,691	481,657	1,123,625	312,459	45,292	4,549,624
1876	2,823,138	485,126	1,246,432	337,376	42,263	4,934,335
1877	2,736,354	497,607	1,318,524	291,909	41,469	4,886,863
1878	2,825,965	489,617	1,452,155	268,621	41,841	5,078,219
1879	2,975,100	552,697	1,526,401	281,697	42,710	5,378,605
1880	3,265,217	638,312	1,624,986	318,505	42,611	5,889,631
1881	3,417,633	792,529	1,749,599	338,910	44,645	6,348,316
1882	3,305,371	908,693	1,958,342	341,805	44,891	6,559,002
1883	3,515,086	1,027,201	2,234,201	378,184	39,424	7,194,096
1884	3,398,539	1,005,817	2,341,444	400,084	44,982	7,190,866
1885	3,389,000	1,032,528	2,460,537	443,650	52,951	7,378,666
1886	3,316,610	1,011,227	2,529,118	509,567	54,756	7,421,278
1887	3,509,312	1,057,411	2,654,166	521,647	53,715	7,796,151
1888	3,715,479	1,059,659	2,935,392	515,236	48,695	8,274,461
1889	3,700,234	1,091,443	3,230,959	519,588	50,652	8,592,876
1890	3,720,655	1,145,137	3,406,165	609,647	49,461	8,931,065
1891	3,791,193	1,168,351	3,536,502	644,672	52,167	9,192,885
1892	3,688,714	1,179,790	3,698,542	632,479	46,601	9,241,126
1893	3,747,998	1,267,238	3,990,053	679,030	48,332	9,732,651
1894	3,709,798	1,368,639	3,740,959	700,660	52,896	9,572,952
1895	3,864,108	1,444,019	3,608,751	760,031	44,870	9,722,679
1896	3,912,023	1,419,586	3,745,953	772,531	49,429	9,899,522
1897	4,033,277	1,419,359	4,190,924	800,752	48,459	10,492,771
1898	4,043,394	1,509,378	4,548,344	794,132	52,274	10,947,522
1899	4,070,383	1,613,669	4,805,709	910,652	54,726	11,455,139
1900	3,590,671	1,478,957	4,697,091	1,166,633	59,193	10,992,545
1901	4,005,135	1,665,440	5,017,451	987,855	62,559	11,738,840
1902	3,807,784	1,512,592	4,799,239	864,353	61,071	11,045,039
1903	4,114,477	1,597,762	4,912,433	815,532	57,907	11,498,111

PRODUCTION OF LIGNITE IN AUSTRIA, BY PRINCIPAL LIGNITE-PRODUCING PROVINCES,  
1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. A metric ton=2,204.6 pounds.]

Year.	Quantity of lignite produced (metric tons).					Total.
	Bohemia.	Upper Austria.	Styria.	Carniola.	Other provinces.	
1875	4,638,003	258,453	1,547,336	138,659	268,515	6,851,266
1876	4,841,310	283,841	1,454,076	122,163	281,992	6,933,382
1877	5,011,194	282,025	1,447,861	150,929	234,010	7,126,019
1878	5,182,708	275,841	1,400,854	115,058	266,642	7,241,103
1879	5,764,754	266,210	1,490,324	108,324	276,323	7,905,935
1880	6,186,965	262,812	1,567,497	108,951	294,422	8,420,647
1881	6,592,336	271,633	1,640,155	123,367	334,007	8,961,498
1882	6,496,560	264,673	1,757,404	130,400	347,253	8,996,290
1883	7,204,689	268,438	1,920,506	115,340	341,892	9,853,865
1884	7,329,066	275,497	1,940,804	110,148	345,118	10,008,653
1885	7,810,379	262,980	1,971,366	134,021	335,407	10,514,158
1886	8,351,530	267,972	1,861,295	120,936	326,619	10,931,352
1887	8,926,975	307,417	1,890,887	122,669	319,224	11,573,172
1888	10,033,403	355,428	2,070,874	98,809	301,741	12,860,255
1889	10,946,495	365,415	2,120,844	111,057	300,052	13,845,863
1890	12,190,932	378,103	2,270,023	147,476	342,523	15,329,057
1891	12,956,304	387,395	2,320,994	149,062	369,321	16,183,076
1892	13,153,998	363,135	2,171,186	136,173	365,781	16,190,273
1893	13,548,093	371,918	2,320,980	180,431	387,583	16,815,956
1894	14,038,881	374,002	2,260,575	231,436	427,144	17,332,528
1895	14,939,682	390,026	2,400,192	247,052	405,295	18,389,147
1896	15,386,710	389,890	2,430,734	233,866	433,847	18,882,537
1897	16,921,052	387,878	2,440,307	235,612	467,244	20,458,093
1898	17,375,179	403,751	2,500,001	247,768	547,662	21,083,361
1899	17,959,856	363,332	2,620,587	244,801	560,019	21,751,794
1900	17,359,962	418,696	2,800,891	281,554	676,824	21,539,917
1901	18,346,867	424,027	2,720,911	287,173	688,932	22,473,510
1902	18,262,592	385,158	2,580,233	255,719	650,981	22,139,683
1903	18,362,470	406,392	2,500,038	248,119	639,902	22,157,521

TOTAL VALUE AND VALUE PER METRIC TON OF COAL PRODUCED IN AUSTRIA, BY  
PRINCIPAL COAL-PRODUCING PROVINCES, 1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. For bases used in converting Austrian into United States money see page 27. The value per metric ton was computed. A metric ton = 2,204.6 pounds.]

Year.	Bohemia.		Moravia.		Silcsia.	
	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value.	Value per metric ton.
1875	\$1,213,860	\$1.63	\$1,065,098	\$2.25	\$2,233,906	\$1.99
1876	3,930,541	1.39	977,377	2.01	1,977,178	1.59
1877	3,466,724	1.27	960,201	1.97	2,081,320	1.68
1878	3,535,256	1.25	964,154	1.97	2,286,439	1.67
1879	3,775,932	1.27	1,055,319	1.91	2,332,729	1.58
1880	4,070,725	1.25	1,159,779	1.82	2,360,991	1.45
1881	4,212,311	1.23	1,400,480	1.77	2,528,123	1.44
1882	4,108,524	1.24	1,547,038	1.70	2,684,781	1.37
1883	4,322,710	1.23	1,604,158	1.56	2,961,957	1.38
1884	4,145,181	1.22	1,530,594	1.52	3,030,974	1.29
1885	3,868,347	1.14	1,486,961	1.44	3,101,795	1.26
1886	3,710,488	1.12	1,428,130	1.41	3,049,007	1.21
1887	3,749,136	1.07	1,476,404	1.40	3,135,579	1.18
1888	3,967,134	1.07	1,493,536	1.41	3,525,287	1.20
1889	4,465,495	1.21	1,686,502	1.65	4,254,770	1.32
1890	5,066,518	1.36	2,130,878	1.86	4,998,432	1.47
1891	5,219,113	1.38	2,198,090	1.88	5,607,675	1.59
1892	4,539,774	1.23	2,151,639	1.82	5,656,879	1.53
1893	4,770,684	1.27	2,115,033	1.67	5,716,660	1.43
1894	4,630,675	1.25	2,206,839	1.61	5,509,501	1.47
1895	4,997,868	1.29	2,441,481	1.69	5,535,171	1.53
1896	5,111,485	1.31	2,544,498	1.79	5,944,660	1.59
1897	5,605,124	1.39	2,542,909	1.79	6,748,359	1.61
1898	5,750,016	1.42	2,709,415	1.80	7,460,590	1.64
1899	6,056,867	1.49	2,937,448	1.82	8,226,942	1.71
1900	6,147,131	1.71	2,994,965	2.03	8,795,502	1.87
1901	7,384,254	1.84	3,676,756	2.21	10,044,429	2.00
1902	6,363,618	1.67	3,147,679	2.08	9,173,756	1.91
1903	6,596,295	1.60	3,136,073	1.96	9,144,500	1.86

Year.	Gallicia.		Other provinces.		Total.	
	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value.	Value per metric ton.
1875	\$425,903	\$1.36	\$134,545	\$2.97	\$8,093,309	\$1.78
1876	398,917	1.18	115,730	2.74	7,399,743	1.50
1877	347,567	1.19	106,495	2.57	6,982,307	1.43
1878	335,425	1.25	110,732	2.65	7,232,006	1.42
1879	293,140	1.04	113,064	2.65	7,570,184	1.41
1880	279,655	.88	114,919	2.70	7,986,069	1.36
1881	301,961	.89	121,268	2.72	8,564,146	1.35
1882	261,328	.76	122,697	2.73	8,724,268	1.33
1883	274,473	.73	112,870	2.86	9,276,168	1.29
1884	270,915	.68	117,419	2.61	9,095,083	1.26
1885	257,146	.58	117,601	2.22	8,831,850	1.20
1886	307,679	.60	119,827	2.19	8,615,131	1.16
1887	309,807	.59	119,324	2.22	8,790,250	1.13
1888	293,806	.57	111,805	2.30	9,391,568	1.14
1889	317,600	.61	124,008	2.45	10,848,375	1.26
1890	420,248	.69	131,096	2.65	12,747,172	1.43
1891	465,772	.72	134,062	2.57	13,619,712	1.48
1892	455,646	.72	118,346	2.54	12,922,284	1.40
1893	467,066	.69	119,008	2.46	13,188,451	1.36
1894	471,516	.67	129,355	2.45	12,947,886	1.35
1895	534,083	.70	105,876	2.36	13,614,479	1.40
1896	553,189	.72	124,513	2.52	14,278,245	1.44
1897	601,113	.75	121,753	2.51	15,619,258	1.49
1898	594,109	.75	132,123	2.53	16,646,253	1.52
1899	809,169	.89	138,124	2.52	18,168,550	1.59
1900	1,294,192	1.11	173,167	2.93	19,404,957	1.77
1901	977,620	.99	177,232	2.83	22,260,291	1.90
1902	816,423	.94	169,249	2.77	19,670,725	1.78
1903	750,171	.92	152,342	2.63	19,779,381	1.72



TOTAL VALUE AND VALUE PER METRIC TON OF LIGNITE PRODUCED IN AUSTRIA, BY PRINCIPAL LIGNITE-PRODUCING PROVINCES, 1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. For bases used in converting Austrian into United States money see page 27. The value per metric ton was computed. A metric ton = 2,204.6 pounds.]

Year.	Bohemia.		Upper Austria.		Styria.	
	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value.	Value per metric ton.
1875	\$3,291,825	\$0.71	\$310,182	\$1.20	\$2,417,279	\$1.56
1876	3,066,398	.68	292,557	1.03	2,021,618	1.39
1877	2,904,760	.68	289,048	1.02	2,007,907	1.39
1878	2,859,761	.56	267,765	.97	1,981,964	1.38
1879	3,088,394	.54	260,220	.98	1,933,191	1.30
1880	3,428,173	.55	255,917	.97	1,986,944	1.27
1881	3,656,822	.55	262,772	.97	1,918,844	1.17
1882	3,721,680	.57	251,240	.95	2,121,454	1.21
1883	4,075,945	.57	254,758	.95	2,305,917	1.20
1884	4,053,891	.55	257,813	.94	2,173,552	1.12
1885	3,996,026	.51	240,485	.91	2,133,184	1.08
1886	4,287,094	.51	241,419	.90	1,997,993	1.07
1887	4,392,176	.49	278,743	.89	1,974,287	1.04
1888	5,033,851	.50	324,841	.91	2,169,829	1.05
1889	5,984,664	.55	345,070	.94	2,326,817	1.10
1890	7,674,388	.68	367,045	.97	2,741,595	1.21
1891	8,685,814	.67	372,980	.96	2,904,038	1.25
1892	8,430,363	.64	340,362	.94	2,707,616	1.25
1893	9,362,543	.69	335,461	.90	2,822,941	1.21
1894	8,617,428	.61	335,033	.89	2,752,439	1.22
1895	9,667,438	.65	357,334	.91	2,992,718	1.24
1896	10,302,362	.67	360,613	.98	3,079,599	1.26
1897	11,612,318	.69	421,965	1.09	3,279,248	1.34
1898	12,697,842	.73	437,210	1.08	3,349,083	1.38
1899	14,132,956	.79	404,792	1.11	3,592,873	1.37
1900	17,032,079	.98	499,894	1.19	3,935,199	1.40
1901	19,879,196	1.06	523,281	1.23	4,050,857	1.49
1902	16,657,614	.91	509,838	1.32	3,686,884	1.43
1903	15,122,042	.82	539,873	1.33	3,459,051	1.38

Year.	Carniola.		Other provinces.		Total.	
	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value.	Value per metric ton.
1875	\$181,815	\$1.31	\$514,724	\$1.91	\$6,715,825	\$0.98
1876	138,568	1.13	387,803	1.67	5,906,839	.85
1877	163,571	1.08	410,429	1.75	5,775,710	.81
1878	124,677	1.08	471,966	1.77	5,656,133	.78
1879	126,887	1.17	523,595	1.89	5,932,187	.75
1880	133,658	1.23	545,496	1.85	6,350,188	.75
1881	152,361	1.24	625,257	1.87	6,616,056	.74
1882	164,215	1.26	633,030	1.82	6,891,619	.77
1883	144,671	1.25	634,007	1.85	7,415,293	.75
1884	147,799	1.34	586,985	1.70	7,219,990	.72
1885	167,907	1.25	675,767	1.72	7,113,369	.68
1886	147,900	1.22	587,775	1.65	7,212,181	.66
1887	147,162	1.20	509,530	1.60	7,296,898	.63
1888	120,207	1.22	477,627	1.58	8,126,355	.63
1889	130,731	1.18	519,477	1.73	9,306,759	.67
1890	192,169	1.30	613,984	1.79	11,589,081	.76
1891	205,978	1.38	652,706	1.77	12,821,466	.79
1892	180,064	1.32	618,117	1.69	12,276,522	.76
1893	209,497	1.16	654,203	1.69	13,384,645	.80
1894	225,295	.97	669,365	1.57	12,599,560	.73
1895	247,678	1.00	676,304	1.67	13,941,472	.76
1896	236,537	1.01	693,170	1.60	14,672,181	.78
1897	242,634	1.03	746,150	1.60	16,302,335	.80
1898	251,334	1.01	861,714	1.57	17,597,183	.83
1899	255,275	1.04	933,100	1.67	19,318,996	.89
1900	300,899	1.07	1,096,545	1.82	22,864,616	1.06
1901	388,047	1.35	1,071,694	1.56	25,413,075	1.13
1902	337,623	1.32	1,002,920	1.54	22,194,879	1.00
1903	319,195	1.29	937,058	1.46	20,377,219	.92



The average value per metric ton of coal at the pit's mouth varied in 1903 from \$0.92 in Galicia to \$9.48 in Styria. In Silesia and Bohemia, where the bulk of the coal was produced, the average value was \$1.86 and \$1.60 per metric ton, respectively. The average value for Austria, as a whole, was \$1.72 per ton in 1903.

The average value of lignite in 1903 ranged from \$0.76 per metric ton in Moravia to \$2.99 per metric ton in Tyrol. In Bohemia the average value was \$0.82 in 1903. The average value for Austria in the same year was \$0.92 per metric ton.

Statistics of coal and lignite exports and imports can not be shown for Austria alone, as in the official reports they are given for the Austro-Hungarian customs territory.

Data are not available which will permit an accurate computation of the home consumption of coal, because the exact amount of coal entering into the imports and exports of coke and other fuels made from coal can not be ascertained.

The following table shows the quantity of coal produced in Austria and Hungary and the quantity of coal and coke imported into and exported from the Austro-Hungarian customs territory during the years 1887 to 1903:

PRODUCTION OF COAL IN AUSTRIA AND IN HUNGARY AND QUANTITY OF COAL AND COKE IMPORTED INTO AND EXPORTED FROM THE AUSTRO-HUNGARIAN CUSTOMS TERRITORY, 1887 TO 1903.

[Source: Austria—Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1887-1903; Hungary—Ungarisches Statistisches Jahrbuch, 1893-1903; Austro-Hungarian customs territory—Oesterreichisches Statistisches Handbuch, Jahrg. IX-XXII. A metric ton = 2,204.6 pounds.]

Year.	Coal production (metric tons).			Coal and coke imported into Austro-Hungarian customs territory (metric tons).		Coal and coke exported from Austro-Hungarian customs territory (metric tons).	
	Austria.	Hungary.	Total.	Coal.	Coke.	Coal.	Coke.
1887.....	7,796,151	786,408	8,582,559	2,727,737	119,575	682,006	26,095
1888.....	8,274,461	850,691	9,125,152	3,085,321	141,423	692,196	30,969
1889.....	8,592,876	937,452	9,530,328	3,222,380	194,006	761,474	40,833
1890.....	8,931,065	994,812	9,925,877	3,389,284	226,823	590,543	67,019
1891.....	9,192,865	1,019,352	10,212,237	3,672,820	248,526	713,069	73,453
1892.....	9,241,126	1,062,214	10,293,340	3,352,131	254,000	658,667	87,745
1893.....	9,732,651	982,798	10,715,449	3,840,874	309,861	648,424	108,576
1894.....	9,572,952	1,037,322	10,610,274	4,048,267	437,259	629,670	110,460
1895.....	9,732,679	1,068,046	10,790,725	4,502,744	533,380	640,963	119,051
1896.....	9,899,522	1,132,624	11,032,147	5,174,000	490,963	658,868	116,806
1897.....	10,492,771	1,118,024	11,610,795	5,121,439	533,448	701,919	145,056
1898.....	10,947,522	1,239,499	12,187,021	5,396,758	606,783	824,730	194,289
1899.....	11,455,189	1,238,855	12,693,994	5,296,670	564,001	879,237	252,971
1900.....	10,932,545	1,367,190	12,359,735	6,242,926	620,740	815,097	262,793
1901.....	11,738,840	1,315,916	13,054,756	5,827,259	612,208	748,802	303,651
1902.....	11,045,039	1,036,927	12,143,966	5,765,979	547,336	691,680	234,911
1903.....	11,498,111	1,170,791	12,668,902	5,907,660	519,281	754,967	280,398

Austria-Hungary, unlike the other leading coal-producing countries except France, imports much more coal than it exports. The bulk of the imported coal is obtained from Germany.

The next table shows in the same way the production, imports, and exports of lignite:

[www.libtool.com.cn](http://www.libtool.com.cn)

PRODUCTION OF LIGNITE IN AUSTRIA AND IN HUNGARY AND QUANTITY OF LIGNITE IMPORTED INTO AND EXPORTED FROM THE AUSTRO-HUNGARIAN CUSTOMS TERRITORY, 1887 TO 1903.

[Source: Austria—Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1887-1903; Hungary—Ungarisches Statistisches Jahrbuch, 1893-19 3; Austro-Hungarian customs territory—Oesterreichisches Statistisches Handbuch, Jahrg. IX-XXII. A metric ton = 2,204.6 pounds.]

Year.	Lignite production (metric tons).			Lignite imported into the Austro- Hungarian customs ter- ritory (metric tons).	Lignite exported from the Austro- Hungarian customs ter- ritory (metric tons).
	Austria.	Hungary.	Total.		
1887.....	11,573,172	1,723,441	13,296,613	27,445	4,039,888
1888.....	12,860,255	1,874,201	14,734,456	36,842	5,397,378
1889.....	13,845,863	1,952,226	15,798,089	6,870	5,739,759
1890.....	15,329,057	2,252,226	17,581,283	12,202	6,745,592
1891.....	16,183,076	2,427,926	18,611,002	15,228	6,900,255
1892.....	16,190,273	2,554,365	18,744,638	18,338	6,748,844
1893.....	16,815,953	2,917,899	19,733,854	20,111	6,768,186
1894.....	17,332,538	3,175,056	20,507,594	16,613	6,902,404
1895.....	18,389,147	3,474,905	21,864,052	15,826	7,143,234
1896.....	18,882,537	3,761,728	22,644,265	18,717	7,562,721
1897.....	20,438,098	3,870,530	24,308,628	18,898	8,106,975
1898.....	21,083,361	4,516,581	25,599,942	20,111	8,351,955
1899.....	21,751,794	4,292,584	26,044,378	20,131	8,672,788
1900.....	21,539,917	5,128,277	26,668,194	67,397	7,864,409
1901.....	22,473,510	5,178,256	27,651,766	21,807	8,076,575
1902.....	22,139,683	5,103,237	27,242,920	29,045	7,888,218
1903.....	22,157,521	5,227,065	27,384,606	30,007	8,027,347

In the case of lignite the imports are insignificant when compared with the exports. The exports were almost entirely to the German Empire.

### EMPLOYEES.

The statistics of coal mine employees in Austria relate only to wage-workers exclusive of salaried employees. In 1903 there were 66,663 persons employed in coal mines and 55,065 persons in lignite mines in Austria (exclusive of Bosnia and Herzegovina). This is an increase in 28 years of 89 per cent in the case of coal miners and of 107 per cent in the case of lignite miners. The annual production per coal mine worker increased from 129 metric tons in 1875 to 172.5 metric tons in 1903, while that of the lignite miners increased from 257.3 in 1875 to 402.4 in 1903.

The following table shows, by years, the average number of wage-workers employed in the coal and lignite mines of Austria and the amount and value of the product per wageworker from 1875 to 1903:

NUMBER OF EMPLOYEES, ANNUAL PRODUCT PER EMPLOYEE, AND VALUE OF ANNUAL PRODUCT PER EMPLOYEE IN COAL AND LIGNITE MINES IN AUSTRIA, 1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. The product per employee and the value of product per employee were computed. Salaried employees are not included. A metric ton = 2,204.6 pounds.]

Year.	Coal mines.			Lignite mines.			Coal and lignite mines.
	Employees.	Product per employee (metric tons).	Value of product per employee.	Employees.	Product per employee (metric tons).	Value of product per employee.	Employees.
1875.....	35,274	129.0	\$229.44	26,625	257.3	\$252.24	61,899
1876.....	36,383	135.6	203.38	26,270	263.9	224.85	62,653
1877.....	36,426	134.1	191.68	26,289	271.1	219.70	62,715
1878.....	36,192	140.3	199.82	26,342	274.9	214.72	62,534
1879.....	35,990	149.4	210.34	27,165	291.0	218.38	63,155
1880.....	36,532	161.2	218.60	29,020	290.2	218.82	65,552
1881.....	37,113	170.9	230.76	29,083	308.1	227.49	66,196
1882.....	37,872	173.2	230.36	29,422	305.8	234.23	67,294
1883.....	39,694	181.2	233.69	30,045	328.0	246.81	69,739
1884.....	40,707	176.6	223.43	30,920	323.7	233.51	71,627
1885.....	40,994	180.0	215.44	31,540	333.4	225.53	72,534
1886.....	41,981	176.8	205.22	31,826	343.5	226.61	73,807
1887.....	42,643	182.8	206.14	32,459	356.5	224.80	75,102
1888.....	43,680	189.7	215.25	33,296	386.2	244.06	76,926
1889.....	45,816	187.6	236.78	35,254	392.7	263.99	81,070
1890.....	48,748	183.2	261.58	39,508	388.0	298.34	88,256
1891.....	51,241	179.4	265.80	42,924	377.0	298.70	94,165
1892.....	51,691	178.8	249.99	43,115	375.5	284.74	94,806
1893.....	52,459	185.5	251.40	43,512	386.5	307.61	95,971
1894.....	53,751	178.1	240.89	44,239	391.8	284.81	97,990
1895.....	54,563	178.2	249.52	45,182	407.0	306.56	99,745
1896.....	55,926	177.0	255.31	45,976	410.7	319.13	101,902
1897.....	58,067	180.7	268.99	48,084	425.5	339.04	106,151
1898.....	60,809	180.0	278.75	49,690	424.3	354.14	110,499
1899.....	62,943	182.0	288.65	50,790	428.3	380.37	113,733
1900.....	67,461	162.9	287.65	54,473	395.4	419.74	121,934
1901.....	70,344	166.9	316.45	59,591	377.1	426.46	129,935
1902.....	66,582	165.9	295.44	56,269	393.5	394.44	122,851
1903.....	66,663	172.5	296.71	55,065	402.4	370.06	121,728

The next two tables show the same information for coal and lignite mines, respectively, for each of the principal coal and lignite producing provinces: [www.libtool.com.cn](http://www.libtool.com.cn)

NUMBER OF EMPLOYEES, ANNUAL PRODUCT PER EMPLOYEE, AND VALUE OF ANNUAL PRODUCT PER EMPLOYEE IN COAL MINES IN THE PRINCIPAL COAL-PRODUCING PROVINCES OF AUSTRIA, 1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. The product per employee and the value of product per employee were computed. Salaried employees are not included. A metric ton=2,204.6 pounds.]

Year.	Bohemia.			Moravia.			Silesia.			Galicia.		
	Em- ploy- ees.	Prod- uct per em- ployee (met- ric tons).	Value of prod- uct per em- ployee.	Em- ploy- ees.	Prod- uct per em- ployee (met- ric tons).	Value of prod- uct per em- ployee.	Em- ploy- ees.	Prod- uct per em- ployee (met- ric tons).	Value of prod- uct per em- ployee.	Em- ploy- ees.	Prod- uct per em- ployee (met- ric tons).	Value of prod- uct per em- ployee.
1875 ...	18,973	136.3	\$222.10	3,708	129.9	\$292.64	9,628	116.7	\$232.02	2,081	153.8	\$209.70
1876 ...	20,726	136.2	189.64	3,631	133.6	269.18	9,385	132.1	210.67	1,824	185.0	218.70
1877 ...	20,160	135.7	171.96	3,693	134.7	265.42	10,029	131.5	207.63	1,937	150.7	179.44
1878 ...	19,439	145.4	181.86	3,539	138.3	272.44	10,596	137.0	215.78	2,061	181.0	163.54
1879 ...	18,966	156.9	199.09	3,789	145.9	278.52	11,136	137.1	209.48	1,552	181.5	188.88
1880 ...	18,482	176.7	220.25	3,946	161.8	293.91	11,923	136.3	196.02	1,647	193.4	169.80
1881 ...	18,832	181.5	223.68	4,124	192.2	339.59	11,832	147.9	213.67	1,760	192.6	171.57
1882 ...	18,513	178.5	221.98	4,651	195.4	332.62	12,700	154.2	211.40	1,397	244.7	187.06
1883 ...	18,751	187.5	230.53	4,976	206.4	322.38	13,923	160.5	212.74	1,490	256.5	185.45
1884 ...	19,115	177.8	216.85	5,190	193.8	294.91	14,409	162.5	210.35	1,415	282.7	191.46
1885 ...	18,705	181.2	206.81	5,134	201.1	289.63	14,840	165.8	209.02	1,728	256.7	148.81
1886 ...	18,680	177.5	198.63	5,023	201.3	284.32	15,872	159.3	192.10	1,832	278.1	167.96
1887 ...	18,923	185.4	198.13	5,067	209.1	291.95	16,242	163.4	193.06	1,862	281.7	167.28
1888 ...	19,456	191.0	203.90	5,253	201.7	284.32	16,451	178.4	214.29	1,940	265.6	151.45
1889 ...	20,466	180.8	218.19	5,470	199.5	308.32	17,506	184.6	245.05	1,838	282.7	172.80
1890 ...	21,268	174.9	238.22	6,175	185.4	345.08	18,840	180.8	265.31	1,952	312.3	215.29
1891 ...	21,612	175.4	241.49	6,745	173.2	325.14	20,197	175.1	277.65	2,127	303.1	218.98
1892 ...	20,576	179.3	220.63	6,850	172.2	314.11	21,725	170.0	260.39	2,025	316.2	227.82
1893 ...	20,462	188.3	233.26	7,005	180.9	301.93	22,475	177.5	254.36	2,025	335.3	230.65
1894 ...	19,801	187.4	233.86	7,937	172.4	278.04	23,290	160.6	236.56	2,171	322.7	217.19
1895 ...	19,986	198.3	250.07	8,320	173.7	293.45	23,294	154.9	232.62	2,468	308.0	216.40
1896 ...	19,543	200.2	261.55	8,996	157.8	282.85	24,158	155.1	246.07	2,710	285.1	204.13
1897 ...	19,950	202.2	280.96	9,710	146.2	261.89	25,086	167.1	269.01	2,844	281.6	211.36
1898 ...	20,590	196.4	279.26	10,212	147.8	265.32	26,560	171.2	280.90	2,878	275.9	206.43
1899 ...	20,988	194.0	288.66	10,676	151.1	275.14	27,499	174.8	299.17	3,142	289.8	257.53
1900 ...	22,233	161.5	276.49	11,353	130.3	263.80	29,027	161.8	303.01	4,173	279.6	310.13
1901 ...	22,768	175.9	324.33	11,750	141.8	312.92	31,028	161.7	323.72	4,056	243.6	241.03
1902 ...	21,503	177.1	295.94	11,015	187.3	285.76	29,720	161.5	303.67	3,698	233.7	220.77
1903 ...	22,344	184.1	295.22	10,833	147.5	289.49	28,987	169.5	315.47	3,914	208.4	191.66

NUMBER OF EMPLOYEES, ANNUAL PRODUCT PER EMPLOYEE, AND VALUE OF ANNUAL PRODUCT PER EMPLOYEE IN LIGNITE MINES IN THE PRINCIPAL LIGNITE-PRODUCING PROVINCES OF AUSTRIA, 1875 TO 1903.

[www.libtool.com.cn](http://www.libtool.com.cn)

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. The product per employee and the value of product per employee were computed. Salaried employees are not included. A metric ton=2,204.6 pounds.]

Year.	Bohemia.			Upper Austria.			Styria.			Carniola.		
	Em- ploy- ees.	Prod- uct per em- ployee (metric tons).	Value of prod- uct per em- ployee.	Em- ploy- ees.	Prod- uct per em- ployee (metric tons).	Value of prod- uct per em- ployee.	Em- ploy- ees.	Prod- uct per em- ployee (metric tons).	Value of prod- uct per em- ployee.	Em- ploy- ees.	Prod- uct per em- ployee (metric tons).	Value of prod- uct per em- ployee.
1875 ...	13,431	345.3	\$245.09	1,106	233.7	\$280.45	8,041	192.4	\$300.62	878	157.9	\$207.08
1876 ...	13,587	356.3	225.69	1,220	232.7	239.80	7,925	183.5	255.08	695	175.8	199.38
1877 ...	13,253	378.1	219.18	1,312	215.0	220.31	7,961	181.4	251.59	816	185.0	200.45
1878 ...	13,645	379.8	209.58	1,365	202.1	196.16	7,608	184.1	253.94	732	157.2	170.32
1879 ...	14,042	410.5	219.93	1,202	221.5	216.45	7,833	190.3	246.80	625	173.3	203.02
1880 ...	14,829	417.2	231.18	1,160	226.6	220.62	8,787	178.4	226.12	678	160.7	197.14
1881 ...	15,828	416.5	231.04	1,138	238.7	230.91	8,002	205.0	239.80	669	184.4	227.74
1882 ...	15,446	420.6	240.95	1,157	228.8	217.15	8,583	204.8	247.17	642	208.1	255.79
1883 ...	16,004	450.2	254.68	1,117	240.3	228.07	8,813	218.3	261.65	617	186.9	234.47
1884 ...	16,579	442.1	244.52	1,127	244.4	228.76	9,255	210.6	234.85	575	191.6	257.04
1885 ...	17,151	455.4	232.99	1,071	245.5	224.54	9,498	207.7	224.71	601	223.0	279.38
1886 ...	17,886	466.9	239.69	1,028	260.7	234.84	9,269	201.1	215.56	666	181.6	222.07
1887 ...	18,815	474.5	233.44	1,085	283.3	252.30	9,146	207.4	215.86	686	178.8	214.52
1888 ...	19,220	522.0	261.91	1,245	285.5	260.92	9,557	216.7	227.04	627	187.5	228.10
1889 ...	20,665	529.7	289.60	1,354	269.9	254.85	9,807	216.5	237.26	591	160.7	189.19
1890 ...	23,352	522.0	328.64	1,474	256.5	249.01	10,753	211.1	254.96	736	200.4	261.10
1891 ...	25,696	504.2	338.02	1,479	261.9	252.15	11,500	201.8	252.53	746	199.8	276.11
1892 ...	25,957	506.8	324.78	1,440	252.2	236.36	11,138	194.9	243.10	916	148.7	196.58
1893 ...	25,963	522.0	360.75	1,423	261.4	235.74	11,235	207.2	251.26	1,116	161.7	187.72
1894 ...	26,487	530.0	325.35	1,435	261.0	233.47	11,620	194.5	236.87	1,029	224.9	218.95
1895 ...	27,383	545.6	353.05	1,505	259.8	237.43	11,785	204.2	253.94	1,114	221.8	222.33
1896 ...	28,563	538.7	360.69	1,502	259.2	240.09	11,423	213.5	269.60	1,012	231.1	233.73
1897 ...	29,866	568.6	398.81	1,670	232.3	252.69	12,113	202.0	270.72	998	236.1	243.12
1898 ...	31,012	560.3	409.45	1,611	250.6	271.39	12,266	204.5	273.04	993	249.5	253.11
1899 ...	31,724	566.1	445.50	1,525	238.4	265.44	12,452	210.7	288.54	1,215	201.5	210.10
1900 ...	33,626	516.3	506.52	1,690	247.7	295.80	13,225	211.9	297.56	1,355	207.8	222.07
1901 ...	38,108	481.4	508.53	1,689	251.4	309.82	13,695	199.0	295.79	1,545	185.9	251.16
1902 ...	36,074	506.3	461.76	1,583	243.3	322.07	12,974	199.3	284.17	1,336	191.4	252.71
1903 ...	35,595	515.9	424.84	1,612	252.1	334.91	12,648	197.7	273.49	1,177	210.8	271.19

In the coal-mining industry the greatest labor efficiency, as measured by the production per wageworker, was found in Galicia, where the average product per employee in 1903 was 208.4 metric tons, valued at \$191.66. Next in order of amount produced was Bohemia, where the average product was 184.1 metric tons, but the value of this product is much greater than that in Galicia, namely, \$295.22. The table on page 34 shows that the average coal production per employee for Austria in 1903 was 172.5 metric tons, valued at \$296.71.

In the lignite industry the average production per employee was greatest in Bohemia in 1903, namely, 515.9 metric tons, valued at \$424.84. In Styria, the only other important lignite-producing province, the average production per employee was 197.7 metric tons, valued at \$273.49. The table on page 34 shows that the average lignite production per employee for the Austrian Empire in 1903 was 402.4 metric tons, valued at \$370.06.

The next table shows the average number of wageworkers in coal and lignite mines, classified according to sex and age:

[www.libtool.com.cn](http://www.libtool.com.cn)

NUMBER OF EMPLOYEES IN COAL AND IN LIGNITE MINES IN AUSTRIA, BY SEX AND AGE GROUPS, 1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums 1875-1903. Salaried employees are not included.]

Year.	Coal.					Lignite.				
	Male adults.	Female adults.	Children.		Total.	Male adults.	Female adults.	Children.		Total.
			Males 14 or under 16 and females 14 or under 18 years.	Males and females under 14 years.				Males 14 or under 16 and females 14 or under 18 years.	Males and females under 14 years.	
1875	31,922	2,402	(a)	(a)	a 960	24,546	1,879	(a)	(a)	a 200
1876	32,968	2,680	(a)	(a)	a 786	24,288	1,780	(a)	(a)	a 252
1877	32,772	2,809	(a)	(a)	a 845	24,194	1,834	(a)	(a)	a 261
1878	32,333	2,738	(a)	(a)	a 1,121	24,243	1,775	(a)	(a)	a 324
1879	32,621	2,627	(a)	(a)	a 742	25,013	1,788	(a)	(a)	a 364
1880	32,845	2,639	(a)	(a)	a 988	26,772	1,859	(a)	(a)	a 389
1881	33,604	2,690	(a)	(a)	a 819	26,964	1,757	(a)	(a)	a 372
1882	34,373	2,874	(a)	(a)	a 625	27,247	1,791	(a)	(a)	a 382
1883	35,830	3,077	(a)	(a)	a 787	27,767	1,885	(a)	(a)	a 393
1884	36,616	3,198	(a)	(a)	a 892	28,609	1,924	(a)	(a)	a 387
1885	37,096	3,203	(a)	(a)	a 686	29,274	1,931	(a)	(a)	a 355
1886	36,432	3,043	2,479	27	2,506	29,488	1,833	399	106	505
1887	36,619	3,406	2,597	21	2,618	29,971	1,798	502	188	690
1888	37,711	3,264	2,657	18	2,655	30,642	1,773	728	153	881
1889	39,215	3,412	3,003	186	3,189	32,684	1,685	884	1	885
1890	41,753	3,340	3,329	126	3,655	36,453	2,019	1,036	.....	1,036
1891	43,594	3,735	3,692	220	3,912	39,845	2,132	947	.....	947
1892	44,000	3,514	4,012	165	4,177	39,900	2,237	977	1	978
1893	45,174	3,780	3,505	.....	3,505	40,328	2,159	1,023	2	1,025
1894	46,951	3,476	3,324	.....	3,324	41,041	2,194	1,064	.....	1,064
1895	47,660	3,413	3,489	1	3,490	41,848	2,214	1,120	.....	1,120
1896	48,793	3,213	3,916	4	3,920	42,536	2,163	1,274	3	1,277
1897	50,304	3,228	3,953	2	3,935	44,771	2,148	1,161	4	1,165
1898	53,333	3,304	4,172	.....	4,172	46,279	2,186	1,212	3	1,215
1899	55,255	3,268	4,420	.....	4,420	47,375	2,286	1,129	.....	1,129
1900	59,190	3,945	4,926	.....	4,926	50,828	2,409	1,234	2	1,236
1901	61,786	3,412	5,146	.....	5,146	55,841	2,571	1,178	1	1,179
1902	59,133	2,975	4,474	.....	4,474	52,761	2,280	1,226	2	1,228
1903	59,698	2,611	4,353	1	4,354	51,469	2,441	1,152	3	1,155

a Prior to the year 1886 employees were grouped as male and female adults and children, and the age limit between children and adults was not stated in the reports. The figures for the period from 1875 to 1885 may not therefore be comparable with those for the period 1886 to 1903.

These figures show a much greater relative increase in the number of male than in female coal and lignite employees. While the number of male adults in coal mines increased 87 per cent during the period from 1875 to 1903, the number of females increased but 9 per cent. In lignite mines the number of males increased 110 per cent and the number of females 30 per cent during the same period.

In both the coal and lignite mines of Austria children under 14 years of age have almost disappeared from the mines since the passage of the law of June 21, 1884, restricting child labor in mines. Since 1886 the number of young persons has increased more rapidly than that of any other class of employees both in the coal and lignite mining industries. Wageworkers employed above and below ground can not be separately shown.

The next two tables give the same information for coal and lignite mine employees, respectively, in each of the principal coal and lignite producing provinces.

NUMBER OF COAL MINE EMPLOYEES IN EACH OF THE PRINCIPAL COAL-MINING PROVINCES OF AUSTRIA, BY SEX AND AGE GROUPS, 1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. Salaried employees are not included.]

Year.	Bohemia.					Moravia.				
	Male adults.	Female adults.	Children.			Male adults.	Female adults.	Children.		
			Males 14 or under 16 and females 14 or under 18 years.	Males and females under 14 years.	Total.			Males 14 or under 16 and females 14 or under 18 years.	Males and females under 14 years.	Total.
1875	16,798	1,276	(a)	(a)	a 904	3,429	277	(a)	(a)	a 2
1876	18,498	1,579	(a)	(a)	a 654	3,347	269	(a)	(a)	a 15
1877	17,808	1,596	(a)	(a)	a 761	3,394	284	(a)	(a)	a 15
1878	16,799	1,596	(a)	(a)	a 1,044	3,219	284	(a)	(a)	a 86
1879	16,937	1,370	(a)	(a)	a 659	3,380	361	(a)	(a)	a 48
1880	16,562	1,237	(a)	(a)	a 683	3,484	417	(a)	(a)	a 45
1881	17,089	1,187	(a)	(a)	a 606	3,651	418	(a)	(a)	a 55
1882	16,874	1,153	(a)	(a)	a 486	4,123	502	(a)	(a)	a 26
1883	16,836	1,277	(a)	(a)	a 688	4,452	489	(a)	(a)	a 35
1884	17,069	1,304	(a)	(a)	a 742	4,657	486	(a)	(a)	a 47
1885	16,970	1,199	(a)	(a)	a 536	4,614	469	(a)	(a)	a 51
1886	16,451	1,079	1,140	10	1,150	4,453	409	161	.....	161
1887	16,585	1,423	915	.....	915	4,325	436	96	.....	296
1888	16,921	1,263	1,272	.....	1,272	4,658	422	173	.....	173
1889	17,773	1,273	1,244	176	1,420	4,782	413	275	.....	275
1890	18,425	1,221	1,502	120	1,622	5,375	480	370	.....	370
1891	18,501	1,324	1,570	217	1,787	5,792	478	477	.....	477
1892	18,012	1,229	1,170	165	1,335	6,021	448	381	.....	381
1893	17,840	1,304	1,306	.....	1,308	6,234	460	311	.....	311
1894	17,541	1,116	1,144	.....	1,144	7,047	492	398	.....	398
1895	17,429	1,136	1,420	1	1,421	7,383	541	396	.....	396
1896	16,940	1,082	1,517	4	1,521	8,098	538	365	.....	365
1897	17,059	1,082	1,807	2	1,809	8,771	510	429	.....	429
1898	17,562	1,136	1,892	.....	1,892	9,276	494	442	.....	442
1899	17,884	1,101	1,998	.....	1,998	9,634	503	539	.....	539
1900	18,904	1,105	2,224	.....	2,224	10,267	501	585	.....	585
1901	19,494	1,213	2,061	.....	2,061	10,611	505	634	.....	634
1902	18,844	1,096	1,563	.....	1,563	10,094	443	478	.....	478
1903	19,902	868	1,584	.....	1,584	9,906	418	510	.....	510

<sup>a</sup> Prior to the year 1886 employees were grouped as male and female adults and children, and the age limit between children and adults was not stated in the reports. The figures for the period from 1875 to 1885 may not therefore be comparable with those for the period 1886 to 1903.



NUMBER OF COAL MINE EMPLOYEES IN EACH OF THE PRINCIPAL COAL-MINING PROVINCES OF AUSTRIA, BY SEX AND AGE GROUPS, 1875 TO 1908—Concluded.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1908.] Salaried employees are not included.]

Year.	Silesia.					Galicia.				
	Male adults.	Female adults.	Children.		Total.	Male adults.	Female adults.	Children.		Total.
			Males 14 or under 16 and females 14 or under 18 years.	Males and females under 14 years.				Males 14 or under 16 and females 14 or under 18 years.	Males and females under 14 years.	
1875	8,993	610	(a)	(a)	a 25	1,809	203	(a)	(a)	a 19
1876	8,712	627	(a)	(a)	a 46	1,684	170	(a)	(a)	a 20
1877	9,245	789	(a)	(a)	a 45	1,731	182	(a)	(a)	a 24
1878	9,916	648	(a)	(a)	a 32	1,840	202	(a)	(a)	a 9
1879	10,348	755	(a)	(a)	a 33	1,417	133	(a)	(a)	a 2
1880	10,793	872	(a)	(a)	a 258	1,480	165	(a)	(a)	a 2
1881	10,803	871	(a)	(a)	a 158	1,554	206			
1882	11,520	1,068	(a)	(a)	a 112	1,254	148			
1883	12,621	1,194	(a)	(a)	a 108	1,371	109			
1884	13,027	1,287	(a)	(a)	a 95	1,296	119			
1885	13,293	1,448	(a)	(a)	a 99	1,641	84	(a)	(a)	a 3
1886	13,288	1,411	1,156	17	1,173	1,672	140	20		20
1887	13,428	1,414	1,379	21	1,400	1,718	130	4		4
1888	13,805	1,454	1,174	18	1,192	1,804	122	14		14
1889	14,431	1,613	1,452	10	1,462	1,700	110	28		28
1890	15,622	1,570	1,642	6	1,648	1,823	116	13		13
1891	16,766	1,802	1,626	3	1,629	1,987	129	11		11
1892	17,547	1,733	2,445		2,445	1,885	101	14		14
1893	18,679	1,926	1,870		1,870	1,928	87	10		10
1894	19,762	1,762	1,766		1,766	2,060	105	6		6
1895	20,001	1,647	1,646		1,646	2,358	88	22		22
1896	20,665	1,492	2,001		2,001	2,579	100	31		31
1897	21,892	1,502	1,692		1,692	2,709	138	2		2
1898	23,174	1,553	1,833		1,833	2,758	120			
1899	24,116	1,511	1,872		1,872	2,983	149	10		10
1900	25,380	1,546	2,101		2,101	3,977	192	4		4
1901	27,277	1,551	2,200		2,200	3,684	137	285		235
1902	26,263	1,316	2,141		2,141	3,300	111	287		287
1903	25,772	1,241	1,973	1	1,974	3,548	85	281		281

a Prior to the year 1886 employees were grouped as male and female adults and children, and the age limit between children and adults was not stated in the reports. The figures for the period from 1875 to 1885 may not therefore be comparable with those for the period 1886 to 1908.



40 SPECIAL REPORT OF THE COMMISSIONER OF LABOR.

NUMBER OF LIGNITE MINE EMPLOYEES IN EACH OF THE PRINCIPAL LIGNITE-MINING PROVINCES OF AUSTRIA, BY SEX AND AGE GROUPS, 1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. Salaried employees are not included.]

Year.	Bohemia.					Upper Austria.				
	Male adults.	Female adults.	Children.			Male adults.	Female adults.	Children.		
			Males 14 or under 16 and females 14 or under 18 years.	Males and females under 14 years.	Total.			Males 14 or under 16 and females 14 or under 18 years.	Males and females under 14 years.	Total.
1875	12,752	632	(a)	(a)	a 47	1,045	40	(a)	(a)	a 21
1876	12,895	613	(n)	(a)	a 79	1,127	53	(a)	(a)	a 40
1877	12,678	497	(a)	(n)	a 78	1,215	53	(a)	(a)	a 44
1878	13,064	495	(a)	(a)	a 86	1,215	58	(a)	(a)	a 92
1879	13,503	467	(a)	(a)	a 72	1,024	76	(a)	(a)	a 102
1880	14,281	457	(a)	(a)	a 91	1,003	65	(a)	(a)	a 92
1881	15,216	520	(a)	(a)	a 92	987	63	(a)	(a)	a 88
1882	14,865	496	(a)	(a)	a 85	1,018	66	(a)	(a)	a 83
1883	15,334	554	(a)	(a)	a 116	981	74	(a)	(a)	a 62
1884	15,927	547	(a)	(a)	a 106	987	68	(n)	(a)	a 72
1885	16,545	535	(a)	(a)	a 71	945	68	(a)	(a)	a 68
1886	17,159	572	51	104	156	917	66	56		65
1887	17,882	620	125	188	313	953	71	61		61
1888	18,288	623	206	153	359	1,063	74	108		108
1889	19,687	648	330		330	1,148	75	131		131
1890	22,120	803	429		429	1,248	104	122		122
1891	24,428	862	406		406	1,245	100	134		134
1892	24,539	934	464		484	1,263	86	91		91
1893	24,482	894	576	1	577	1,289	81	53		53
1894	25,059	869	539		539	1,289	90	56		56
1895	25,866	947	570		570	1,334	96	75		75
1896	26,925	957	681		681	1,343	96	63		63
1897	28,185	955	726		726	1,525	102	43		43
1898	29,294	1,040	678		678	1,478	100	33		33
1899	30,016	1,090	618		618	1,364	109	52		52
1900	31,914	1,085	627		627	1,521	108	61		61
1901	36,229	1,287	592		592	1,547	108	34		34
1902	34,434	1,060	580		580	1,435	114	34		34
1903	33,757	1,239	599		599	1,479	96	37		37

a Prior to the year 1886 employees were grouped as male and female adults and children, and the age limit between children and adults was not stated in the reports. The figures for the period from 1875 to 1885 may not therefore be comparable with those for the period 1886 to 1903.

CHAPTER I.—COAL MINE LABOR IN AUSTRIA. . 41

NUMBER OF LIGNITE MINE EMPLOYEES IN EACH OF THE PRINCIPAL LIGNITE-MINING PROVINCES OF AUSTRIA, BY SEX AND AGE GROUPS, 1875 TO 1903—Concluded.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. Salaried employees are not included.]

Year.	Styria.					Carniola.				
	Male adults.	Female adults.	Children.		Total.	Male adults.	Female adults.	Children.		Total.
			Males 14 or under 16 and females 14 or under 18 years.	Males and females under 14 years.				Males 14 or under 16 and females 14 or under 18 years.	Males and females under 14 years.	
1875	6,990	966	(a)	(a)	a 85	852	26			
1876	6,922	909	(a)	(a)	a 94	663	24	(a)	(a)	a 8
1877	6,904	1,014	(a)	(a)	a 63	759	40	(a)	(a)	a 17
1878	6,568	949	(a)	(a)	a 96	685	82	(a)	(a)	a 15
1879	6,748	963	(a)	(a)	a 132	618	7			
1880	7,694	980	(a)	(a)	a 113	642	36			
1881	7,026	861	(a)	(a)	a 115	642	27			
1882	7,516	944	(a)	(a)	a 123	624	18			
1883	7,696	971	(a)	(a)	a 146	592	25			
1884	8,074	1,026	(a)	(a)	a 155	540	35			
1885	8,287	1,042	(a)	(a)	a 164	568	33			
1886	8,195	918	156		156	611	21	34		34
1887	8,102	855	189		189	643	27	16		16
1888	8,447	861	249		249	485	22	20		20
1889	8,698	834	274	1	275	640	12	39		39
1890	9,514	955	284		284	656	84	46		46
1891	10,271	992	237		237	661	35	50		50
1892	9,855	1,005	277	1	278	844	57	15		15
1893	10,012	945	277	1	278	994	93	29		29
1894	10,411	958	251		251	894	62	73		73
1895	10,589	958	238		238	953	80	81		81
1896	10,279	930	214		214	865	61	86		86
1897	10,998	886	229		229	893	66	39		39
1898	11,106	883	277		277	896	68	29		29
1899	11,297	881	274		274	1,100	80	35		35
1900	11,927	985	313		313	1,217	80	58		58
1901	12,441	950	304		304	1,408	83	54		54
1902	11,718	869	387		387	1,184	97	55		55
1903	11,415	909	324		324	1,062	78	47		47

a Prior to the year 1886 employees were grouped as male and female adults and children, and the age limit between children and adults was not stated in the reports. The figures for the period from 1875 to 1885 may not therefore be comparable with those for the period 1886 to 1903.

WAGES.

Statistics of wage rates in coal and lignite mines have not been officially published in Austria. During the years 1875 to 1900 the annual reports of the Austrian ministry of agriculture show, in fragmentary form, the average daily earnings of coal mine employees engaged in a few of the leading occupations. From these fragmentary statistics the following two tables have been compiled, showing for the principal coal and lignite mining provinces, respectively, the average daily earnings of certain classes of employees in coal and lignite mines:

AVERAGE DAILY EARNINGS OF CERTAIN CLASSES OF COAL MINE EMPLOYEES IN THE LEADING COAL-PRODUCING PROVINCES OF AUSTRIA, 1882 TO 1900.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1882-1900. For bases used in converting Austrian into United States money see page 27.]

Province and year.	Mine bosses.	Miners proper.	Trammers.	Pit boys.	Laborers.	
					Male adult.	Female adult.
<b>BOHEMIA.</b>						
1882.....	\$0.59	\$0.45	\$0.35	(a)	\$0.25	\$0.19
1883.....	.69	.45	.35	(a)	.29	.18
1884.....	.54	.40	.32	(a)	.29	.18
1885.....	.63	.46	.30	(a)	.27	.18
1886.....	.58	.42	.29	(a)	.26	.18
1887.....	.58	.42	.29	(a)	.25	.17
1888.....	.62	.44	.32	(a)	.27	.18
1889.....	.69	.53	.37	(a)	.31	.20
1890.....	.69	.58	.40	(a)	.26	.18
1891.....	.68	.52	.39	(a)	.32	.20
1892.....	.66	.51	.38	\$0.21	.30	.20
1893.....	.71	.51	.35	.24	.29	.19
1894.....	.71	.51	.34	.24	.32	.20
1895.....	.75	.53	.36	.25	.34	.20
1896.....	.76	.55	.36	.27	.34	.20
1897.....	.80	.59	.41	.28	.36	.20
1898.....	.80	.63	.42	.29	.38	.21
1899.....	.81	.63	.43	.33	.38	.22
1900.....	.89	.67	.46	.33	.41	.23
<b>LOWER AUSTRIA.</b>						
1893 (b).....	\$0.59-.79	\$0.37-.61	\$0.33-.53	\$0.27-.33	(a)	.24
1894.....	.43-.78	.35-.66	.35-.62	.26-.27	.39	(a)
1895.....	.40-.68	.36-.72	.34-.62	.28-.38	.40	.28
1896.....	.61-.81	.41-.67	.36-.63	.28-.38	\$0.41-.47	.28
1897.....	.41-.81	.37-.67	.37-.57	.33-.37	.41	.28
1898.....	.56-.71	.40-.67	.36-.57	.32-.36	.45-.51	\$0.24-.28
1899.....	.61-.81	.45-.76	.39-.65	.37	.35-.47	.24-.28
1900.....	.61-.78	.46-.76	.41-.56	.24-.37	.41-.57	.28
<b>MORAVIA.</b>						
1882.....	(a)	.40-.51	.23-.39	.18-.32	.31-.35	.14-.20
1883.....	(a)	.22-.76	.16-.45	.19-.31	.26-.34	.16-.18
1884.....	(a)	.20-.71	.16-.48	.18-.29	.25-.34	.16-.20
1885.....	(a)	.18-.69	.16-.40	.18-.31	.24-.33	.14-.19
1886.....	(a)	.19-.71	.15-.39	.19-.31	.25-.35	.14-.19
1887.....	(a)	.15-.71	.15-.38	.20-.29	.31-.33	.15-.19
1888.....	(a)	.20-.72	.16-.42	.20	.24-.35	.16-.20
1889.....	(a)	.22-.72	.16-.43	.26	.33	.16-.33
1890.....	(a)	.23-.83	.17-.48	.28-.31	.40	.21
1891.....	(a)	.23-.84	.17-.45	.25-.33	.40	.21
1892.....	(a)	(a)	(a)	(a)	(a)	(a)
1893.....	.71-.84	.26-.69	.22-.39	.27-.29	.24-.43	.20
1894.....	.69-.84	.29-.73	.23-.41	.26-.28	.28-.46	.18-.20
1895.....	.38-.85	.26-.75	.22-.42	.28-.29	.28-.48	.18-.21
1896.....	.34-.91	.29-.78	.25-.43	.21-.31	.20-.51	.16-.21
1897.....	.34-.96	.31-.75	.37-.44	.25-.32	.34-.48	.16-.22
1898.....	.53-.98	.40-.76	.31-.52	.27-.31	.20-.58	.22
1899.....	.49-.98	.40-.74	.30-.43	.24-.31	.23-.56	.18-.23
1900.....	.61-1.02	.42-.83	.36-.48	.29-.35	.39-.57	.17-.25

<sup>a</sup>Not reported.

<sup>b</sup>Not reported for earlier years.

## AVERAGE DAILY EARNINGS OF CERTAIN CLASSES OF COAL MINE EMPLOYEES IN THE LEADING COAL-PRODUCING PROVINCES OF AUSTRIA, 1882 TO 1900—Concluded.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1882-1900. For bases used in converting Austrian into United States money see page 27.]

Province and year.	Mine bosses.	Miners proper.	Trammers.	Pit boys.	Laborers.	
					Male adult.	Female adult.
<b>SILESIA.</b>						
1882.....	(a)	(a)	\$0.18-.39	\$0.16-.20	\$0.24-.33	\$0.12-.24
1883.....	(a)	\$0.41-.81	.18-.39	.16-.18	.24-.32	.15-.18
1884.....	(a)	.41-.88	.19-.40	.16-.28	.24-.34	.13-.24
1885.....	(a)	(a)	(a)	(a)	(a)	(a)
1886.....	(a)	(a)	(a)	(a)	(a)	(a)
1887.....	(a)	.37-.60	.18-.38	(a)	.25-.38	.15-.19
1888.....	(a)	.38-.71	.19-.47	(a)	.24-.33	.15-.20
1889.....	(a)	.38-.73	.18-.49	(a)	.24-.35	.12-.21
1890.....	(a)	.45-.85	.24-.50	(a)	.29-.45	.13-.27
1891.....	(a)	.50-.88	.25-.47	(a)	.29-.42	.13-.22
1892.....	(a)	(a)	(a)	(a)	(a)	(a)
1893.....	\$0.73	.55	.35	.24	.33	.18
1894.....	.72	.60	.39	.26	.39	.18
1895.....	.76	.68	.41	.28	.43	.20
1896.....	.80	.69	.43	.31	.45	.20
1897.....	.83	.71	.44	.31	.46	.20
1898.....	.83	.72	.45	.32	.47	.20
1899.....	.85	.73	.45	.32	.50	.21
1900.....	.97	.80	.50	.34	.59	.24
<b>GALICIA.</b>						
1893 (b).....	.70	.39	.24	.21	.20	.15
1894.....	.75	.43	.27	.22	.26	.15
1895.....	.82	.50	.31	.25	.26	.17
1896.....	1.04	.51	.34	.27	.26	.17
1897.....	1.14	.58	.34	.25	.26	.17
1898.....	1.17	.53	.34	.25	.31	.17
1899.....	1.22	.59	.41	.28	.32	.18
1900.....	.51-1.54	.43-.88	.31-.61	.23-.41	.24-.49	.16-.22

a Not reported.

b Not reported for earlier years.

## AVERAGE DAILY EARNINGS OF CERTAIN CLASSES OF LIGNITE MINE EMPLOYEES IN THE LEADING LIGNITE-PRODUCING PROVINCES OF AUSTRIA.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1882-1900. For bases used in converting Austrian into United States money see page 27.]

Province and year.	Mine bosses.	Miners proper.	Trammers.	Pit boys.	Laborers.	
					Male adult.	Female adult.
<b>BOHEMIA.</b>						
1882.....	\$0.60	\$0.48	\$0.39	(a)	\$0.33	\$0.24
1883.....	.60	.47	.39	(a)	.33	.25
1884.....	.60	.48	.39	(a)	.32	.23
1885.....	.64	.49	.39	(a)	.32	.22
1886.....	.59	.47	.39	(a)	.32	.22
1887.....	.60	.48	.39	(a)	.38	.24
1888.....	.59	.50	.41	(a)	.22	.26
1889.....	.64	.55	.44	(a)	.37	.28
1890.....	.68	.62	.49	(a)	.37	.29
1891.....	.71	.64	.49	(a)	.40	.28
1892.....	.70	.60	.47	\$0.31	.40	.28
1893.....	.68	.58	.44	.37	.41	.28
1894.....	.64	.59	.44	.39	.42	.27
1895.....	.74	.63	.48	.36	.42	.27
1896.....	.76	.66	.51	.38	.45	.30
1897.....	.76	.71	.55	.41	.48	.31
1898.....	.77	.72	.55	.40	.50	.32
1899.....	.82	.76	.58	.42	.51	.32
1900.....	.82	.75	.59	.42	.55	.33

a Not reported.

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AVERAGE DAILY EARNINGS OF CERTAIN CLASSES OF LIGNITE MINE EMPLOYEES IN THE LEADING LIGNITE-PRODUCING PROVINCES OF AUSTRIA—Continued.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1882-1900. For bases used in [www.fishbase.org](http://www.fishbase.org) converting Austrian into United States money see page 27.]

Province and year.	Mine bosses.	Miners proper.	Trammers.	Pit boys.	Laborers.	
					Male adult.	Female adult.
<b>MORAVIA.</b>						
1884 (a)	(b)	\$0.24-.54	\$0.20-.36	\$0.18-.28	(b)	\$0.20
1885	(b)	.23-.60	(b)	(b)	(b)	(b)
1886	(b)	.23-.56	(b)	(b)	(b)	(b)
1887	(b)	.23-.54	(b)	(b)	(b)	(b)
1888	(b)	.31-.55	(b)	(b)	(b)	(b)
1889	(b)	.33-.57	.20-.37	(b)	(b)	(b)
1890	(b)	.34-.59	.21-.38	(b)	(b)	(b)
1891	(b)	.33-.54	.21-.33	(b)	(b)	(b)
1892	(b)	(b)	(b)	(b)	(b)	(b)
1893	\$0.62	.39	.26	.17	(b)	(b)
1894	.62	.37	.25	(b)	\$0.23	(b)
1895	.64	.42	.27	.23	.29	(b)
1896	.68	.43	.28	.20	.23	(b)
1897	.59	.51	.29	.20	.30	(b)
1898	.66	.47	.28	.19	.31	(b)
1899	.71	.57	.32	.19	.28	(b)
1900	.68	.56	.34	.20	.33	.18
<b>TYROL.</b>						
1893 (a)	\$0.47-.79	.31-.59	.25-.55	.28-.31	\$0.41-.47	\$0.19-.20
1894	.51-.70	.53-.63	.48	(b)	.39	.20
1895	.54-.80	.51	.60	.22	.41	.19
1896	.54-.81	.53	.47	(b)	.49	.26
1897	.54-.81	.57	.45	.22	.49	.26
1898	.67	.58	.41	.21	.49	.26
1899	.75	.53	.48	.24	.58	.26
1900	.80-.96	.49-.65	.52-.54	.26-.28	.53-.72	.28
<b>DALMATIA.</b>						
1893 (a)	(c)	.31-.51	.26-.31	.20	.31	.15-.20
1894	.59-.78	.39-.45	.29-.35	.21	.33	.16-.20
1895	.66	.32-.52	.24-.32	.24	.32	.17
1896	.69-.81	.32-.46	.26-.32	.16-.22	.32	.16-.17
1897	.74	.31-.49	.23-.33	.19-.20	.33	.16-.19
1898	.47-.75	.32-.49	.23-.34	.19-.20	.32	.16-.19
1899	.75	.41-.45	.31-.35	.24	.26-.37	.20
1900	.80-.93	.44-.49	.35-.37	.24	.28-.39	.18-.20
<b>UPPER AUSTRIA.</b>						
1885 (a)	(b)	.59	(b)	(b)	.29-.36	.19-.23
1886	(b)	.59	(b)	(b)	.31-.46	.20-.23
1887	(b)	.60-.62	(b)	(b)	.31-.35	.20-.23
1888	(b)	.63-.65	.40-.45	(b)	.31	.24
1889	(b)	.67-.70	.45-.46	(b)	.33	.21-.24
1890	(b)	.73-.75	.48-.51	(b)	.34-.38	.22-.25
1891	(b)	.67-.76	.52	.23-.26	.38	(b)
1892	(b)	(b)	(b)	(b)	(b)	(b)
1893	.79	.67	.45	.10-.26	.44	.22
1894	.78	.66	.46	(b)	.44	.21
1895	.80	.67	.48	(b)	.46	.23
1896	.81	.69	.49	(b)	.49	.23
1897	.81	.69	.49	.27	.48	.24
1898	.81	.70	.49	.28	.49	.23
1899	.80	.70	.50	.28	.50	.25
1900	.80	.76	.56	.28	.51	.27
<b>CARINTHIA.</b>						
1893 (a)	.63	.48	.39	.31	.41	.18
1894	.62	.47	.38	.23	.41	.18
1895	.63	.52	.42	.28	.41	.19
1896	.69	.55	.42	(b)	.45	.20
1897	.66	.56	.44	.39	.43	.20
1898	.65	.55	.45	(b)	.44	.21
1899	.67	.54	.42	(b)	.45	.21
1900	d.46	.59	.49	(b)	.45	.22

a Not reported for earlier years.

b Not reported.

c \$17.69 to £23.59 per month

d The rate given in the original report, 2.25 fl., is probably erroneous.

## AVERAGE DAILY EARNINGS OF CERTAIN CLASSES OF LIGNITE MINE EMPLOYEES IN THE LEADING LIGNITE-PRODUCING PROVINCES OF AUSTRIA—Concluded.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1882-1900. For bases used in converting Austrian into United States money see p. 27.]

Province and year.	Mine bosses.	Miners proper.	Trammers.	Pit boys.	Laborers.	
					Male adult.	Female adult.
<b>CARNIOLA.</b>						
1894 (a).....	\$0.46	\$0.34	(b)	(b)	\$0.41	\$0.24
1895.....	.64	.47	\$0.35	\$0.22	.44	.24
1896.....	.73	.46	.35	.22	.46	.23
1897.....	.83	.45	.37	.24	.46	.24
1898.....	.74	.47	.37	.25	.46	.24
1899.....	.73	.51	.38	.27	.47	.25
1900.....	.79	.53	.38	.27	.52	.25
<b>ISTRIA.</b>						
1893 (a).....	(c)	.48	.29	.24	.25	(b)
1894.....	\$0.84-1.56	.47	.28	.23	.26	(b)
1895.....	1.39	.48	.30	.22	.25	(b)
1896.....	1.38	.49	.30	.22	.43	(b)
1897.....	1.39	.47	.30	.23	.43	(b)
1898.....	1.75	.48	.30	.23	.48	(b)
1899.....	1.58	.50	.29	.23	.44-.53	.26
1900.....	1.47	.60	.32	.23	.56	(b)

a Not reported for earlier years.

b Not reported.

c \$28.70 per month.

While these statistics of earnings are somewhat incomplete, they give an idea of the general trend of the wages earned by mine workers. It will be noticed that both in the coal and lignite industries the daily earnings of mine workers have risen almost steadily in each Austrian province and in each occupation given.

The fragmentary character of the wage statistics of mine employees led the Austrian Government in 1901 to adopt methods designed to secure more satisfactory results. Uniform schedules of inquiry were prepared by the imperial mine office, and the data relating to the earnings of mine employees in 1901 were taken directly from the pay rolls of the mine operators. The material thus collected was then compiled by the bureau of labor statistics of the imperial ministry of commerce.

The wage statistics for 1901 have reference only to persons who were engaged in actual operations connected with mining. All employees were grouped according to the following classification:

1. Miners and miners' helpers.
2. Other adult underground workers.
3. Adult surface workers.
4. Boys.
5. Female workers of all ages.

In this compilation the class designated as "Boys" is not to be considered as identical with the class designated by the law of June 21, 1884, as "Young persons" (males, 14 to 16 years, females, 14 to 18 years), for, in determining those age limits, the law had reference merely to

the hygienic protection of employees. Since it is impracticable to fix a normal age which, for the purposes of wage statistics, would form a characteristic line between the half-grown and the adult laborers, it was found most expedient to include under the term "boys" all male persons engaged in operations usually performed by persons of immature age, regardless of a fixed maximum age limit.

Surface workers performing work properly pertaining to mining operations, such as trapping, drawing, timbering, etc., have been grouped with other adult underground workers, and the fillers employed in open mines have been grouped with the adult surface workers.

Owing to the difficulties of the investigation, no attempt has been made by the Austrian Government to present a table showing the scale of wages, but the investigation was restricted to finding the average earnings only.

In the following series of four tables, the first shows for 1901 the average number of employees, the number of shifts worked, wage deductions, and net earnings of coal mine employees, by occupation groups and mine districts; the second shows the same facts for lignite mine employees. The third table shows, by causes, the number of working shifts lost during the year 1901 in coal and lignite mines and the fourth shows the supplementary allowances and deductions from the earnings of coal and lignite mine employees for the same period.

## AVERAGE NUMBER OF EMPLOYEES, SHIFTS WORKED, WAGE DEDUCTIONS, AND NET EARNINGS OF COAL MINE EMPLOYEES IN AUSTRIA BY GROUPS OF EMPLOYEES AND MINE DISTRICTS, 1901.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1901, Zweites Heft, Vierte Lieferung. Conversion of Austrian into United States money was made on the basis of 1 crown = \$0.208.]

Groups of employees and mine districts.	Average number of employees.	Shifts worked per employee.	Wage deductions per employee.		Net earnings.		
			For work-ing material.	For provident funds.	Total.	Per employee.	Per shift worked.
<b>Miners and helpers:</b>							
<b>Miners—</b>							
Pilsen and Mies	3,458	279	\$4.488	\$10.483	\$658,666.18	\$190.48	\$0.684
Kuttenberg	1,572	301	7.795	11.729	296,215.98	188.43	.626
Ostrau-Karwin	12,887	267	3.293	9.163	2,802,077.00	217.43	.815
Rossitz-Oslawan	956	287	1.847	12.808	168,794.91	176.56	.615
Galicia	1,339	253	37.679	6.760	216,008.04	161.32	.639
<b>Helpers—</b>							
Pilsen and Mies	1,502	269	1.813	5.592	199,768.04	133.00	.493
Kuttenberg	331	281	3.904	5.355	39,580.74	119.58	.426
Ostrau-Karwin	8,963	265	.215	5.471	1,216,358.14	135.71	.512
Rossitz-Oslawan	496	294	.179	8.343	57,967.46	116.87	.397
Galicia	1,174	253	3.431	4.013	108,590.59	92.50	.366
<b>Not reported separately—</b>							
Prague and Schlan	6,128	291	3.660	9.531	1,136,408.82	185.45	.638
Other localities	696	286	1.993	7.988	111,913.70	160.80	.563
<b>Total</b>	<b>39,502</b>	<b>273</b>	<b>3.959</b>	<b>8.254</b>	<b>7,012,349.60</b>	<b>177.52</b>	<b>.650</b>
<b>Other adult underground workers:</b>							
Prague and Schlan	1,011	315	1.295	8.772	145,283.85	143.70	.456
Pilsen and Mies	560	291	1,429	5.660	80,158.81	143.14	.492
Kuttenberg	123	296	2.538	6.189	15,962.50	129.78	.435
Ostrau-Karwin	1,083	269	.244	7.481	196,006.65	179.33	.666
Rossitz-Oslawan	120	299	.051	9.249	15,708.75	130.91	.440
Galicia	374	262	3.827	5.260	35,030.90	93.67	.358
Other localities	38	310	1.474	7.343	5,783.67	152.20	.491
<b>Total</b>	<b>3,319</b>	<b>289</b>	<b>1.261</b>	<b>7.326</b>	<b>493,935.13</b>	<b>148.82</b>	<b>.516</b>
<b>Adult surface workers:</b>							
Prague and Schlan	2,113	326	.016	6.334	306,826.79	145.21	.445
Pilsen and Mies	1,865	293	.063	5.745	251,482.69	134.84	.460
Kuttenberg	506	310	.020	6.133	66,995.17	131.61	.425
Ostrau-Karwin	5,330	304	.010	7.629	889,524.89	166.89	.549
Rossitz-Oslawan	515	314	.152	9.340	70,317.98	136.54	.485
Galicia	693	277	.317	4.641	77,512.30	105.03	.379
Other localities	147	301	.035	7.188	21,929.08	149.18	.495
<b>Total</b>	<b>11,214</b>	<b>305</b>	<b>.049</b>	<b>6.890</b>	<b>1,684,188.90</b>	<b>150.19</b>	<b>.492</b>
<b>Boys: (a)</b>							
Prague and Schlan	1,306	297	.499	3.959	104,338.35	79.95	.269
Pilsen and Mies	456	274	.767	3.027	31,632.27	69.37	.253
Kuttenberg	107	287	2.091	4.224	8,605.37	80.42	.290
Ostrau-Karwin	5,162	260	.256	3.478	503,662.69	97.57	.376
Rossitz-Oslawan	497	290	.051	5.105	36,108.63	72.65	.251
Galicia	182	256	2.458	3.218	13,732.34	75.45	.294
Other localities	30	298	.424	3.309	2,922.59	97.42	.327
<b>Total</b>	<b>7,739</b>	<b>269</b>	<b>.394</b>	<b>3.638</b>	<b>701,002.24</b>	<b>90.58</b>	<b>.336</b>
<b>Female mine workers:</b>							
Prague and Schlan	382	298	.032	2.107	28,248.47	73.95	.248
Pilsen and Mies	826	281	.035	1.654	50,536.04	61.18	.217
Kuttenberg	93	270		3.804	7,653.30	82.29	.301
Ostrau-Karwin	2,463	267	.008	2.274	157,982.22	64.18	.240
Rossitz-Oslawan	19	304		2.062	1,051.95	53.87	.182
Galicia	137	276	.089	1.975	6,950.31	50.73	.184
Other localities	6	269		2.718	448.22	74.70	.278
<b>Total</b>	<b>3,926</b>	<b>274</b>	<b>.016</b>	<b>2.152</b>	<b>252,850.51</b>	<b>64.40</b>	<b>.235</b>

<sup>a</sup> See explanation of term "boys," pages 45, 46.



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AVERAGE NUMBER OF EMPLOYEES, SHIFTS WORKED, WAGE DEDUCTIONS, AND NET EARNINGS OF LIGNITE MINE EMPLOYEES IN AUSTRIA, BY GROUPS OF EMPLOYEES AND MINE DISTRICTS, 1901.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1901, Zweites Heft, Vierte Lieferung. Conversion of Austrian into United States money was made on the basis of 1 crown = \$0.208.]

Groups of employees and mine districts.	Average number of employees.	Shifts worked per employee.	Wage deductions per employee.		Net earnings.		
			For working material.	For provident funds.	Total.	Per employee.	Per shift worked.
<b>Miners and helpers:</b>							
Teplitz, Brüx, and Komotau	14,928	273	\$2,233	\$9,440	\$3,835,961.08	\$256.96	\$0.942
Falkenau and Elbogen	8,489	267	.336	7.964	782,981.09	213.12	.798
Other localities in Bohemia, Moravia, and Silesia	748	252	4.298	5.627	83,281.97	111.84	.441
Upper Austria	947	274	.281	12.972	191,182.42	201.83	.736
Leoben	3,089	809	11.685	7.375	623,201.68	205.07	.664
Gratz	2,623	284	7.732	7.566	424,115.92	161.69	.569
Cilli and Leibach	8,881	802	11.333	6.632	584,721.00	150.66	.499
Other Alpine localities	755	289	6.748	8.433	114,679.16	151.89	.525
Istria and Dalmatia	1,141	282	26.504	8.800	145,923.71	127.89	.453
Galicja	403	235	5.997	5.593	39,369.82	97.69	.415
<b>Total</b>	<b>31,904</b>	<b>280</b>	<b>4.513</b>	<b>8.508</b>	<b>6,775,317.85</b>	<b>212.87</b>	<b>.759</b>
<b>Other adult underground workers:</b>							
Teplitz, Brüx, and Komotau	4,589	302	.114	7.452	957,272.28	208.60	.691
Falkenau and Elbogen	977	276	.014	6.267	173,211.78	177.29	.641
Other localities in Bohemia, Moravia, and Silesia	14	280	2.929	4.190	1,671.22	112.23	.401
Upper Austria	121	342	7.065	7.065	24,972.45	206.88	.603
Leoben	153	316	2.548	7.887	27,495.74	179.71	.568
Gratz	78	293	2.899	7.458	9,986.11	128.14	.438
Cilli and Leibach	191	335	.203	6.916	29,195.66	152.86	.456
Other Alpine localities	48	313	3.810	6.902	5,986.53	123.68	.395
Istria and Dalmatia	20	260	1.066	8.952	2,023.51	101.18	.390
Galicja	45	227	2.038	3.477	3,040.74	67.57	.298
<b>Total</b>	<b>6,236</b>	<b>299</b>	<b>.246</b>	<b>7.207</b>	<b>1,234,715.02</b>	<b>198.00</b>	<b>.661</b>
<b>Adult surface workers:</b>							
Teplitz, Brüx, and Komotau	7,992	307	.041	8.772	1,634,025.56	204.46	.666
Falkenau and Elbogen	2,038	293	.008	6.581	359,613.52	166.64	.569
Other localities in Bohemia, Moravia, and Silesia	157	286	.120	4.884	17,599.49	112.10	.392
Upper Austria	371	303	.....	8.851	51,154.98	137.88	.454
Leoben	1,162	328	.065	7.198	219,973.24	190.95	.581
Gratz	540	286	.809	7.318	79,185.22	146.64	.512
Cilli and Leibach	1,270	297	.022	6.118	179,732.75	141.82	.477
Other Alpine localities	207	311	.321	7.769	30,651.78	148.08	.476
Istria and Dalmatia	422	275	.112	4.953	40,841.38	95.80	.348
Galicja	189	258	.158	4.791	17,497.79	92.58	.361
<b>Total</b>	<b>14,338</b>	<b>303</b>	<b>.058</b>	<b>7.824</b>	<b>2,609,775.71</b>	<b>182.02</b>	<b>.601</b>
<b>Boys: (a)</b>							
Teplitz, Brüx, and Komotau	867	288	.018	5.449	111,110.43	128.16	.453
Falkenau and Elbogen	265	278	.006	4.691	27,669.92	104.41	.375
Other localities in Bohemia, Moravia, and Silesia	11	269	2.363	3.321	623.62	56.69	.211
Upper Austria	104	292	.....	3.538	8,898.91	85.57	.293
Leoben	231	295	.672	3.321	19,687.06	84.79	.287
Gratz	77	277	1.969	3.758	6,254.84	81.23	.293
Cilli and Leibach	278	303	.591	3.108	21,670.37	77.59	.266
Other Alpine localities	58	291	2.458	3.969	3,980.42	75.10	.258
Istria and Dalmatia	244	250	.802	4.371	16,129.36	66.10	.264
Galicja	68	221	3.707	1.547	2,742.94	40.34	.182
<b>Total</b>	<b>2,198</b>	<b>281</b>	<b>.497</b>	<b>4.401</b>	<b>218,567.87</b>	<b>99.44</b>	<b>.354</b>
<b>Female mine workers:</b>							
Teplitz, Brüx, and Komotau	945	279	.004	3.877	88,186.10	98.27	.334
Falkenau and Elbogen	240	276	.....	4.486	21,535.26	59.73	.325
Other localities in Bohemia, Moravia, and Silesia	8	252	.....	2.564	490.97	53.87	.214
Upper Austria	111	253	.....	2.908	7,901.37	71.18	.281
Leoben	333	294	.016	2.477	22,257.94	66.84	.223
Gratz	241	286	.....	3.201	16,267.20	67.50	.236
Cilli and Leibach	551	288	.071	2.706	45,720.47	82.98	.288
Other Alpine localities	86	280	.035	2.259	5,568.29	64.75	.231
Istria and Dalmatia	41	278	.....	1.050	2,253.50	54.96	.198
Galicja	10	257	.....	1.259	449.85	44.99	.176
<b>Total</b>	<b>2,566</b>	<b>282</b>	<b>.020</b>	<b>3.280</b>	<b>210,520.95</b>	<b>82.04</b>	<b>.291</b>

<sup>a</sup> See explanation of term "boys," pages 45, 46.

## NUMBER OF WORKING SHIFTS LOST IN COAL AND LIGNITE MINES IN AUSTRIA, BY CAUSES, 1901.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1901, Zweites Heft, Vierte Lieferung.]

Industry and groups employees.	Sundays and holidays.	Stoppage of work by the mine authorities.	Sickness.	Absence on leave.	Unauthorized absence.	Total.	Shifts lost per employee.
<b>Coal mining:</b>							
Miners and helpers.....	2, 413, 485	288, 373	400, 783	260, 965	326, 956	3, 690, 582	98
Other adult underground workers.....	167, 892	18, 377	30, 889	16, 053	27, 973	260, 684	79
Adult surface workers.....	470, 483	37, 880	89, 975	45, 109	45, 761	689, 208	61
Boys (a).....	475, 490	60, 211	66, 786	40, 232	69, 347	712, 066	92
Female mine workers.....	240, 146	18, 704	31, 682	12, 653	28, 487	331, 672	84
<b>Lignite mining:</b>							
Miners and helpers.....	1, 908, 082	280, 900	389, 644	106, 044	181, 792	2, 861, 412	90
Other adult underground workers.....	296, 765	55, 645	66, 099	10, 085	33, 131	461, 725	74
Adult surface workers.....	683, 193	89, 332	136, 526	27, 065	44, 968	981, 084	68
Boys (a).....	130, 841	19, 562	21, 856	4, 540	12, 643	188, 942	86
Female mine workers.....	141, 418	19, 064	37, 328	14, 062	8, 545	220, 417	86

a See explanation of term "boys," pages 45, 46.

## SUPPLEMENTARY ALLOWANCES AND DEDUCTIONS FROM THE EARNINGS OF COAL AND LIGNITE MINE EMPLOYEES IN AUSTRIA, BY MINE DISTRICTS, 1901.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1901, Zweites Heft, Vierte Lieferung. Conversion of Austrian into United States money was made on the basis of 1 crown=\$0.208. Salaried employees are not included. The amount per person employed was computed.]

Industry and mine district.	Average number of employees.	Supplementary allowances.					
		Value of commodities furnished; rental value of lands, houses, etc.		Value of working material furnished free to employees.		Sick benefit payments.	
		Total.	Per person employed.	Total.	Per person employed.	Total.	Per person employed.
<b>Coal mining:</b>							
Prague and Schlan.....	10, 939	\$53, 777. 54	\$4. 916	\$51, 268. 46	\$4. 687	\$14, 368. 14	\$1. 313
Pilsen and Mies.....	8, 667	29, 870. 03	3. 446	20, 220. 83	2. 333	14, 543. 33	1. 678
Kutteneberg.....	2, 732	15, 338. 68	5. 614	17. 46	. 006	5, 225. 22	1. 913
Ostrau-Karwin.....	35, 898	291, 883. 14	8. 131	193, 037. 98	5. 377	60, 736. 18	1. 692
Rositz-Oslawan.....	2, 603	11, 803. 44	4. 535	605. 14	. 232	4, 382. 36	1. 684
Galicia.....	3, 944	12, 710. 03	3. 223	3, 064. 28	. 777	6, 558. 93	1. 663
Other localities.....	917	* 6, 852. 67	7. 473	3, 859. 44	4. 209	2, 680. 61	2. 923
<b>Total.....</b>	<b>65, 700</b>	<b>422, 235. 53</b>	<b>6. 427</b>	<b>272, 073. 59</b>	<b>4. 141</b>	<b>108, 494. 77</b>	<b>1. 651</b>
<b>Lignite mining:</b>							
Teplitz, Brüx, and Komotau.....	29, 321	177, 644. 29	6. 059	55, 108. 61	1. 879	78, 524. 66	2. 678
Falkenau and Elbogen.....	6, 959	60, 063. 44	8. 631	16, 857. 12	2. 422	14, 488. 24	2. 081
Other localities in Bohemia, Moravia, and Silesia.....	988	2, 188. 87	2. 328	706. 08	. 758	1, 502. 20	1. 601
Upper Austria.....	1, 654	16, 169. 97	9. 776	10, 839. 80	6. 564	4, 617. 64	2. 792
Leoben.....	4, 908	40, 756. 92	8. 304	8, 678. 45	1. 768	8, 542. 65	1. 741
Gratz.....	3, 559	24, 912. 36	7. 000	1, 617. 30	. 454	8, 478. 70	2. 382
Cilli and Laibach.....	6, 171	54, 274. 89	8. 795	13, 186. 68	2. 137	12, 913. 08	2. 093
Other Alpine localities.....	1, 149	6, 004. 33	5. 226	563. 12	. 490	3, 010. 49	2. 620
Istria and Dalmatia.....	1, 868	1, 477. 84	. 791	2, 056. 80	1. 101	4, 542. 53	2. 432
Galicia.....	715	12, 478. 41	17. 452	779. 52	1. 090	794. 14	1. 111
<b>Total.....</b>	<b>57, 242</b>	<b>895, 966. 32</b>	<b>6. 917</b>	<b>110, 393. 43</b>	<b>1. 929</b>	<b>137, 409. 28</b>	<b>2. 400</b>

50 SPECIAL REPORT OF THE COMMISSIONER OF LABOR.

SUPPLEMENTARY ALLOWANCES AND DEDUCTIONS FROM THE EARNINGS OF COAL AND LIGNITE MINE EMPLOYEES IN AUSTRIA, BY MINE DISTRICTS, 1901—Concluded.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1901, Zweites Heft, Vierte Lieferung. Conversion of Austrian into United States money was made on the basis of 1 crown = \$0.208. Salaried employees are not included.] The amount per person employed was computed.]

Industry and mine district.	Deductions.					
	Value of working material used by employees.		Fines.			
	Total.	Per person employed.	Cases.	Total amount.	Per person employed.	Per case.
<b>Coal mining:</b>						
Prague and Schlan .....	a \$828.45	\$0.030	6,977	\$1,170.90	\$0.107	\$0.168
Pilsen and Mies.....	37.56	.004	2,525	556.45	.084	.221
Kutteneberg .....			4,585	694.67	.254	.153
Ostrau-Karwin.....			38,256	10,476.22	.292	.274
Roesitz-Oslawan.....			1,375	223.91	.086	.163
Galicja.....			1,854	553.38	.140	.298
Other localities .....	10.15	.011	540	142.30	.155	.264
<b>Total.....</b>	<b>b 284.81</b>	<b>.004</b>	<b>56,065</b>	<b>13,819.83</b>	<b>.210</b>	<b>.246</b>
<b>Lignite mining:</b>						
Teplitz, Brix, and Komotau .....	57,849.94	1.956	16,548	2,934.97	.100	.177
Falkenau and Elbogen .....	7,911.82	1.137	1,558	244.82	.085	.157
Other localities in Bohemia, Moravia, and Silesia.....	499.99	.533	175	30.04	.032	.172
Upper Austria .....	14,239.84	8.609	900	150.83	.091	.168
Leoben .....	6,858.35	1.397	5,184	2,578.71	.525	.497
Gratz .....	775.46	.218	2,648	547.09	.154	.207
Gilll and Laibach .....	4,668.84	.746	13,816	5,142.40	.833	.372
Other Alpine localities .....	46.08	.040	431	110.43	.096	.256
Istria and Dalmatia.....			2,793	956.74	.512	.343
Galicja.....	208.81	.285	840	85.26	.119	.251
<b>Total.....</b>	<b>92,488.63</b>	<b>1.616</b>	<b>44,398</b>	<b>12,781.29</b>	<b>.223</b>	<b>.287</b>

a So reported.

b The items add to a greater sum.

The average number of employees, as reported in these tables, represents the total of the yearly averages as computed for each mine separately. The yearly average for each mine was found by taking the number of employees on each pay day and then dividing the sum for the entire number of wage periods during the year according to the following methods:

(a) In mines which had been in operation the entire year, by the number of actual wage periods;

(b) In mines which had been in operation only part of the year, by that number which would equal the total number of wage periods if the mine had continued in operation uninterruptedly the entire year.

The number of shifts worked does not always represent the actual number of days worked. It has always been customary in mining to convert extra allowances which were granted for work of an especially disagreeable or dangerous character, for Sunday work, etc., into the form of shifts, and to credit them to the employees in addition to the number of actual shifts worked. A statistical separation by the mine operators of these extra shifts from the number of actual shifts worked would probably not be impossible, but in practice it meets with certain difficulties which make it appear doubtful whether such a separation

would be reliable for statistical purposes. For this reason no attempt was made to show the actual number of days worked. The number of shifts shown in the tables, therefore, represents the total number of shifts which were credited to the employees engaged during the year and for which they received pay.

The figures representing the net earnings of employees were obtained after deducting from the gross earnings (including allowances for lodging and other purposes) the cost of working material (lights, tools, explosives, etc.) and the dues for provident funds in so far as they were obligatory upon the employees. In arriving at the net earnings no account was taken of such items as enter into the expenditures for cost of living, as charges for provisions, rents, voluntary insurance, and fines of provident associations.

The net earnings per employee were obtained by dividing the total net earnings by the average number of persons employed, and the net earnings per shift worked, by dividing the total net earnings by the total number of shifts worked during the year.

An elaborate investigation of labor conditions in Austria was undertaken in 1901 by the Austrian bureau of labor statistics.<sup>a</sup> It covers what is known as the Ostrau-Karwiner Steinkohlenrevier, for the period of July 1, 1900, to June 30, 1901. This coal-mining district includes the crown lands of Moravia and Silesia, in which about one-half of all the Austrian coal mine workers are employed. While the report treats of labor conditions in all industries, it is mainly devoted to coal mine labor.

The first part of the report of this investigation, as far as it relates to coal mine labor, treats of the hours of labor, shifts worked, wages and income of coal mine employees. The investigation covers 38 mines, employing an average of 34,925 mine workers.

The following tables, obtained from that report, show the yearly earnings of coal mine workers in this mining district, their classified gross earnings per shift, their classified actual income, and the number of shifts worked during the year ending June 30, 1901.

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<sup>a</sup> *Arbeiterverhältnisse im Ostrau-Karwiner Steinkohlenreviere. I. Theil: Arbeitszeit, Arbeitsleistungen, Lohn- und Einkommenverhältnisse.* Published by the Austrian bureau of labor statistics, 1904.

52 SPECIAL REPORT OF THE COMMISSIONER OF LABOR.

GROSS EARNINGS, WAGE DEDUCTIONS, NET EARNINGS, AND ACTUAL INCOME OF COAL MINE EMPLOYEES IN THE OSTRU-KARWIN COAL-MINING DISTRICT DURING THE YEAR ENDING JUNE 30, 1901.

[Source: Arbeiterverhältnisse im Ostrau-Karwiner Steinkohlenreviere. I. Theil. Conversion of Austrian into United States money was made on the basis of 1 crown=\$0.208.]

Occupation.	Average number of employees.	Gross earnings.			Total.
		Wages. (a)	Gratuities, etc.	School contributions.	
<b>Below ground:</b>					
Mine bosses, foremen, etc.....	408	\$264.59	\$10.99	\$1.99	\$277.57
Enginemen.....	104	223.85	2.51	1.16	227.52
Miners.....	12,716	225.72	1.11	.62	227.45
Trammers.....	8,669	138.28	.61	.05	138.92
Helpers.....	4,684	104.10	.23	(b)	104.33
<b>Total.....</b>	<b>26,576</b>	<b>176.34</b>	<b>.95</b>	<b>.35</b>	<b>177.64</b>
<b>Above ground:</b>					
Foremen, etc.....	158	229.74	10.18	1.12	241.04
Enginemen.....	900	215.14	3.91	.69	219.74
Skilled workers.....	2,028	206.86	.30	.21	207.37
Laborers, male.....	3,010	137.85	.61	.31	138.77
Laborers, female.....	2,253	64.86	.01		64.87
<b>Total.....</b>	<b>8,349</b>	<b>144.98</b>	<b>.91</b>	<b>.26</b>	<b>146.15</b>
<b>Total above and below ground.....</b>	<b>34,925</b>	<b>168.84</b>	<b>.94</b>	<b>.33</b>	<b>170.11</b>

Occupation.	Wage deductions.						Net earnings.	Sick benefits received.	Actual total income.
	Tools, etc.	Marriage fees.	Insurance.	Fines.	Indemnifications.	Total.			
<b>Below ground:</b>									
Mine bosses, foremen, etc....	\$0.05		\$12.36	\$0.03	\$0.01	\$12.45	\$265.12	\$1.23	\$266.35
Enginemen.....	.02	(b)	9.61	.05	.02	9.70	217.82	.61	218.43
Miners.....	.10	\$0.03	9.11	.33	.14	9.71	217.74	2.11	219.85
Trammers.....	.07	.01	5.22	.40	.08	5.78	133.14	1.53	134.67
Helpers.....	.10	.01	3.47	.21	.11	3.90	100.43	1.06	101.49
<b>Total.....</b>	<b>.09</b>	<b>.02</b>	<b>6.89</b>	<b>.33</b>	<b>.11</b>	<b>7.44</b>	<b>170.20</b>	<b>1.71</b>	<b>171.91</b>
<b>Above ground:</b>									
Foremen, etc.....	.19	.04	9.99	.01	.01	10.24	230.80	1.08	231.88
Enginemen.....	.06	.03	9.07	.12	.01	9.29	210.45	.96	211.41
Skilled workers.....	.04	.03	7.97	.09	.02	8.15	199.22	1.64	200.86
Laborers, male.....	.02	.01	6.85	.13	.01	7.02	131.75	1.57	133.32
Laborers, female.....	.01		2.30	.06	(c)	2.37	62.50	.67	63.17
<b>Total.....</b>	<b>.03</b>	<b>.01</b>	<b>6.20</b>	<b>.10</b>	<b>.01</b>	<b>6.35</b>	<b>139.80</b>	<b>1.28</b>	<b>141.08</b>
<b>Total above and below ground.....</b>	<b>.07</b>	<b>.02</b>	<b>6.73</b>	<b>.27</b>	<b>.09</b>	<b>7.18</b>	<b>162.93</b>	<b>1.61</b>	<b>164.54</b>

<sup>a</sup> After deductions for explosives.

<sup>b</sup> \$0.002.

<sup>c</sup> \$0.004.

EMPLOYEES IN VARIOUS COAL-MINING OCCUPATIONS IN THE OSTRAU-KARWIN DISTRICT IN EACH GROUP OF CLASSIFIED GROSS EARNINGS PER SHIFT FOR THE YEAR ENDING JUNE 30, 1901.

[Source: Arbeiterverhältnisse im Ostrau-Karwiner Steinkohlenreviere. I. Theil.]

Classified gross earnings per shift.	Number of employees.					
	Below ground.					
	Mine bosses, foremen, etc.	Engine-men.	Miners.	Tram-mers.	Helpers.	Total.
0.50 crown (\$0.102) or under						
0.51 to 1.00 cr. (\$0.104 to \$0.203)					10	10
1.01 to 1.50 cr. (\$0.205 to \$0.305)				11	696	707
1.51 to 2.00 cr. (\$0.307 to \$0.405)		4	14	475	2,151	2,644
2.01 to 2.50 cr. (\$0.408 to \$0.508)		8	64	2,912	1,795	4,779
2.51 to 3.00 cr. (\$0.510 to \$0.609)		19	318	3,827	523	4,687
3.01 to 3.50 cr. (\$0.611 to \$0.711)	11	30	1,205	1,212	74	2,532
3.51 to 4.00 cr. (\$0.713 to \$0.812)	113	36	3,210	360	13	3,732
4.01 to 4.50 cr. (\$0.814 to \$0.914)	134	7	3,891	185	4	4,171
4.51 to 5.00 cr. (\$0.916 to \$1.015)	96	3	2,194	23		2,316
5.01 to 5.50 cr. (\$1.017 to \$1.117)	28		945	4		977
5.51 to 6.00 cr. (\$1.119 to \$1.218)	4		392			396
6.01 to 6.50 cr. (\$1.220 to \$1.320)			144			144
6.51 to 7.00 cr. (\$1.322 to \$1.421)	2		48			50
7.01 to 7.50 cr. (\$1.423 to \$1.523)	1		14			15
7.51 to 8.00 cr. (\$1.525 to \$1.624)			3			3
Over 8.00 cr. (\$1.624)			1			1
Total	389	107	12,443	8,969	5,236	27,164

Classified gross earnings per shift.	Number of employees.						Total above and below ground.
	Above ground.						
	Fore-men, etc.	Engine-men.	Skilled workers.	Laborers, male.	Laborers, female.	Total.	
0.50 crown (\$0.102) or under				2	2	4	4
0.51 to 1.00 cr. (\$0.104 to \$0.203)			4	51	421	476	486
1.01 to 1.50 cr. (\$0.205 to \$0.305)		3	24	163	1,660	1,850	2,557
1.51 to 2.00 cr. (\$0.307 to \$0.405)	2	6	29	682	187	906	3,550
2.01 to 2.50 cr. (\$0.408 to \$0.508)	5	116	135	1,273	22	1,551	6,330
2.51 to 3.00 cr. (\$0.510 to \$0.609)	33	211	379	924		1,247	5,934
3.01 to 3.50 cr. (\$0.611 to \$0.711)	63	303	523	249		1,138	3,670
3.51 to 4.00 cr. (\$0.713 to \$0.812)	29	162	448	91		730	4,462
4.01 to 4.50 cr. (\$0.814 to \$0.914)	24	45	340	34		443	4,614
4.51 to 5.00 cr. (\$0.916 to \$1.015)	4	22	125	19		170	2,486
5.01 to 5.50 cr. (\$1.017 to \$1.117)	5	16	47	1		69	1,046
5.51 to 6.00 cr. (\$1.119 to \$1.218)	1	3	26	1		31	427
6.01 to 6.50 cr. (\$1.220 to \$1.320)			16			16	160
6.51 to 7.00 cr. (\$1.322 to \$1.421)		2	14			16	66
7.01 to 7.50 cr. (\$1.423 to \$1.523)							15
7.51 to 8.00 cr. (\$1.525 to \$1.624)							3
Over 8.00 cr. (\$1.624)	1					1	2
Total	167	889	2,110	3,190	2,292	8,648	35,812

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PER CENT OF EMPLOYEES IN VARIOUS COAL-MINING OCCUPATIONS IN THE OSTRUKARWIN DISTRICT IN EACH GROUP OF CLASSIFIED GROSS EARNINGS PER SHIFT FOR THE YEAR ENDING JUNE 30, 1901.

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[The percentages have been computed.]

Classified gross earnings per shift.	Per cent of employees.					
	Below ground.					
	Mine bosses, foremen, etc.	Engine-men.	Miners.	Trammers.	Helpers.	Total.
0.50 crown (\$0.102) or under					0.2	(a)
0.51 to 1.00 cr. (\$0.104 to \$0.203)					13.2	2.6
1.01 to 1.50 cr. (\$0.205 to \$0.305)				0.1	5.3	9.7
1.51 to 2.00 cr. (\$0.307 to \$0.406)		3.7	0.1		40.9	9.7
2.01 to 2.50 cr. (\$0.408 to \$0.508)		7.5	.5	32.5	34.1	17.6
2.51 to 3.00 cr. (\$0.510 to \$0.609)		17.8	2.5	42.7	9.9	17.3
3.01 to 3.50 cr. (\$0.611 to \$0.711)	2.8	28.0	9.7	13.5	1.4	9.3
3.51 to 4.00 cr. (\$0.713 to \$0.812)	29.1	33.7	25.8	4.0	.2	18.7
4.01 to 4.50 cr. (\$0.814 to \$0.914)	34.4	6.5	31.3	1.5	.1	15.4
4.51 to 5.00 cr. (\$0.916 to \$1.015)	24.7	2.8	17.6			8.5
5.01 to 5.50 cr. (\$1.017 to \$1.117)	7.2		7.6	.1		3.6
5.51 to 6.00 cr. (\$1.119 to \$1.218)	1.0		3.1			1.5
6.01 to 6.50 cr. (\$1.220 to \$1.320)			1.2			.5
6.51 to 7.00 cr. (\$1.322 to \$1.421)	.5		.4			.2
7.01 to 7.50 cr. (\$1.423 to \$1.523)	.3		.1			.1
7.51 to 8.00 cr. (\$1.525 to \$1.624)			(a)			(a)
Over 8.00 cr. (\$1.624)			(a)			(a)
Total	100.0	100.0	100.0	100.0	100.0	100.0

Classified gross earnings per shift.	Per cent of employees.						Total above and below ground.
	Above ground.						
	Foremen, etc.	Engine-men.	Skilled workers.	Laborers, male.	Laborers, female.	Total.	
0.50 crown (\$0.102) or under				0.1	0.1	(a)	(a)
0.51 to 1.00 cr. (\$0.104 to \$0.203)			0.2	1.6	18.4	5.5	1.4
1.01 to 1.50 cr. (\$0.205 to \$0.305)		0.3	1.1	5.1	72.4	21.4	7.1
1.51 to 2.00 cr. (\$0.307 to \$0.406)	1.2	.7	1.4	21.4	8.1	10.5	9.9
2.01 to 2.50 cr. (\$0.408 to \$0.508)	3.0	18.1	6.4	39.9	1.0	17.9	17.7
2.51 to 3.00 cr. (\$0.510 to \$0.609)	19.7	23.7	18.0	19.6		14.4	16.6
3.01 to 3.50 cr. (\$0.611 to \$0.711)	37.7	34.1	24.8	7.8		13.2	10.3
3.51 to 4.00 cr. (\$0.713 to \$0.812)	17.4	18.2	21.2	2.8		8.4	12.5
4.01 to 4.50 cr. (\$0.814 to \$0.914)	14.4	5.1	16.1	1.1		5.1	12.9
4.51 to 5.00 cr. (\$0.916 to \$1.015)	2.4	2.5	5.9	.6		2.0	6.9
5.01 to 5.50 cr. (\$1.017 to \$1.117)	3.0	1.8	2.2	(a)		.8	1.2
5.51 to 6.00 cr. (\$1.119 to \$1.218)	.6	.3	1.2	(a)		.4	1.2
6.01 to 6.50 cr. (\$1.220 to \$1.320)			.8			.2	.4
6.51 to 7.00 cr. (\$1.322 to \$1.421)		.2	.7			.2	.2
7.01 to 7.50 cr. (\$1.423 to \$1.523)							(a)
7.51 to 8.00 cr. (\$1.525 to \$1.624)	.6					(a)	(a)
Over 8.00 cr. (\$1.624)						(a)	(a)
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a Less than five-hundredths of one per cent.



EMPLOYEES IN VARIOUS COAL-MINING OCCUPATIONS IN THE OSTRU-KARWIN DISTRICT IN EACH GROUP OF CLASSIFIED ACTUAL INCOME FOR THE YEAR ENDING JUNE 30, 1901.

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[Source: Arbeiterverhältnisse im Ostrau-Karwiner Steinkohlenreviere. I. Theill.]

Classified actual income.	Number of employees.					
	Below ground.					
	Mine bosses, foremen, etc.	Engine-men.	Miners.	Tram-mers.	Helpers.	Total.
250 crowns (\$50.75) or under					4	4
251 to 300 cr. (\$50.95 to \$60.90)			1		15	16
301 to 350 cr. (\$61.10 to \$71.05)			3	10	47	60
351 to 400 cr. (\$71.25 to \$81.20)			6	25	147	178
401 to 450 cr. (\$81.40 to \$91.35)			9	53	287	349
451 to 500 cr. (\$91.55 to \$101.50)			12	131	411	564
501 to 550 cr. (\$101.70 to \$111.65)		1	31	256	482	720
551 to 600 cr. (\$111.85 to \$121.80)			59	466	486	1,011
601 to 650 cr. (\$122.00 to \$131.95)		2	84	723	352	1,161
651 to 700 cr. (\$132.15 to \$142.10)		2	153	884	236	1,275
701 to 750 cr. (\$142.30 to \$152.25)		2	238	833	151	1,224
751 to 800 cr. (\$152.45 to \$162.40)		4	296	674	84	1,058
801 to 850 cr. (\$162.60 to \$172.55)	1	6	474	463	39	983
851 to 900 cr. (\$172.75 to \$182.70)		2	613	316	23	954
901 to 950 cr. (\$182.90 to \$192.85)	2	5	822	217	16	1,062
951 to 1,000 cr. (\$193.05 to \$203.00)	8	10	1,006	151	6	1,181
1,001 to 1,100 cr. (\$203.20 to \$223.30)	26	19	2,333	157	3	2,538
1,101 to 1,200 cr. (\$223.50 to \$243.60)	53	11	2,180	91		2,335
1,201 to 1,300 cr. (\$243.80 to \$263.90)	81	15	1,488	24		1,608
1,301 to 1,400 cr. (\$264.10 to \$284.20)	97	15	922	6		1,040
1,401 to 1,500 cr. (\$284.40 to \$304.50)	67	6	551	2		606
1,501 to 1,600 cr. (\$304.70 to \$324.80)	30		332			362
1,601 to 1,700 cr. (\$325.00 to \$345.10)	10		138			148
1,701 to 1,800 cr. (\$345.30 to \$365.40)	1		70			71
1,801 to 1,900 cr. (\$365.60 to \$385.70)			53			33
1,901 to 2,000 cr. (\$385.90 to \$406.00)	4		24			28
2,001 to 2,200 cr. (\$406.20 to \$446.60)	1		6			7
2,201 to 2,400 cr. (\$446.80 to \$487.20)			2			2
<b>Total</b> .....	<b>381</b>	<b>100</b>	<b>11,866</b>	<b>5,482</b>	<b>2,799</b>	<b>20,568</b>

Classified actual income.	Number of employees.					Total above and below ground.	
	Above ground.						
	Fore-men, etc.	En-gine-men.	Skilled workers.	Laborers, male.	Laborers, female.		Total.
250 crowns (\$50.75) or under				5	132	137	141
251 to 300 cr. (\$50.95 to \$60.90)			4	16	363	383	399
301 to 350 cr. (\$61.10 to \$71.05)			7	26	418	451	511
351 to 400 cr. (\$71.25 to \$81.20)			6	33	282	271	449
401 to 450 cr. (\$81.40 to \$91.35)			9	65	116	191	540
451 to 500 cr. (\$91.55 to \$101.50)		1	13	158	47	220	774
501 to 550 cr. (\$101.70 to \$111.65)		2	24	220	21	266	966
551 to 600 cr. (\$111.85 to \$121.80)		1	29	267	20	319	1,330
601 to 650 cr. (\$122.00 to \$131.95)	2	3	29	244	5	285	1,446
651 to 700 cr. (\$132.15 to \$142.10)	2	5	60	241	1	319	1,594
701 to 750 cr. (\$142.30 to \$152.25)	1	23	77	225		326	1,550
751 to 800 cr. (\$152.45 to \$162.40)	4	15	101	214		360	1,418
801 to 850 cr. (\$162.60 to \$172.55)	2	40	113	149		304	1,287
851 to 900 cr. (\$172.75 to \$182.70)	7	63	136	100		306	1,260
901 to 950 cr. (\$182.90 to \$192.85)	6	51	129	96		282	1,344
951 to 1,000 cr. (\$193.05 to \$203.00)	8	70	135	87		300	1,481
1,001 to 1,100 cr. (\$203.20 to \$223.30)	24	144	218	79		465	3,003
1,101 to 1,200 cr. (\$223.50 to \$243.60)	33	132	206	53		424	2,759
1,201 to 1,300 cr. (\$243.80 to \$263.90)	16	107	173	21		325	1,933
1,301 to 1,400 cr. (\$264.10 to \$284.20)	12	48	125	3		188	1,228
1,401 to 1,500 cr. (\$284.40 to \$304.50)	14	22	48	2		86	692
1,501 to 1,600 cr. (\$304.70 to \$324.80)	2	6	29	1		38	400
1,601 to 1,700 cr. (\$325.00 to \$345.10)	2	11	12			25	173
1,701 to 1,800 cr. (\$345.30 to \$365.40)	2	6	9			17	88
1,801 to 1,900 cr. (\$365.60 to \$385.70)	1	9	8			18	51
1,901 to 2,000 cr. (\$385.90 to \$406.00)			8			8	36
2,001 to 2,200 cr. (\$406.20 to \$446.60)			2			2	9
2,201 to 2,400 cr. (\$446.80 to \$487.20)		2	5			7	9
<b>Total</b> .....	<b>138</b>	<b>802</b>	<b>1,720</b>	<b>2,306</b>	<b>1,355</b>	<b>6,323</b>	<b>28,891</b>



56 SPECIAL REPORT OF THE COMMISSIONER OF LABOR.

PER CENT OF EMPLOYEES IN VARIOUS COAL-MINING OCCUPATIONS IN THE OSTRUKARWIN DISTRICT IN EACH GROUP OF CLASSIFIED ACTUAL INCOME FOR THE YEAR ENDING JUNE 30, 1901.

[The percentages have been computed.]

Classified actual income.	Per cent of employees.					
	Below ground.					
	Mine bosses, foremen, etc.	Engine-men.	Miners.	Tram-mers.	Helpers.	Total.
250 crowns (\$50.75) or under.....					0.1	(a)
251 to 300 cr. (\$50.95 to \$60.90).....			(a)		.6	0.1
301 to 350 cr. (\$61.10 to \$71.05).....			(a)	0.2	1.7	.3
351 to 400 cr. (\$71.25 to \$81.20).....			(a)	.4	5.4	.9
401 to 450 cr. (\$81.40 to \$91.35).....			0.1	1.0	10.5	1.7
451 to 500 cr. (\$91.55 to \$101.50).....			.1	2.4	15.0	2.7
501 to 550 cr. (\$101.70 to \$111.65).....		1.0	.3	4.7	15.8	3.5
551 to 600 cr. (\$111.85 to \$121.80).....			.5	8.5	17.7	4.9
601 to 650 cr. (\$122.00 to \$131.95).....		2.0	.7	18.2	12.9	5.6
651 to 700 cr. (\$132.15 to \$142.10).....		2.0	1.3	16.1	8.6	6.2
701 to 750 cr. (\$142.30 to \$152.25).....		2.0	2.0	15.2	5.5	6.0
751 to 800 cr. (\$152.45 to \$162.40).....		4.0	2.5	12.3	3.1	5.1
801 to 850 cr. (\$162.60 to \$172.55).....	0.3	6.0	4.0	8.4	1.4	4.8
851 to 900 cr. (\$172.75 to \$182.70).....		2.0	5.2	5.8	.8	4.6
901 to 950 cr. (\$182.90 to \$192.85).....	.5	5.0	6.9	4.0	.6	5.2
951 to 1,000 cr. (\$193.05 to \$203.00).....	2.1	10.0	8.5	2.7	.2	5.7
1,001 to 1,100 cr. (\$203.20 to \$223.30).....	6.8	19.0	19.6	2.9	.1	12.3
1,101 to 1,200 cr. (\$223.50 to \$243.60).....	18.9	11.0	18.4	1.7		11.4
1,201 to 1,300 cr. (\$243.80 to \$263.90).....	21.3	15.0	12.5	.4		7.8
1,301 to 1,400 cr. (\$264.10 to \$284.20).....	25.4	15.0	7.8	.1		5.1
1,401 to 1,500 cr. (\$284.40 to \$304.50).....	17.6	6.0	4.5	(a)		3.0
1,501 to 1,600 cr. (\$304.70 to \$324.80).....	7.9		2.8			1.8
1,601 to 1,700 cr. (\$325.00 to \$345.10).....	2.6		1.2			.7
1,701 to 1,800 cr. (\$345.30 to \$365.40).....	.3		.6			.3
1,801 to 1,900 cr. (\$365.60 to \$385.70).....			.3			.2
1,901 to 2,000 cr. (\$385.90 to \$406.00).....	1.0		.2			.1
2,001 to 2,200 cr. (\$406.20 to \$446.60).....	.3		(a)			(a)
2,201 to 2,400 cr. (\$446.80 to \$487.20).....			(a)			(a)
Total.....	100.0	100.0	100.0	100.0	100.0	100.0

Classified actual income.	Per cent of employees.						Total above and below ground.
	Above ground.						
	Fore-men, etc.	En-gine-men.	Skilled workers.	Laborers, male.	Laborers, female.	Total.	
250 crowns (\$50.75) or under.....				0.2	9.7	2.2	0.5
251 to 300 cr. (\$50.95 to \$60.90).....			0.2	.7	26.8	6.1	1.5
301 to 350 cr. (\$61.10 to \$71.05).....			.4	1.1	30.8	7.1	1.9
351 to 400 cr. (\$71.25 to \$81.20).....			.3	1.4	17.1	4.3	1.7
401 to 450 cr. (\$81.40 to \$91.35).....			.5	2.8	8.6	3.0	2.0
451 to 500 cr. (\$91.55 to \$101.50).....		0.1	.2	6.9	3.5	3.5	2.9
501 to 550 cr. (\$101.70 to \$111.65).....		.1	1.4	9.5	1.5	4.2	3.7
551 to 600 cr. (\$111.85 to \$121.80).....		.4	1.7	11.6	1.5	5.0	4.9
601 to 650 cr. (\$122.00 to \$131.95).....	1.5	.6	1.7	10.6	.4	4.5	5.4
651 to 700 cr. (\$132.15 to \$142.10).....	1.5	1.9	3.5	10.4	.1	5.0	5.9
701 to 750 cr. (\$142.30 to \$152.25).....	.7	2.9	4.5	9.8		5.2	5.8
751 to 800 cr. (\$152.45 to \$162.40).....	2.9	5.1	5.9	9.3		5.7	5.3
801 to 850 cr. (\$162.60 to \$172.55).....	1.5	5.0	6.0	6.5		4.8	4.8
851 to 900 cr. (\$172.75 to \$182.70).....	5.0	7.9	7.9	4.3		4.8	4.7
901 to 950 cr. (\$182.90 to \$192.85).....	4.3	6.4	7.5	4.2		4.5	5.0
951 to 1,000 cr. (\$193.05 to \$203.00).....	5.8	8.7	7.8	3.8		4.7	5.5
1,001 to 1,100 cr. (\$203.20 to \$223.30).....	17.3	18.0	12.7	3.4		7.4	11.2
1,101 to 1,200 cr. (\$223.50 to \$243.60).....	23.9	16.5	12.0	2.3		6.7	10.2
1,201 to 1,300 cr. (\$243.80 to \$263.90).....	11.6	13.3	10.3	1.0		5.1	7.2
1,301 to 1,400 cr. (\$264.10 to \$284.20).....	8.7	6.0	7.3	.1		3.0	4.6
1,401 to 1,500 cr. (\$284.40 to \$304.50).....	10.1	2.8	2.8	.1		1.4	2.6
1,501 to 1,600 cr. (\$304.70 to \$324.80).....	1.5	.7	1.7	(a)		.6	1.5
1,601 to 1,700 cr. (\$325.00 to \$345.10).....	1.5	1.4	.7			.4	.6
1,701 to 1,800 cr. (\$345.30 to \$365.40).....	1.5	.7	.5			.3	.3
1,801 to 1,900 cr. (\$365.60 to \$385.70).....	.7	1.1	.5			.3	.2
1,901 to 2,000 cr. (\$385.90 to \$406.00).....			.5			.1	.1
2,001 to 2,200 cr. (\$406.20 to \$446.60).....			1			(a)	(a)
2,201 to 2,400 cr. (\$446.80 to \$487.20).....		.2	.3			.1	(a)
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a Less than five-hundredths of one per cent.

## SHIFTS WORKED BY COAL MINE WORKERS IN THE OSTRAU-KARWIN COAL-MINING DISTRICT DURING THE YEAR ENDING JUNE 30, 1901.

[Source: Arbeiterverhältnisse im Ostrau-Karwiner Steinkohlenreviere. I. Theil.]

Occupation.	Average employees.	Average number of shifts worked.				
		Total.	Night shifts.		Sunday and holiday shifts.	
			Number.	Per cent of total.	Number.	Per cent of total.
<b>Below ground:</b>						
Mine bosses, foremen, etc. ....	408	317.25	184.00	42.3	29.25	9.2
Enginemen .....	104	328.00	127.50	39.9	38.00	11.6
Miners .....	12,716	265.75	109.75	41.3	4.50	1.7
Trammers .....	8,669	251.76	101.50	40.3	4.50	1.8
Helpers .....	4,684	254.00	99.25	39.1	2.50	1.0
<b>Total.....</b>	<b>26,576</b>	<b>280.25</b>	<b>105.75</b>	<b>40.6</b>	<b>4.50</b>	<b>1.7</b>
<b>Above ground:</b>						
Foremen, etc .....	158	336.50	75.75	22.4	43.25	12.8
Enginemen .....	900	336.75	135.50	40.3	40.75	12.1
Skilled workers .....	2,028	287.25	32.25	11.2	17.00	5.9
Laborers, male.....	8,010	286.25	70.25	24.5	20.50	7.2
Laborers, female.....	2,253	265.50	67.00	25.2	4.75	1.8
<b>Total.....</b>	<b>8,349</b>	<b>287.50</b>	<b>67.25</b>	<b>23.4</b>	<b>18.00</b>	<b>6.3</b>
<b>Total above and below ground..</b>	<b>34,925</b>	<b>286.75</b>	<b>96.50</b>	<b>36.2</b>	<b>7.75</b>	<b>2.9</b>

The gross annual earnings include the wages paid to the mine workers during the year ending June 30, 1901, as shown by the pay rolls, and all other amounts or payments in kind which they received in addition to wages, but in connection with their work. This amount was then divided by the shifts worked during that year, in order to ascertain the average earnings per shift. The gross earnings were computed for all persons at work on June 30, 1901, the number at that time being 35,812. This number, it will be observed, is greater than the average number for the year as shown in the table.

In the first of the tables, on page 52, the wages and other payments entering into the gross earnings are separately shown for each principal class of mine workers. The table shows also the itemized wage deductions and the net earnings. The sick benefits received by employees from the sick fund are added to show the actual income of the mine workers.

In the second table a classification of the employees at work on June 30, 1901, is made according to wage groups based upon the average gross earnings per shift. The third table is based upon the second and shows, for the principal occupations, the per cent of employees in the various wage groups. The fourth and fifth tables are similar in style to the second and third, but the wage groups are based upon the actual incomes of the employees for the year in question.

The last table shows for each principal occupation the average number of shifts worked per employee and the number and proportion of night shifts and Sunday and holiday shifts worked during the year.

The payments other than wages considered as part of the income of the mine workers include the free use of dwellings or land or the use of the same at a rent rate below that customarily charged; the free use, or use at a reduced rate, of dormitories; allowances for quarters; the free supply of wood, coal, and petroleum for home use, and various kinds of fuel at reduced prices. Of the 26,891 adult employees, who alone can be considered in connection with these allowances, 18,454, or 68.6 per cent, received extra allowances of one kind or another and 8,437, or 31.4 per cent, received no such allowances.

Of the 35,812 mine workers employed on June 30, 1901, 25,757, or 71.9 per cent, were piece or contract workers and 10,055, or 28.1 per cent, were paid by the shift. Of the underground workers, 93.5 per cent were piece workers, and of the surface workers, 69.3 per cent were paid by the shift.

The hours of labor of underground mine workers at this time were regulated by the law of June 21, 1884,<sup>(a)</sup> which provided that the duration of the shift should not exceed 12 hours, while the actual working time should not exceed 10 hours. In this coal mine district it was found that of 38 mines investigated the length of the shift worked by each individual worker in 2 mines was 8 hours, including the time of descent, but exclusive of the time of the ascent, the shifts beginning at 6 a. m., 2 p. m., and 10 p. m.; in 4 mines the regular working shifts of all mine workers—that is, the time between which the first man arrived and the last man departed—was 10 hours per day, including time of descent and ascent, the hours being from 6 a. m. to 4 p. m. and from 6 p. m. to 4 a. m. In the remaining 32 mines the length of the shift for each individual mine worker, including time of descent and ascent, was 10 hours; the day shift in 24 mines beginning at 6 a. m. and ending at 4 p. m. and the night shift beginning at 6 p. m. and ending at 4 a. m., while in 8 mines the day shifts were the same, but the night shifts were from 4 p. m. to 2 a. m. In individual cases, however, mine workers at certain classes of difficult or straining occupations were found to work only 8 hours, even though the customary shift was 10 hours.

The hours of labor of surface workers were mostly 12 per day with an intermission of 2 hours. Persons employed in handling the coal at the mouth of the pit, such as wheelers, screeners, and loaders, worked 10 hours without intermission. Enginemen and firemen employed above ground at the pumping, ventilating, compressing, and electrical machines worked 8 hours per day in a number of the mines, but hoisting engineers as a rule worked 8 hours per day in nearly all mines. There was no overtime worked at any of the mines in the Ostrau-Karwin district during the year.

<sup>a</sup>See pages 99 and 100.

## ACCIDENTS.

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Statistics of accidents in Austria, like the statistics in the preceding sections, have been published in the reports of the Austrian ministry of agriculture since 1875. No division is made in the reports between the number of persons employed below and those employed above ground; hence a comparison can not be made between the death rate from accidents below and that from accidents above ground, as was done in the statistics of other countries.

The statistics of accidents in Austrian mines for the years 1875 to 1885 relate only to male adult mine workers. From 1886 to 1903 they relate to all male mine workers 14 years of age or over. This must be considered when comparisons are made between the accident rate in Austria and in other countries.

The two tables which follow show for coal and lignite mines, respectively, the number of male employees killed and the number injured below and above ground and the rate per 1,000, for each year from 1875 to 1903.

MALE EMPLOYEES KILLED AND MALE EMPLOYEES INJURED BELOW AND ABOVE GROUND IN COAL MINES IN AUSTRIA AND RATE PER 1,000, 1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. The statistics of accidents from 1875 to 1885 relate only to male adults, and from 1886 to 1903 to all male mine workers 14 years of age or over. The rate per 1,000 was computed.]

Year.	Male employees considered.	Employees killed.			Employees injured, but not fatally.				
		Below ground.	Above ground.	Total.	Per 1,000 considered.	Below ground.	Above ground.	Total.	Per 1,000 considered.
1875.....	31,922	100	12	112	3.51	75	4	79	2.47
1876.....	32,968	81	27	108	3.28	81	2	83	2.52
1877.....	32,772	56	3	58	1.77	66	5	71	2.17
1878.....	32,353	73	2	75	2.32	55	4	59	1.82
1879.....	32,621	51	2	53	1.62	64	6	70	2.15
1880.....	32,846	47	4	51	1.55	73	4	77	2.34
1881.....	33,604	65	3	68	2.02	68	5	73	2.17
1882.....	34,373	57	5	62	1.80	62	4	66	1.92
1883.....	35,590	53	2	55	1.54	82	6	88	2.46
1884.....	36,616	81	4	85	2.32	62	9	71	1.94
1885.....	37,096	214	4	218	5.88	66	16	82	2.21
1886.....	38,911	48	5	53	1.36	73	13	86	2.21
1887.....	39,216	59	4	63	1.61	87	7	94	2.40
1888.....	40,848	71	7	78	1.93	91	9	100	2.48
1889.....	42,218	81	5	86	2.04	71	14	85	2.01
1890.....	45,282	60	5	65	1.44	79	17	96	2.12
1891.....	47,286	110	20	130	2.75	88	14	102	2.16
1892.....	48,012	(a)	(a)	61	1.27	(a)	(a)	151	3.15
1893.....	48,079	(a) 55	(a) 3	58	1.19	156	27	183	3.76
1894.....	50,275	(a)	(a)	276	5.49	(a)	(a)	226	4.50
1895.....	51,149	102	5	107	2.09	209	50	259	5.06
1896.....	52,709	57	10	67	1.27	204	45	249	4.72
1897.....	54,587	48	7	55	1.00	240	63	303	5.53
1898.....	57,506	49	6	55	.96	306	71	377	6.56
1899.....	59,075	56	12	68	1.14	304	86	390	6.54
1900.....	64,116	48	15	63	.96	325	108	433	6.80
1901.....	66,832	68	16	84	1.26	351	89	440	6.57
1902.....	68,607	59	13	72	1.13	288	78	376	5.91
1903.....	64,051	45	4	49	.77	327	106	433	6.76

a Not separately reported.

MALE EMPLOYEES KILLED AND MALE EMPLOYEES INJURED BELOW AND ABOVE GROUND IN LIGNITE MINES IN AUSTRIA, AND RATE PER 1,000, 1875 TO 1903.

[Source: *Statistisches Jahrbuch des K. K. Ackerbau Ministeriums*, 1875-1903. The statistics of accidents from 1875 to 1885 relate only to male adults, and from 1886 to 1903 to all male mine workers 14 years of age or over. The rate per 1,000 was computed.]

Year.	Male employees considered.	Employees killed.				Employees injured, but not fatally.			
		Below ground.	Above ground.	Total.	Per 1,000 considered.	Below ground.	Above ground.	Total.	Per 1,000 considered.
1875.....	24,546	48	10	58	2.36	40	12	52	2.12
1876.....	24,238	51	8	59	2.43	37	5	42	1.78
1877.....	24,194	57	6	63	2.60	41	16	57	2.36
1878.....	24,243	52	8	60	2.47	46	24	70	2.89
1879.....	25,013	65	9	74	2.96	61	11	72	2.88
1880.....	26,772	50	11	61	2.28	74	8	82	3.06
1881.....	26,964	69	9	78	2.89	68	21	89	3.30
1882.....	27,249	49	16	65	2.39	89	28	117	4.29
1883.....	27,767	65	6	71	2.56	98	27	120	4.82
1884.....	28,609	64	8	72	2.52	106	13	118	4.12
1885.....	29,274	49	5	54	1.84	108	21	129	4.41
1886.....	31,887	61	1	62	2.07	92	16	108	3.61
1887.....	30,473	55	10	65	2.13	114	17	131	4.30
1888.....	31,370	60	10	70	2.23	122	25	147	4.69
1889.....	33,568	60	17	77	2.29	108	18	126	3.75
1890.....	37,489	97	11	108	2.88	156	22	177	4.72
1891.....	40,792	85	14	99	2.43	198	37	230	5.64
1892.....	40,877	(a)	(a)	102	2.50	(a)	(a)	233	5.70
1893.....	41,361	138	21	159	3.85	222	56	278	6.72
1894.....	42,105	(a)	(a)	93	2.21	(a)	(a)	314	7.46
1895.....	42,968	63	17	80	1.86	274	90	364	8.47
1896.....	43,810	79	20	99	2.26	336	105	441	10.07
1897.....	45,982	87	7	94	2.06	318	103	421	9.17
1898.....	47,491	77	10	87	1.83	358	89	442	9.31
1899.....	48,504	73	15	88	1.81	317	103	420	8.66
1900.....	52,062	148	15	163	3.13	363	117	480	9.22
1901.....	57,019	75	22	97	1.70	339	127	466	8.17
1902.....	53,987	103	21	124	2.30	409	167	576	10.67
1903.....	52,621	47	7	54	1.03	517	143	660	12.54

(a) Not separately reported.

In the coal-mining industry of Austria serious accidents due to fire-damp explosions occurred in 1885 and 1894 and resulted in an abnormal death rate during those years. During the period from 1875 to 1903 the death rate from accidents in coal mines fluctuated considerably, but there was a distinct tendency toward fewer fatalities. There is also noticeable a general tendency toward a decreased death rate in the lignite industry.

In the case of nonfatal accidents there is a steady and decided increase in the number of persons injured per 1,000 in each of the groups of mining industries above shown. This apparent increase may be largely due to increased attention given to the reporting of accidents.

In the next table a comparison is made between the number of male employees killed and the number injured, and the rate per 1,000, in coal, lignite, iron-ore, and other mines during each year from 1875 to 1903.



NUMBER AND RATE PER 1,000 OF MALE EMPLOYEES KILLED AND MALE EMPLOYEES INJURED IN COAL, LIGNITE, IRON-ORE, AND OTHER MINES IN AUSTRIA, 1875 TO 1908.

[Source: Oesterreichisches statistisches Handbuch, Jahrg. I-XXII; Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903.] The statistics of accidents from 1875 to 1885 relate only to male adults, and from 1886 to 1903 to all male mine workers 14 years of age or over. The rate per 1,000 was computed.]

Year.	Coal mines.				Lignite mines.				Iron-ore mines.						
	Male employees considered.		Employees killed.		Employees injured, but not fatally.		Male employees considered.		Employees killed.		Employees injured, but not fatally.				
	Num-ber.	Rate per 1,000.	Num-ber.	Rate per 1,000.	Num-ber.	Rate per 1,000.	Num-ber.	Rate per 1,000.	Num-ber.	Rate per 1,000.	Num-ber.	Rate per 1,000.			
1875..	31,922	112	3.51	79	2.47	24,546	58	2.36	52	2.12	7,270	4	0.55	13	1.79
1876..	32,968	108	3.28	83	2.52	24,238	59	2.43	42	1.73	5,464	3	.55	8	1.46
1877..	32,772	58	1.77	71	2.17	24,194	63	2.60	57	2.36	4,765	6	1.26	8	1.68
1878..	32,333	75	2.32	59	1.82	24,243	60	2.47	70	2.89	4,789	2	.42	3	.63
1879..	32,621	53	1.62	70	2.15	25,013	74	2.96	72	2.86	4,252	5	1.18	4	.94
1880..	32,845	51	1.56	77	2.34	25,772	61	2.28	82	3.06	4,328	6	1.39	7	1.62
1881..	33,604	68	2.02	73	2.17	26,954	78	2.89	89	3.30	4,368	5	1.14	4	.92
1882..	34,373	62	1.80	66	1.92	27,249	65	2.39	117	4.29	4,826	4	.83	6	1.24
1883..	35,830	55	1.54	88	2.46	27,767	71	2.56	120	4.32	5,126	10	1.95	12	2.34
1884..	36,616	85	2.32	71	1.94	28,609	72	2.52	118	4.12	5,435	2	.37	10	1.84
1885..	37,096	218	6.88	82	2.21	29,274	54	1.84	129	4.41	5,137	4	.78	14	2.73
1886..	38,911	53	1.36	86	2.21	29,887	62	2.07	108	3.61	4,428	3	.68	11	2.48
1887..	39,216	63	1.61	94	2.40	30,473	65	2.13	131	4.40	4,081	7	1.72	20	4.90
1888..	40,348	78	1.93	100	2.48	31,370	70	2.23	147	4.69	4,356	5	1.15	10	2.30
1889..	42,218	86	2.04	85	2.01	33,568	77	2.29	126	3.75	4,893	7	1.43	11	2.25
1890..	45,282	65	1.44	96	2.12	37,489	108	2.88	177	4.72	5,686	6	1.06	20	3.82
1891..	47,286	130	2.75	102	2.16	40,792	99	2.43	230	5.64	5,466	7	1.28	24	4.39
1892..	48,012	61	1.27	151	3.15	40,877	102	2.50	233	5.70	4,597	5	1.09	15	3.26
1893..	48,679	58	1.19	183	3.76	41,351	159	3.85	278	6.72	4,496	3	.67	20	4.45
1894..	50,275	276	5.49	226	4.50	42,105	93	2.21	314	7.46	4,288	3	.70	33	7.70
1895..	51,149	107	2.09	259	5.06	42,968	80	1.86	364	8.47	4,479	8	1.79	18	4.02
1896..	52,709	67	1.27	249	4.72	43,810	99	2.26	441	10.07	4,802	8	1.67	21	4.37
1897..	54,837	55	1.00	303	5.53	45,932	94	2.05	421	9.17	5,198	6	1.15	34	6.54
1898..	57,505	55	.96	377	6.56	47,491	87	1.83	442	9.31	5,293	5	.94	41	7.75
1899..	59,675	68	1.14	390	6.54	48,504	88	1.81	420	8.66	5,307	9	1.70	35	6.60
1900..	64,116	61	.95	436	6.80	52,062	163	3.13	480	9.22	5,573	9	1.61	38	6.82
1901..	66,932	84	1.26	440	6.57	57,019	97	1.70	466	8.17	5,780	8	1.38	47	8.13
1902..	63,607	72	1.13	376	5.91	53,987	124	2.30	576	10.67	5,250	12	2.29	31	5.90
1903..	64,051	49	.77	433	6.76	52,621	54	1.03	660	12.54	4,839	2	.41	34	7.03

Year.	Other mines.				All mines.					
	Male employees considered.	Employees killed.		Employees injured, but not fatally.		Male employees considered.	Employees killed.		Employees injured, but not fatally.	
		Num-ber.	Rate per 1,000.	Num-ber.	Rate per 1,000.		Num-ber.	Rate per 1,000.	Num-ber.	Rate per 1,000.
1875	12,347	30	2.43	37	3.00	76,085	204	2.68	181	2.38
1876	14,246	22	1.54	40	2.81	76,916	192	2.50	173	2.25
1877	14,166	17	1.20	24	1.69	75,897	144	1.90	160	2.11
1878	13,694	19	1.39	43	3.14	75,069	156	2.08	175	2.33
1879	13,928	21	1.51	36	2.58	75,814	153	2.02	182	2.40
1880	14,008	24	1.71	39	2.78	77,953	142	1.82	205	2.63
1881	14,210	16	1.13	38	2.67	79,136	167	2.11	204	2.58
1882	14,453	13	.90	38	2.63	80,901	144	1.78	227	2.81
1883	14,176	19	1.34	37	2.61	82,899	155	1.87	257	3.10
1884	14,294	18	1.26	30	2.10	84,964	177	2.08	229	2.70
1885	14,109	15	1.06	36	2.53	85,616	291	3.40	261	3.05
1886	15,091	23	1.52	24	1.59	88,317	141	1.60	229	2.59
1887	15,145	13	.86	24	1.58	88,915	148	1.66	269	3.03
1888	15,240	15	.98	34	2.23	91,314	168	1.84	291	3.19
1889	15,087	16	1.06	38	2.52	95,766	186	1.94	260	2.71
1890	15,618	3	.19	29	1.86	104,075	182	1.75	322	3.09
1891	15,404	6	1.04	27	1.75	108,948	252	2.31	383	3.52
1892	15,150	α 339	22.38	41	2.71	108,636	α 507	α 4.67	440	4.05
1893	14,661	10	.68	41	2.80	109,187	230	2.11	522	4.78
1894	14,493	6	.41	60	4.14	111,161	378	3.40	633	5.69
1895	14,294	8	.56	51	3.57	112,890	203	1.80	692	6.13
1896	14,810	15	1.05	45	3.14	115,631	189	1.63	756	6.54
1897	14,334	13	.91	62	4.33	120,301	168	1.40	820	6.82
1898	14,198	15	1.06	72	5.07	124,482	162	1.30	932	7.49
1899	14,426	9	.62	67	4.64	127,912	174	1.36	912	7.13
1900	14,686	15	1.02	67	4.56	136,437	248	1.82	1,021	7.48
1901	14,829	10	.70	75	5.23	144,060	199	1.38	1,028	7.14
1902	14,278	8	.56	87	6.09	137,122	216	1.58	1,070	7.80
1903	14,125	9	.64	101	7.15	135,636	114	.84	1,228	9.05

α Including 322 killed by fire in mine.

It will be observed that during this period—from 1875 to 1903—the rate per 1,000, both of persons killed and of persons injured, was generally **much higher** in the lignite than in the coal mines. The death rate from accidents was generally higher in the coal than in the iron-ore mines, although this order has been reversed in recent years.

While the original reports of the Austrian ministry of agriculture contain tables showing separately, for each class of mining industry, the number of male mine workers killed and the number injured, according to causes, the classification of causes in those tables is not sufficiently uniform from year to year to permit the reproduction of these statistics for a series of years. Statistics showing the number of persons killed and the number injured in all classes of mines, taken collectively and grouped according to causes of accidents, are, however, published in comparable form in the Austrian reports. These statistics have been used in compiling the following tables:

MALE EMPLOYEES KILLED IN ALL MINES IN AUSTRIA, BY PRINCIPAL CAUSES, 1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. The statistics of accidents from 1875 to 1885 relate only to male adults, and from 1886 to 1903 to all male mine workers 14 years of age or over.]

Male employees killed.														
Year	By falling or caving in of mine.	By trams, tubs, etc.	By falling stones or other objects.	By machinery and gear-ing.	By falling down shafts etc.	By explosion of fire damp	By coking of coal, etc., on surface.	While descending or ascending.	By explosives	While cutting or boring.	While at timber or masonry work.	By irruption of water.	By all other causes	Total.
1875.	68	21	(a)	10	18	32	13	7	12	5	4	(a)	14	204
1876.	65	17	(a)	6	18	10	11	7	7	5	13	(a)	34	192
1877.	77	14	(a)	7	23	8	8	3	3	3	4	(a)	5	144
1878.	55	20	(a)	2	13	16	9	4	10	5	4	(a)	18	156
1879.	41	17	(a)	5	11	4	7	7	8	5	5	(a)	14	158
1880.	46	15	(a)	7	14	10	2	7	8	5	6	(a)	24	142
1881.	61	21	(a)	6	14	6	11	5	6	7	13	(a)	1	21
1882.	50	22	(a)	7	16	4	7	4	4	3	7	(a)	2	17
1883.	47	20	(a)	2	15	11	9	3	5	10	4	(a)	1	18
1884.	56	10	(a)	6	19	31	4	5	6	1	6	(a)	10	26
1885.	57	17	(a)	5	15	168	4	3	2	5	5	(a)	2	8
1886.	65	21	(a)	.....	12	4	11	3	6	3	2	7	.....	7
1887.	68	16	(a)	3	16	16	5	8	4	1	5	1	.....	5
1888.	78	23	(a)	2	15	11	3	6	9	9	2	3	.....	6
1889.	67	33	(a)	8	21	10	6	8	12	7	8	.....	1	5
1890.	27	29	(a)	9	18	.....	7	4	5	3	5	.....	35	39
1891.	47	32	(a)	3	18	72	5	11	6	8	4	1	2	43
1892.	59	83	(a)	8	20	17	4	6	4	5	1	1	3	48
1893.	54	25	(a)	8	16	55	14	7	2	5	3	.....	6	35
1894.	27	20	19	3	16	254	6	5	6	7	5	.....	.....	10
1895.	45	20	29	3	20	52	3	8	6	4	4	.....	3	6
1896.	30	23	47	8	23	.....	25	8	6	7	1	.....	.....	5
1897.	29	29	46	4	19	.....	5	8	4	3	.....	6	.....	2
1898.	40	24	30	8	22	.....	8	.....	1	6	.....	1	.....	13
1899.	87	33	34	9	17	10	7	2	1	3	4	8	5	7
1900.	45	20	33	7	15	21	58	11	4	9	3	1	2	4
1901.	38	43	39	7	32	2	10	5	2	4	4	4	.....	19
1902.	27	24	45	6	17	6	.....	1	5	5	2	.....	60	18
1903.	56	17	5	7	7	4	.....	2	.....	7	1	.....	7	216

<sup>a</sup> Not separately reported.

<sup>b</sup> Including 322 killed by fire in mine.

## MALE EMPLOYEES INJURED, BUT NOT FATALLY, IN ALL MINES IN AUSTRIA, BY PRINCIPAL CAUSES, 1875 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1903. The statistics of accidents from 1875 to 1885 relate only to male adults, and from 1886 to 1903 to all male mine workers 14 years of age or over.]

Year	Male employees injured, but not fatally.														Total.			
	By falling or caving in of mine.	By trams, tubs, etc.	By falling stones or other objects.	By machinery and gearing.	By falling down shafts etc.	By explosion of fire damp.	By choke damp.	By falling of coal, stone, etc., on surface.	While descending or ascending.	By explosives.	While cutting or boring.	While at timber or masonry work.	By irruption of water.	By all other causes				
1875.	70	26	(a)	7	6	9	.....	2	4	25	9	(a)	(a)	23	b 181			
1876.	69	27	(a)	9	5	2	.....	2	6	18	7	(a)	(a)	12	173			
1877.	62	25	(a)	11	5	2	.....	8	4	21	6	(a)	(a)	16	160			
1878.	41	37	(a)	13	4	3	.....	7	5	18	11	(a)	(a)	35	175			
1879.	49	41	(a)	8	7	3	.....	3	3	19	15	(a)	.....	34	182			
1880.	66	31	(a)	7	3	15	.....	5	5	38	6	(a)	.....	34	206			
1881.	58	38	(a)	14	4	19	.....	6	1	24	11	(a)	.....	33	204			
1882.	58	58	(a)	8	1	6	.....	4	4	24	2	(a)	.....	67	227			
1883.	67	50	(a)	15	10	12	.....	11	5	28	9	(a)	.....	49	257			
1884.	62	60	(a)	15	2	11	.....	2	2	23	3	(a)	.....	45	229			
1885.	86	66	(a)	14	8	5	.....	6	1	20	7	(a)	.....	48	261			
1886.	98	58	(a)	19	11	2	.....	7	4	9	3	.....	4	1	18	229		
1887.	117	63	(a)	19	3	5	.....	4	4	17	9	.....	4	.....	24	269		
1888.	108	76	(a)	12	9	7	.....	6	5	15	16	.....	3	.....	34	291		
1889.	97	64	(a)	15	4	4	.....	9	3	15	15	.....	4	.....	30	260		
1890.	31	71	(a)	27	28	7	.....	1	8	10	24	.....	9	.....	2	104	322	
1891.	80	99	(a)	19	33	.....	.....	3	9	9	17	.....	13	.....	8	98	383	
1892.	71	117	(a)	20	31	22	.....	13	11	12	24	.....	1	.....	1	c 117	440	
1893.	87	118	(a)	45	39	22	.....	4	8	24	15	.....	10	.....	150	522		
1894.	81	166	129	42	51	16	.....	8	11	15	31	.....	13	.....	70	633		
1895.	108	182	120	58	62	31	.....	1	6	10	26	.....	14	.....	52	692		
1896.	89	205	130	60	62	17	.....	19	6	10	27	.....	23	.....	25	1	82	756
1897.	92	213	191	53	85	8	.....	.....	10	15	16	.....	22	.....	18	2	95	820
1898.	127	258	208	78	77	8	.....	.....	7	3	26	.....	25	.....	31	.....	84	982
1899.	125	238	178	76	67	8	.....	.....	15	15	35	.....	20	.....	17	.....	118	912
1900.	124	306	192	93	100	10	.....	7	9	5	41	.....	30	.....	19	.....	85	1,021
1901.	115	333	198	89	76	4	.....	.....	13	6	52	.....	25	.....	20	.....	97	1,023
1902.	88	315	238	102	100	6	.....	.....	9	9	17	.....	12	.....	9	.....	170	1,070
1903.	202	359	196	118	99	10	.....	.....	12	5	40	.....	6	.....	27	.....	154	1,228

<sup>a</sup> Not separately reported.

<sup>b</sup> This total does not agree with detailed table for year, which gives total of 182.

<sup>c</sup> Including 9 injured by fire in mine.

The cause which resulted in the greatest number of fatalities was the falling or caving in of mines or of overhanging rock. The deaths from this cause show a decrease during the past decade. Explosions of fire damp are the next in order as a cause of fatal accidents. About two-fifths of all deaths from accidents in mines during the twenty-nine years from 1875 to 1903, inclusive, were due to these two causes.

## MINERS' RELIEF FUNDS.

Miners' relief societies (*Bruderladen*) are known to have existed in Austria as early as the year 1280. These societies owe their origin to the effort to provide some local organization for the purpose of securing relief for sick and injured miners and their dependents. These small local organizations were gradually established at the various coal, metalliferous, and other mines. Their funds were at first derived entirely from the contributions of the miners, but later



the employers were induced to contribute also. Though of great value to the miners, the lack of supervision allowed many abuses to spring up in the system. In the general mining law of 1854 the first attempt to secure a general national supervision was made. But with the increasing demands on the societies caused by modern conditions the provisions of the law of 1854 were found to be inadequate in a few years. The greatest obstacle to the development of the societies was the provision which restricted the operations of one society to one mine. An especially unfortunate result of this restriction was that a miner could not leave his position in one mine to secure employment in another without serious loss of benefits in the pension fund. Another weakness arose from the fact that, as a rule, the benefits were arranged on a purely arbitrary basis and not as a result of an actuarial calculation of the amount the dues would produce. The administration of the societies was faulty in that no distinction was made between the funds intended for the relief of sickness, those for the relief of invalidity, and those for the relief of widows and orphans.

These and other faults induced the Austrian Government to make several investigations into the condition of the miners' relief societies, especially with the view of establishing an actuarial basis for their future operation. The need of an equitable representation of the employers and of the workmen on the boards of management of the societies was also an important issue. The results of these investigations were contained in several reports, the first of which was made in 1872. Other reports were made later and the final result was the passage of a series of laws to regulate the miners' societies. The first of these laws was passed in 1889. Other laws modifying this one followed in 1890, 1891, and 1892. This general legislation, together with the administrative rules issued by the ministry in charge of mining matters, still regulates the societies for the relief of mine workers employed in all kinds of mines, such as coal, metalliferous, and other mines, and also of employees in industrial plants connected with mines. Under the provisions of these laws the societies may provide relief for their members in cases of sickness and invalidity, as well as make provision for the widows and orphans of members. The societies are required to maintain two separate and distinct funds, the sick fund and the pension fund, each having an expense and a receipt account. A definite minimum of benefits is prescribed for each fund; the sick benefits must not be less than those provided for under the general compulsory sick-insurance law for workingmen, while for permanent disability the pension fund is required to provide an annual pension of 200 crowns (\$40.60) for male and 100 crowns (\$20.30) for female members.

All workingmen engaged in mining are required to join the miners' fund for the district in which the mine is located. Those regularly

employed must be enrolled as members of both the sick and the pension funds; those temporarily employed must be enrolled in the sick fund and in that section of the pension fund which provides relief for disability incurred by accident while at work. In addition to the miners, those officials receiving a salary of less than 2,400 crowns (\$487.20) must be enrolled in the same class as the temporary employees. The societies may admit to membership workmen who are employed in industrial plants connected with the mines.

The societies have the rights of legal persons. The work of administration is vested in an executive board composed of workingmen and employers; the employers, however, may have not more than one-third of the total number of votes on this board, nor more than that proportion in the general assembly of members.

The employers are required to contribute an amount equal to the dues paid by their workingmen, to deduct the dues of the latter from their wages, and to forward the whole amount to the proper officials of the society. Notification of the employment and dismissal of workmen must also be made to the society by the employer. The State supervision of the societies is exercised by the officials of the local mining offices (*Revierbergämter*), whose actions are subject to review by the officials of the superior mining offices (*Berghauptmannschaften*), with the final authority vested in the ministry of agriculture, which has charge of mining matters. The constitution and by-laws of the societies must in each case be approved by the superior mining officials before being put into force. Controversies between societies and their members are settled by the regular courts of civil jurisdiction; disputes between different societies or members of different societies are settled by special courts of arbitration.

The sick benefits required of the miners' societies by the sick insurance law are: (1) Free medical attendance and free medical supplies. (2) In case the sickness lasts more than 3 days and the patient is unable to work, a sick benefit equal to 60 per cent of the prevailing rate of wages for ordinary day labor, this amount to be paid during the continuation of the sickness, but not for a longer period than 20 weeks. (3) In case of death, a burial benefit of not less than twenty days' wages at the prevailing rate for ordinary day labor.

These benefits are the minimum which the societies must offer. The sick benefit may be placed at 60 per cent of the actual earnings of the miner and the other benefits may be increased in proportion. The medical treatment may be given in a hospital, in which case the dependents of the member may be granted one-half of the customary sick benefit.

The other features of the societies may be ascertained from the model constitution and by-laws of a miners' fund published by the ministry

of agriculture on November 15, 1890, which the miners' societies are required to follow closely.

The pension fund of the societies must provide pensions: (1) For full-benefit members who become incapacitated for mining work from any cause and for partial-benefit members who are disabled by accident while at work, the pension to continue for life or during disability; (2) for the widows of full-benefit members and for the widows of partial-benefit members who have been killed while at work, the pension to continue for life or until remarriage; (3) for the children of deceased members, the pension to continue until they have completed their fourteenth year of age.

The amount of the pension for disability is determined by the length of service of the member. The lowest pension for workmen for complete disability is 100 florins (\$40.60); this is increased by 20 florins (\$8.12) for each 5 years of service until the highest pension of 200 florins (\$81.20) is reached. Foremen and other officials begin with 120 florins (\$48.72) and increase at the rate specified for workmen. Partial disability is compensated by a fraction of the above amounts. Women members receive half the pensions granted to men.

The pension for widows is equal to one-half of the invalidity pension to which the husband was entitled. Until they have completed their fourteenth year of age, children of deceased male members receive one-sixth of the father's invalidity pension; in case of the death of both parents the amount of the children's pension is doubled. Children of deceased female members receive one-sixth of the invalidity pension to which the mother was entitled. The sum of the pensions to the dependents of deceased members may not exceed 75 per cent of the pension to which the member was entitled.

Members must have paid dues for three years before they are entitled to an invalidity pension, except when the invalidity is caused by an accident while at work, in which case the pension begins at once regardless of the duration of the membership. Pensions are not withheld from widows and orphans in case a member has purposely caused his own death.

Before marrying, members are required to undergo a medical examination; if the society's physicians decide that the member is not free from weakness or disease which may cause an early death, the only widow and orphan relief which the member can secure is that which is granted in case of death caused by accident while at work. In case a member marries after being granted a pension for permanent disability, he is not allowed to join the pension fund for the relief of widows and orphans.

Disability which has been purposely caused debars the member from any invalidity relief.

The receipts of the miners' societies consist of the following items: (1) Dues from full-benefit members; (2) dues from partial-benefit members; (3) dues from employers; (4) fees imposed on members who marry; (5) amounts received from the central reserve fund; (6) reserve brought by new members from other societies; (7) fines; (8) gifts, legacies, etc.; (9) interest on the reserve fund.

The dues required of full-benefit members are shown in part in the table on page 69, which shows the scale of dues in force in the miners' society of Brixlegg. The miners' societies are required to adopt this table, which was published in connection with the model constitution and by-laws issued by the ministry of agriculture. As female members receive only half of the amount of benefits paid to male members, they are required to pay only half the amount of dues paid by the latter.

The dues are graduated according to the age of the member and for the widow and orphan fund according to the combined ages of husband and wife. When a person is admitted to full membership, his dues for the different pension funds are fixed at the amount given in the table for persons of his age. When members are advanced at the end of every 5 years to a higher grade of benefits, the dues are changed to correspond with the dues for the age of the member at the time of the increase. In the Brixlegg society an additional amount of dues besides the increase given in the table is imposed when the benefits of the widow and orphan fund are increased.

The dues of partial-benefit members in the invalidity fund are placed at three-fourths of 1 per cent of their annual earnings, though some societies have a higher rate. During the lifetime of the wife, dues equal to one-half of 1 per cent of the partial-benefit member's annual earnings are required for the pension fund for the relief of his widow and orphans in case of death caused by accident while at work.

Any member who voluntarily requests it may be enrolled in a higher benefit class if he secures the consent of the executive board and pays double the difference in the dues which this increase causes. The employer is not required to pay any part of this increase in dues.

Reserve funds must be accumulated by the societies, both for the sick-relief section and for the pension section. The reserve of the sick-relief section must be equal to twice the amount of the average annual expense of the sick-fund section. Until this sum has been accumulated, 20 per cent of the annual income must be set aside for this purpose, and, if necessary, the dues are to be increased. The reserve of the pension fund of the society must be sufficient to cover the pension obligations of the society; and in order to guarantee that this is the case, an actuarial investigation of the obligations of this part of the society must be made every 5 years. The report of this investigation must be made to and verified by the State insurance officials.

In case this report shows that the dues are either too high or too low, changes must be made, subject to the approval of the State officials.

Those members who have been out of work or engaged in the military service are provided for as follows: On returning to work, such members have two courses open to them—they may pay all the dues (i. e., both their own and the employer's share), with interest, for the period during which they were absent and be reinstated to full benefits; or they may claim their quota of the reserve of the pension fund and be treated as new members who have been transferred from another society.

In case a member severs his connection with a miners' society, his share of the reserve of the pension fund may either be paid to him or it may be placed as an interest-bearing deposit in the national postal-savings bank to be turned over to any miners' society which he may join at a later date. If he does not become a member of such a society, the money may remain in the postal-savings bank until he becomes an inmate of some State institution or becomes an invalid, whereupon the deposit becomes immediately available for his support. In case of death it is paid to his heirs. Some societies do not follow the model constitution in this respect, but simply pay to the member his entire share of the reserve fund after severing his connection with the society. Partial-benefit members have no claim to the reserve.

Under no circumstances have members any claim to the reserve of the sick fund.

The law of 1889 required the mine owners to establish a "central reserve fund," the object of which is to assist those pension funds affected by an accident in which 5 or more members are killed or disabled. The fund is supported by annual assessments on the mine owners based on the amount of the pay roll of each mine. The assessment, however, may not exceed one-fourth of 1 per cent of the annual wage payments. The fund is administered by a commission composed of representatives of the Government, the mine owners, and the workingmen. This commission has power to fix the rate of the assessment and to decide upon claims for relief.

The constitutions of the societies contain careful specifications in regard to the keeping of the accounts of the society and the preparation of the annual statistical reports.

The administration of the affairs of the society is vested in an executive board, with certain powers reserved to the general meeting of the society and to the supervising committee. The executive board is elected by the general meeting and is composed of both employees and employers, the latter having one-third of the total number of votes on the board. The powers of the board are very general and include practically the entire administration of the society. Any member is eligible to the executive board who is 30 years of age, has

not been convicted in any court, can read and write, and has been a member of the society for three years. A member who is elected to the executive board may decline to accept the office only in case he has already served on the board.

The general meeting of the society must be called once a year. In this meeting the employers or their representatives have votes equal to half the number of workingmen members present—i. e., one-third of the total number of votes.

The committee of supervision is elected annually by the general meeting and consists of three or more members chosen from the general meeting. Its functions are purely advisory, consisting of the right to inspect books and accounts, attend meetings of the executive board, etc. In urgent cases the committee has the right to suspend unconstitutional acts of the executive board, to call a session of the general meeting of the society, or to ask for the intervention of the state mining officials.

The following tables show the rates of dues for members. The first table shows the monthly dues required of full-benefit members to entitle them to an annual pension of 100 florins (\$40.60) in case of disability; the second table shows the dues for the widow and orphan relief.

MONTHLY DUES OF FULL-BENEFIT MEMBERS FOR THE INVALIDITY PENSION FUND OF THE MINERS' RELIEF SOCIETY OF BRIXLEGG.

[Source: Statut der vereinigten Berg- und Hüttenbrüderlade des ärarischen Montanwerkes zu Brixlegg. Conversion of Austrian into United States money was made on the basis of 1 kreutzer = \$0.00406.]

Age on admission to fund or when advanced to higher class (years).	Dues of full-benefit members.	Age on admission to fund or when advanced to higher class (years).	Dues of full-benefit members.
15 .....	\$0.10	50.....	\$1.02
20.....	.13	55.....	1.46
25.....	.18	60.....	1.84
30.....	.24	65.....	1.99
35.....	.33	70.....	2.07
40.....	.47	75.....	2.35
45.....	.69	80.....	2.55

AMOUNT OF MONTHLY DUES FOR FULL-BENEFIT MEMBERS OF THE WIDOW AND ORPHAN PENSION FUND OF THE MINERS' RELIEF SOCIETY OF BRIXLEGG.

[Source: Statut der vereinigten Berg- und Hüttenbrüderlade des ärarischen Montanwerkes zu Brixlegg. Conversion of Austrian into United States money was made on the basis of 1 kreutzer = \$0.00406.]

Age of husband (years).	Age of wife (years).											
	15	20	25	30	35	40	45	50	55	60	65	70
	Amount of dues.											
20.....	\$0.15	\$0.14	\$0.13	\$0.12	\$0.10	\$0.09	\$0.08	\$0.06	\$0.05	\$0.04	\$0.02	\$0.01
25.....	.19	.17	.16	.14	.12	.11	.09	.08	.06	.05	.03	.02
30.....	.23	.22	.20	.18	.15	.13	.11	.09	.08	.06	.05	.04
35.....	.30	.28	.26	.24	.21	.18	.15	.12	.10	.08	.06	.05
40.....	.40	.38	.35	.32	.28	.24	.21	.17	.13	.11	.08	.06
45.....	.54	.52	.48	.44	.40	.35	.29	.24	.19	.15	.11	.09
50.....	.80	.76	.71	.66	.60	.52	.45	.37	.29	.23	.17	.13
55.....	1.19	1.13	1.07	1.00	.91	.82	.71	.58	.47	.36	.27	.20
60.....	1.78	1.66	1.58	1.40	1.30	1.17	1.01	.85	.68	.53	.39	.29
65.....	2.51	2.33	2.14	1.94	1.76	1.60	1.40	1.19	.97	.76	.56	.41
70.....	3.45	3.19	2.93	2.68	2.42	2.16	1.92	1.64	1.35	1.07	.80	.59



Owing to the change of laws in 1892, the statistics of the societies have to be presented in two sets of tables. It will be remembered that the statistics include the figures relating to societies of miners engaged in establishments other than coal and lignite mines, as, for instance, metalliferous mines, and the industrial plants connected with mines. From 1885 to 1891, inclusive, the figures relating to the state salt works are included. Since 1874 there has been a decrease in the number of societies and an increase in the number of members, indicating an increase in the size of the societies and a more favorable distribution of the burdens of sick and invalidity relief. From 1892 to 1903 the number of societies decreased from 295 to 218. The sick funds during this period decreased in number from 259 to 170, while the total number of members and dependents increased from 338,648 to 381,242. This membership in 1903 was composed of 165,138 obligatory members, who had insured 193,874 of their dependents, and of 9,854 pensioners, who similarly had 12,376 dependents insured in the sick funds. The pension funds during the period 1892 to 1903 decreased in number from 292 to 215, while the membership increased from 138,364 to 164,674, and the number of dependents insured increased from 213,713 to 310,599. The number of members entitled to partial benefits decreased from 15,705 to 6,433. The number of pensioners increased from 35,403 to 51,312.

The membership tables for the years 1874 to 1903 follow. From 1892 data for each class of funds are reported separately:

## MEMBERSHIP OF MINERS' RELIEF SOCIETIES IN AUSTRIA, 1874 TO 1891.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1874-1891. The statistics relate to all classes of mines.]

Year.	Societies.	Contributors.			Dependent wives and children.	Pensioners.			
		Members.	Participants.	Total.		Former members.	Widows.	Orphans.	Total.
1874.....	368	90,260	17,523	107,783	(a)	5,922	8,087	6,181	20,140
1875.....	355	86,259	17,404	103,663	180,908	6,509	8,589	6,413	21,461
1876.....	354	86,461	19,078	105,539	121,792	6,846	8,868	6,485	22,199
1877.....	354	90,706	20,984	101,640	124,721	7,210	9,218	6,828	23,256
1878.....	349	81,696	18,222	99,917	138,446	7,576	9,739	7,153	24,468
1879.....	346	81,766	17,598	99,164	139,178	7,757	9,885	7,200	24,842
1880.....	344	82,964	19,652	102,616	140,000	7,861	10,062	7,357	25,270
1881.....	346	84,610	23,265	107,875	148,375	7,866	10,507	7,548	25,921
1882.....	346	86,708	23,966	110,674	151,075	8,009	10,737	7,569	26,305
1883.....	338	91,677	23,590	115,267	159,411	8,262	11,112	7,784	27,108
1884.....	335	94,903	23,489	118,402	162,884	8,486	11,425	8,079	27,989
1885 (a).....	354	94,823	25,586	120,415	175,504	9,253	12,802	9,070	31,125
1886 (b).....	345	94,112	21,668	115,780	179,077	9,662	13,068	8,978	31,728
1887 (b).....	341	96,293	21,473	117,766	183,204	10,072	13,262	9,018	32,352
1888 (b).....	340	99,572	23,320	122,892	186,006	10,415	13,496	8,957	32,867
1889 (b).....	334	111,316	19,969	131,275	201,810	10,659	13,581	8,953	33,443
1890 (b).....	328	120,086	21,240	141,326	211,422	11,020	14,447	9,049	34,516
1891 (b).....	327	126,696	20,127	146,823	215,621	11,536	14,668	9,394	35,582

<sup>a</sup> Not reported.

<sup>b</sup> Including figures relating to the state salt works.

## MEMBERSHIP OF MINERS' RELIEF SOCIETIES IN AUSTRIA, 1892 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1892-1903. The statistics relate to all classes of mines.]

Year.	Socie- ties.	Sick-benefit funds.						
		Number of funds.	Membership.			Dependents.		
			Oblig- atory mem- bers.	Pension- ers.	Total.	Of oblig- atory mem- bers.	Of pen- sioners.	Total.
1892.....	296	269	137,581	12,681	150,212	176,906	11,531	188,436
1893.....	274	224	140,124	5,239	145,363	154,500	9,091	163,591
1894.....	274	224	142,143	4,900	147,043	146,907	6,119	153,026
1895.....	274	229	147,843	4,809	152,652	153,309	6,020	159,329
1896.....	269	226	151,844	6,089	157,933	159,374	8,084	167,458
1897.....	265	225	158,504	5,941	164,445	169,533	8,023	177,556
1898.....	254	203	159,906	7,370	167,276	168,560	9,298	177,853
1899.....	248	200	165,424	8,068	173,492	174,694	10,017	184,711
1900.....	242	196	179,791	8,920	188,711	180,846	11,087	191,933
1901.....	233	189	174,984	8,890	183,874	188,768	11,370	200,138
1902.....	220	175	169,764	9,598	179,362	186,300	13,373	208,673
1903.....	218	170	165,138	9,864	174,992	183,874	12,376	206,250

  

Year.	Socie- ties.	Pension funds.					
		Number of funds.	Membership.			Depend- ents of members.	Persons receiving pensions.
			Full-ben- efit mem- bers.	Partial- benefit members.	Total.		
1892.....	296	292	122,659	15,706	138,364	213,713	36,403
1893.....	274	270	127,922	14,795	142,717	218,200	36,437
1894.....	274	264	131,732	14,593	146,325	229,686	33,194
1895.....	274	264	126,790	12,401	139,191	233,608	33,923
1896.....	269	261	133,761	10,564	144,325	239,224	40,392
1897.....	265	258	140,306	10,149	150,455	247,981	41,797
1898.....	254	246	143,934	10,267	154,201	259,051	42,163
1899.....	248	243	151,847	8,463	160,310	269,635	43,850
1900.....	242	233	166,733	8,452	175,185	283,537	45,693
1901.....	233	231	165,633	6,876	172,509	296,141	47,573
1902.....	220	213	162,355	6,605	168,960	311,731	49,774
1903.....	218	215	158,241	6,433	164,674	310,699	51,312

The tables which follow show that in 1903 the number of cases of sickness was 125,538, the number of days of sickness was 1,732,879, the number of days for which relief was granted was 1,706,979, while the average duration of each case of sickness was 13.80 days. The duration of each case of sickness shows a tendency to increase. From 1876 to 1889 the average number of days of sickness to each case was less than 10. After 1889 an increase was noticeable, and since 1894 the average duration has been between 13 and 14 days, except for one year, when it slightly exceeded 14. The total number of cases of invalidity has varied from year to year, but on the whole shows the usual growth, due to the increase in membership. In 1875 the total number of cases of invalidity from all causes was 845; in 1891 it was 1,519. Under the new legislation the total number of cases in 1892 was 1,669; in 1903 it was 2,815. The number of cases of death in both classes of funds from all causes was 1,539 in 1875. In 1903 the number of deaths from all causes was 1,276 among the members of the sick funds and 1,155 among members of the pension funds. The total number of



cases of death due to accident while at work in 1875 was 175; in 1903 the sick-benefit funds reported 127 cases of death due to accidents while at work; 126 of these cases were also reported by the pension funds.

The three tables which follow give these statistics of sickness, invalidity, and death among the members of miners' relief societies for each year during the period 1875-1903:

SICKNESS, INVALIDITY, AND DEATH AMONG MEMBERS OF THE MINERS' RELIEF SOCIETIES IN AUSTRIA, 1875 TO 1891.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1891. The statistics relate to all classes of mines.]

Year.	Cases of sickness.	Total days of sickness.	Average duration of each case of sickness (days).	Cases of invalidity due to—			Cases of death due to—		
				Accidents while at work.	Other causes.	All causes.	Accidents while at work.	Other causes.	All causes.
1875.....	77,668	814,984	10.50	74	771	845	175	1,364	1,539
1876.....	78,145	743,471	9.60	36	899	935	167	1,407	1,574
1877.....	81,394	764,596	9.40	195	970	1,165	146	1,677	1,823
1878.....	88,718	816,018	9.20	91	787	878	160	1,600	1,760
1879.....	82,438	815,099	9.80	84	821	905	143	1,685	1,828
1880.....	85,690	791,071	9.20	49	736	785	151	1,448	1,599
1881.....	86,152	848,627	9.90	50	669	719	158	1,593	1,751
1882.....	88,404	878,570	9.90	48	699	747	152	1,408	1,560
1883.....	97,899	946,123	9.70	63	770	833	152	1,564	1,716
1884.....	107,845	995,530	9.20	39	897	936	183	1,588	1,771
1885 (a) ..	108,441	1,033,903	9.50	61	1,046	1,107	308	1,637	1,945
1886 (a) ..	106,781	1,020,878	9.60	64	1,214	1,278	140	1,544	1,684
1887 (a) ..	105,875	971,118	9.17	88	1,068	1,151	141	1,382	1,523
1888 (a) ..	114,908	1,078,975	9.39	112	1,190	1,302	183	1,684	1,867
1889 (a) ..	116,294	1,096,063	9.44	95	1,202	1,297	180	1,597	1,777
1890 (a) ..	148,076	1,440,092	10.07	90	1,112	1,202	216	1,805	2,021
1891 (a) ..	125,009	1,261,877	10.09	99	1,420	1,519	258	1,596	1,854

<sup>a</sup> Including figures relating to the state salt works.

SICKNESS AND DEATH AMONG MEMBERS OF THE SICK-BENEFIT FUNDS, 1892 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1892-1903. The statistics relate to all classes of mines.]

Year.	Cases of sickness due to—			Days of sickness due to—			Average duration of each case of sickness (days).	Number of days for which sick relief was granted.	Cases of death due to—	
	Accidents while at work.	Other causes.	All causes.	Accidents while at work.	Other causes.	All causes.			Accidents while at work.	Other causes.
1892...	7,167	117,738	124,900	117,875	1,196,600	1,313,475	10.52	(a)	515	1,534
1893...	6,523	134,461	140,984	131,815	1,536,571	1,668,386	11.88	1,403,488	218	1,509
1894...	8,501	116,634	125,135	158,762	1,468,548	1,627,300	18.00	1,407,294	394	1,267
1895...	15,622	106,596	121,218	213,968	1,390,648	1,604,616	13.24	1,552,190	228	1,245
1896...	16,604	98,090	114,694	230,954	1,354,075	1,585,029	13.82	1,550,081	200	1,340
1897...	14,045	104,087	118,082	205,355	1,389,910	1,595,265	13.51	1,557,170	181	1,299
1898...	18,208	102,670	120,878	247,937	1,371,893	1,619,830	13.40	1,576,847	177	1,216
1899...	19,111	115,973	135,084	260,195	1,544,826	1,806,021	13.86	1,776,788	193	1,348
1900...	19,137	114,002	133,139	270,217	1,506,838	1,777,055	14.09	1,763,689	260	1,401
1901...	20,968	123,078	144,041	304,147	1,640,904	1,945,061	13.60	1,914,578	217	1,411
1902...	18,252	104,696	122,950	258,368	1,461,110	1,719,478	13.99	1,703,449	227	1,267
1903...	18,021	107,517	125,538	261,020	1,471,859	1,732,879	13.80	1,706,979	127	1,149

<sup>a</sup> Not reported.

## INVALIDITY AND DEATH AMONG MEMBERS OF THE PENSION FUNDS, 1892 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1892-1903. The statistics relate to all classes of mines.]

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Year.	Cases of invalidity of—			Cases of death of—			
	Full-benefit members due to—		Partial-benefit members, caused by accidents while at work.	Full-benefit members due to—		Partial-benefit members due to—	
	Accidents while at work.	Other causes.		Accidents while at work.	Other causes.	Accidents while at work.	Other causes.
1892.....	105	1,521	43	501	1,342	(a)	b 136
1893.....	118	1,636	2	214	1,245	5	106
1894.....	160	1,647	17	389	1,144	15	99
1895.....	169	1,756	15	203	921	20	134
1896.....	170	2,021	18	178	999	11	122
1897.....	210	1,865	22	168	1,005	6	126
1898.....	205	1,808	25	164	1,067	11	119
1899.....	206	2,151	17	178	1,074	17	142
1900.....	170	2,064	26	249	1,097	12	94
1901.....	222	2,380	26	201	1,150	11	101
1902.....	212	2,838	27	210	976	10	81
1903.....	214	2,572	29	122	944	4	85

<sup>a</sup>Included in "other causes."

<sup>b</sup>Including deaths from accidents while at work.

Since 1892 the receipts and expenditures have been reported separately for each class of funds. In the period 1875-1903, as shown in the tables below, the total receipts increased from 1,307,153 gulden (\$569,134) in 1875 to 13,037,412 crowns (\$2,646,595) in 1903, an increase of 365 per cent. The most interesting feature of the receipts is the readjustment which has taken place in regard to the relative amounts contributed by the workingmen and the operators. In 1875 the workingmen contributed 81.6 per cent of the total receipts of both classes of funds; in 1903 they contributed 50.5 per cent. In the same period the employers' share increased from 18.4 per cent in 1875 to 49.5 per cent in 1903.

The total expenditures of the societies for all purposes in 1875 were 1,323,471 gulden (\$576,239); in 1903 the total expenditures were 12,240,731 crowns (\$2,484,868), an increase of 331 per cent. All of the items of expenditure of the sick funds since 1892 show an increase except that for school money; the expenditures for administration show a more rapid increase than the other items. The total expenditures of the sick funds in 1903 were 4,442,203 crowns (\$901,767); of this sum, 1,689,209 crowns (\$342,909) was expended for sick benefits, 2,081,188 (\$422,481) for medical attendance, supplies, etc., and 369,506 crowns (\$75,010), or 8.3 per cent of the total expenditure, for administration.

The total amount expended for pensions in 1903 was 6,887,839 crowns (\$1,398,231); of this sum, 69.2 per cent was for pensions for full-benefit members, and 24.3 per cent for pensions for widows. These two items therefore make up 93.5 per cent of the expenditures for pensions. A marked increase has taken place in the amount of the dues

returned to withdrawing members, though the amounts for the years 1901 and 1902 are less than for 1900. In 1903 the amount returned was 910,689 crowns (\$184,870).

The following four tables show the receipts and expenditures of the Austrian miners' relief societies for each year of the period 1875-1903:

RECEIPTS AND EXPENDITURES OF MINERS' RELIEF SOCIETIES IN AUSTRIA, 1875 TO 1891.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1875-1891. For bases used in converting Austrian into United States money see page 27. The statistics relate to all classes of mines.]

Year.	Receipts.				Expenditures.			
	Contributions of employees.			Contributions of operators.	Perma- nent aid.	Temporary aid, sick relief, and funeral expenses.	Medical attendance and sup- plies.	Total.
	Mem- bers.	Partic- ipants.	Total.					
1875 .....	\$425,257	\$39,300	\$464,557	\$104,577	\$305,767	α\$270,472	(b)	\$576,239
1876 .....	831,829	32,189	414,018	101,756	320,976	101,027	\$140,862	562,865
1877 .....	866,772	41,755	408,527	108,028	337,525	105,714	146,776	590,015
1878 .....	390,161	44,786	434,947	121,985	366,179	113,402	156,668	639,249
1879 .....	399,142	44,013	443,155	128,793	377,182	106,587	155,454	639,223
1880 .....	424,694	57,092	481,786	143,398	375,581	113,403	157,764	646,748
1881 .....	459,881	60,773	520,654	147,624	392,436	110,169	167,828	669,933
1882 .....	470,387	75,601	545,988	157,168	402,786	113,235	173,258	689,334
1883 .....	538,409	56,897	596,306	189,900	436,683	128,507	185,189	750,379
1884 .....	561,235	69,192	630,427	220,975	482,473	137,959	188,955	809,387
1885 (c) .....	525,798	80,489	606,287	210,964	482,670	141,288	189,986	813,894
1886 (c) .....	536,548	60,068	596,616	211,462	498,836	140,869	185,521	825,226
1887 (c) .....	554,703	66,000	620,703	219,919	513,247	138,850	190,957	843,054
1888 (c) .....	611,260	71,601	682,861	244,826	552,587	154,474	207,822	914,383
1889 (c) .....	636,437	73,619	760,056	271,990	600,502	168,511	216,495	960,506
1890 (c) .....	804,091	74,688	878,779	316,315	655,846	217,630	250,495	1,123,971
1891 (c) .....	837,861	74,877	912,738	375,665	681,440	216,619	244,005	1,142,064

α Including medical attendance and supplies.

β Included in temporary aid, sick relief, and funeral expenses.

γ Including figures relating to the state salt works.

RECEIPTS OF MINERS' RELIEF SOCIETIES (SICK-BENEFIT AND PENSION FUNDS) IN AUSTRIA, 1892 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1892-1903. For bases used in converting Austrian into United States money see page 27. The statistics relate to all classes of mines.]

Year.	Sick-benefit funds.				Pension funds.			
	Contributions of obligatory mem- bers for—			Contribu- tions of operators.	Contributions of obligatory members.			Contribu- tions of operators.
	Their own insurance.	Insurance of their depend- ents.	Total.		Full-bene- fit mem- bers.	Partial- benefit members.	Total.	
1892 ...	\$225,582	\$47,629	\$273,161	\$256,371	\$764,355	\$35,716	\$800,051	\$323,175
1893 ...	237,594	51,766	289,360	283,287	760,758	31,462	792,220	326,865
1894 ...	261,999	51,862	313,861	308,237	α751,507	α25,674	806,221	340,966
1895 ...	279,305	55,727	335,032	324,366	698,445	24,388	717,833	365,751
1896 ...	295,093	61,998	357,091	344,026	725,871	18,839	744,710	377,119
1897 ...	309,453	68,187	377,640	359,727	754,799	11,331	766,130	391,499
1898 ...	316,536	73,346	389,881	380,325	771,656	11,309	782,965	321,162
1899 ...	336,891	86,301	423,192	387,932	789,890	9,547	799,427	387,022
1900 ...	364,620	98,999	463,619	410,723	812,362	9,683	822,045	375,474
1901 ...	395,854	106,195	501,079	441,620	872,363	8,182	881,045	1,049,368
1902 ...	382,893	106,464	489,357	425,846	847,223	7,332	854,555	914,556
1903 ...	385,696	107,473	493,169	433,780	836,524	6,975	843,499	376,147

α Not including receipts from Lower Austria, Salzburg, and Carinthia, which are not separately reported for full and partial benefit members. The sum of the two items is \$28,040.

## EXPENDITURES OF THE SICK-BENEFIT FUNDS OF MINERS' RELIEF SOCIETIES IN AUSTRIA, 1892 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1892-1903. For bases used in converting Austrian into United States money see page 27. The statistics relate to all classes of mines.]

Year.	Sick benefits.	Special relief.	Funeral expenses.	Medical attendance and supplies.	School contributions.	Administration.	Total.
1892.....	a \$284, 114	b \$6, 072	b \$19, 681	\$226, 917	\$6, 104	\$21, 550	\$614, 388
1893.....	a 262, 760	b 6, 987	b 19, 324	226, 502	6, 812	28, 233	550, 618
1894.....	a 257, 691	b 8, 074	b 19, 682	241, 968	7, 277	36, 656	571, 843
1895.....	a 284, 624	b 11, 890	b 20, 411	259, 261	6, 862	50, 510	683, 788
1896.....	291, 225	c 15, 200	d 21, 800	275, 445	7, 176	55, 798	666, 644
1897.....	296, 711	c 15, 710	d 28, 786	298, 680	7, 686	58, 247	700, 670
1898.....	299, 555	17, 873	24, 065	315, 814	6, 147	59, 800	722, 754
1899.....	342, 549	25, 795	26, 401	348, 259	6, 897	60, 367	810, 268
1900.....	339, 879	24, 261	26, 901	354, 147	1, 185	65, 362	810, 686
1901.....	366, 856	28, 036	26, 134	406, 089	1, 630	67, 172	895, 917
1902.....	336, 882	81, 830	25, 880	406, 918	1, 335	77, 119	878, 964
1903.....	342, 909	84, 471	24, 740	422, 481	2, 156	75, 010	901, 767

a Including special relief and funeral expenses for Lower Austria, not reported separately.

b Not including figures for Lower Austria, the amount being included in sick relief.

c Including funeral expenses for Lower Austria, not reported separately.

d Not including figures for Lower Austria, the amount being included in special relief.

## EXPENDITURES OF THE PENSION FUNDS OF MINERS' RELIEF SOCIETIES IN AUSTRIA 1892 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1892-1903. For bases used in converting Austrian into United States money see page 27. The statistics relate to all classes of mines.]

Year.	Pensions for—					Share of the reserve returned to withdrawing members.
	Full benefit members.	Partial benefit members.	Widows.	Orphans.	Total.	
1892.....	a \$441, 014	b \$936	\$236, 366	\$52, 508	\$730, 824	\$3, 451
1893.....	466, 442	2, 330	240, 458	52, 967	762, 197	4, 129
1894.....	c 486, 214	d 1, 396	246, 065	56, 224	799, 499	11, 194
1895.....	543, 797	1, 666	256, 224	59, 591	861, 278	21, 640
1896.....	596, 145	1, 721	266, 244	62, 509	926, 620	33, 966
1897.....	641, 851	2, 607	279, 039	65, 028	988, 555	61, 458
1898.....	656, 662	3, 292	287, 835	67, 176	1, 014, 965	95, 958
1899.....	721, 038	5, 091	301, 046	71, 006	1, 098, 180	140, 278
1900.....	774, 302	4, 329	309, 070	75, 875	1, 163, 576	171, 007
1901.....	811, 640	4, 526	317, 068	77, 180	1, 210, 429	161, 431
1902.....	900, 220	5, 891	333, 337	80, 646	1, 319, 594	160, 135
1903.....	968, 208	7, 365	340, 244	82, 414	1, 398, 231	184, 870

a Including payments to partial-benefit members in Salzburg, Moravia, Carinthia, and Carniola.

b Excluding payments to partial-benefit members in Salzburg, Moravia, Carinthia, and Carniola.

c Including payments to partial-benefit members in Tyrol.

d Excluding payments to partial-benefit members in Tyrol.

The assets of the societies are given separately for State and for private mines. In 1876 the total assets of all the societies were 7,230,405 gulden (\$2,900,115). In 1892, the first year under the new legislation, the total assets of the sick and the pension funds were 20,348,261 gulden (\$8,300,055); of this amount 187,856 gulden (\$76,627) belonged to the sick funds and 20,160,403 gulden (\$8,223,428) to the pension funds. In 1903 the total assets of all the societies were 99,241,387 crowns (\$20,146,001); of this amount 4,371,573 crowns (\$887,429) belonged to the sick funds and 94,869,814 crowns (\$19,258,572) to the pension funds. The following tables show the assets for each year of the period 1874-1903:

## ASSETS OF MINERS' RELIEF SOCIETIES IN AUSTRIA, 1874 to 1891.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1874-1891. For bases used in converting Austrian into United States money see page 27. The statistics relate to all classes of mines.]

Year.	Societies of state employees in—		Societies of employees of private establishments.	Total.
	Salt works and salt mines.	Coal and other mines.		
1874.....	(a)	\$327,540	\$2,610,946	b \$2,938,486
1875.....	(a)	323,492	2,658,442	b 2,981,934
1876.....	\$129,759	298,982	2,483,374	2,909,115
1877.....	134,149	292,393	2,582,479	2,969,021
1878.....	138,964	299,182	2,719,411	3,157,557
1879.....	157,988	339,848	2,991,418	3,489,229
1880.....	166,722	371,295	3,178,833	3,716,850
1881.....	171,941	408,809	3,380,206	3,958,956
1882.....	171,509	423,437	3,521,510	4,116,456
1883.....	178,776	458,481	3,879,977	4,517,234
1884.....	183,455	486,724	4,124,296	4,794,475
1885 (c).....	181,112	512,286	4,253,166	4,946,544
1886 (c).....	184,767	532,508	4,341,895	5,059,165
1887 (c).....	175,002	529,340	4,323,364	5,028,206
1888 (c).....	191,967	604,252	4,795,794	5,592,013
1889 (c).....	207,679	684,087	5,266,789	6,158,555
1890 (c).....	223,740	765,261	5,874,602	6,863,603
1891 (c).....	230,483	812,651	6,273,099	7,316,833

a Not reported.

b Not including figures for state salt works and salt mines.

c Including figures relating to the state salt works.

## ASSETS OF MINERS' RELIEF SOCIETIES IN AUSTRIA, 1892 TO 1903.

[Source: Statistisches Jahrbuch des K. K. Ackerbau Ministeriums, 1892-1903. For bases used in converting Austrian into United States money see page 27. The statistics relate to all classes of mines.]

Year.	Assets of sick-benefit funds.			Assets of pension funds.		
	State mines.	Private mines.	Total.	State mines.	Private mines.	Total.
1892.....	\$2,348	\$74,279	\$76,627	\$854,455	\$7,369,973	\$8,223,428
1893.....	5,882	125,583	131,465	894,141	8,148,773	9,042,914
1894.....	8,390	196,067	204,457	927,310	9,288,119	10,210,429
1895.....	10,866	251,428	262,294	965,537	9,390,746	10,296,283
1896.....	13,989	325,621	339,610	1,046,493	10,605,082	11,651,575
1897.....	17,398	398,401	405,794	1,109,235	11,715,012	12,824,247
1898.....	20,852	454,743	475,595	1,152,990	12,571,341	13,724,331
1899.....	22,198	489,720	511,918	1,190,381	13,260,824	14,451,205
1900.....	24,796	597,933	622,729	1,232,806	14,272,782	15,505,588
1901.....	27,476	667,721	695,197	1,275,943	15,627,259	16,903,202
1902.....	30,337	776,511	806,848	1,344,698	16,862,203	18,206,901
1903.....	32,389	856,040	887,429	1,372,857	17,885,715	19,258,572

An examination of the actuarial condition of the miners' societies in Austria was made by the state insurance office in 1892. The report of this investigation covered 255 societies which were attempting to provide a pension insurance for their members. Of this number 28 societies had only members who were receiving relief, and 57 societies were in sound financial condition. The other 170 societies showed a technical deficit, and in the case of 46 of this number the technical obligations exceeded the receipts by 50 per cent or more, while 60 societies had no reserve for the active members. The law of September 17, 1892, provided that it should be left to the employers and members of each society to formulate a plan for placing its finances in a sound con-

dition. The methods allowed were, increasing the dues, decreasing the benefits, or both, until a favorable balance of assets and liabilities was secured. By January 1, 1900, societies containing 87 per cent of all insured members had rearranged their finances in accordance with the provisions of the law of 1892.

On December 31, 1903, the central reserve fund described on page 68 included 494 mine owners, as compared with 488 in 1902 and 490 in 1901. According to the monthly bulletin (*Soziale Rundschau*) published by the Austrian bureau of labor statistics the amount of wages paid to the members of all the relief societies was 137,375,704 crowns (\$27,887,268) in 1903, as compared with 139,409,202 crowns (\$28,300,068) in 1902, and 151,634,386 crowns (\$30,781,780) in 1901. The assessments on the mine owners in 1903, as in 1902, were one-tenth of 1 per cent of the wages, and amounted to 137,376 crowns (\$27,887). The amount of the invested funds of the reserve fund in 1903 was 1,138,653 crowns (\$231,147). The interest produced by this reserve in 1903 was 47,067 crowns (\$9,555). The cost of administration for the same year was 2,753 crowns (\$559). In 1902 the amount paid to the societies affected by accidents in which five persons or more were killed or disabled was 82,000 crowns (\$16,646). In 1903 no such accidents occurred.

### MINE WORKERS' UNIONS.

In Austria, as in most other European countries, workingmen's organizations of any kind were for many years looked upon as a menace to the existing political and industrial conditions of the State, and their formation was absolutely prohibited by the penal code of May 27, 1852, and the general labor law promulgated December 20, 1859. These prohibitions were first removed by the enactment of the law of November 15, 1867 (*Gesetz über das Vereinsrecht*)<sup>(a)</sup> concerning the right of workingmen to organize unions and the right of assembly or holding meetings, and subsequently by a special law enacted April 7, 1870, repealing the sections of the penal code of 1852 by which strikes and lockouts were made penal offenses. Although these laws removed the absolute prohibition of organization of unions by workingmen, the Government still retains a strict control not only over their formation but also over their meetings. Any action taken by a union not in strict conformity with the purposes for which it was formed affords a sufficient ground for its dissolution. Persons out of employment and without visible means of support may be forcibly transported to their native communes, a power which it is claimed has frequently been exercised in cases of strikes and other industrial disputes.

Owing to these restrictions the mine workers' unions, as well as other labor organizations of Austria, are of comparatively recent date.

<sup>a</sup> See Bulletin of the United States Department of Labor, No. 28, page 556.



They have attained neither the numerical strength nor that degree of importance and influence that is enjoyed by the labor organizations of most other leading countries.

The first steps were taken in 1890 toward bringing into closer relations the local mine workers' unions, which had been organized within the past few years. A congress of Austrian mine workers and smelters was held at Vienna December 7-9, 1890, attended by 45 delegates from Bohemia, 18 from Moravia and Silesia, 13 from Styria, 6 from Lower Austria, and 4 from Carniola. The most important matters considered by the congress were the introduction of the eight-hour shift, the abolition of contract work, the organization of local unions, and the organization of a central federated union to embrace all the mine workers of Austria. It was urged upon the local unions to make provision for the support of the unemployed, to secure employment for them, and to take steps for the creation of strike funds.

A general congress of mine workers and smelters, held at Vienna in the spring of 1895, was attended by 45 delegates, representing about 8,500 organized mine workers. Owing to dissensions between the German and Bohemian delegates on several important questions, especially on the subject of relief societies, the session of the congress failed to produce any tangible results.

At the mine workers' congress held at Prague July 3, 1898, at which all the district organizations were represented by about 80 delegates, the principal topics of discussion related to the organization and administration of the central mine workers' federation (*Zentralverband*), the publication of the mine workers' journals, the eight-hour day, a minimum wage and weekly payments, reform in the administration of the miners' relief funds, the adoption of measures for the protection of the health and lives of mine workers, and the appointment of mine inspectors from the ranks of the miners. The congress emphatically condemned the action of mine operators in discharging employees acting in the capacity of delegates to labor conventions and declared that in future such action on the part of the operators would be a sufficient cause for the employees of the affected mines to strike, such strike to receive the full support of all mine workers of Austria.

At the national conference of mine workers held at Vienna October 14, 1900, resolutions were adopted in favor of a reorganization of the central federation and the appointment of an executive committee of six members to act in conjunction with the central federation in all matters relating to the organization of local and district unions. The membership dues were fixed at 20 heller (4.1 cents) per week for organization purposes and 10 heller (2 cents) per week for the creation of strike funds. Other subjects discussed at the conference related to the organization of local and district unions, the creation of strike funds, the reform in the administration of the miners' relief funds,

and the publication of the two mine workers' journals, "Glückauf" and "Nazdar."

After two years of agitation looking toward a closer national organization, a call was issued for a constituent convention to consider the organization of a national federation of Austrian mine workers. The convention met at Turn in May, 1903, and was attended by delegates from the central union of Turn, the district assemblies of Falkenau, Kladno, Mährisch-Ostrau, Nürschan, Schatzlar, the Alpine district, and several smaller local unions, representing a total of about 6,900 organized mine workers. After 15 hours' debate a constitution was adopted by a majority vote of over 6,000 and a national organization was effected, to be known as the "Federation of Austrian Mine Workers" (*Die Union der Bergarbeiter Oesterreichs*).

The headquarters of the federation are at Turn. The officers are the president and an executive committee composed of seven members. The regular membership dues were fixed at 30 heller (6.1 cents) per week. Provision was also made for sick relief and for the relief of unemployed members.

Members of the Austrian federation who seek employment in Germany are, upon application, admitted into full membership in the federation of German mine workers without the payment of entrance fees and are entitled to all benefits accruing to such membership. Membership in any Austrian mine workers' organization other than the national federation is not recognized, however, by the federation of German mine workers.

The available statistical information relating to trade unions in the mining industry of Austria is of a fragmentary character. The most complete source of information on this subject is the report issued by the Austrian bureau of labor in 1905, giving the results of an investigation into the condition of labor unions in Austria on December 31, 1900.<sup>a</sup> In that part of the report in which the unions are classified by industries, 3 classes of unions in the mining and smelting industry are given: (a) Unions affiliated with trade union commissions; (b) the Catholic and the Christian-social unions, and (c) all other miners' and smelters' unions. The number of unions of the first class was 126, with 9,647 members; the number of unions of the second class was 5, with 510 members, while the "other unions" were 5 in number and had 500 members. The unions in the first class are those whose political views are in sympathy with the aims of the social democratic party, while those of the second class are opposed to that party. The "other unions" are those organizations of miners whose objects are mainly social, educational, musical, athletic, etc.

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<sup>a</sup> Die Arbeitervereine in Oesterreich nach dem Stande vom 31 Dezember 1900. I Band. Tabellarischer Theil, Vienna, 1905.



The more important data collected in the investigation are summarized in the two tables given below. The following table shows the number of the miners' and smelters' unions, the number of members, and the benefit features offered:

NUMBER, MEMBERSHIP, AND BENEFIT FEATURES OF THE MINERS' AND SMELTERS UNIONS IN AUSTRIA IN 1900.

[Source: Die Arbeitervereine in Oesterreich nach dem Stande vom 31 Dezember 1900.]

Province.	Number of unions reporting.	Number of members.	Number of unions with membership of—				Number of unions providing benefits for—										
			25 or under.	26 to 50.	51 to 100.	101 to 200.	Over 200.	Out of work.	Traveling.	Removal.	Sickness.	Funerals.	Widows.	Orphan.	Emergencies.	Legal protection.	
Lower Austria	2	71	1	1				2	2							2	2
Upper Austria	2	156		1		1		2	2							2	2
Salzburg	3	76	2	1				3	3							3	3
Styria	12	1,144	2	3	3	3		11	12		1					11	12
Carinthia	1	268				1		1	1							1	1
Carniola	2	283				1		2	2							2	2
Bohemia	107	7,922	17	36	31	18	7	82	57	3	77	26	2	1		70	72
Moravia	3	341		1	2			1			1						
Silesia	4	386		1	2		1				1						1
Total...	136	10,657	22	43	38	24	9	104	79	3	80	26	2	1		91	95

As shown in the above table, the total number of unions reported was 136. Of this number 107 unions, with 7,922 members, were located in Bohemia; 12 unions, with 1,144 members, were located in Styria, while the remaining 17 unions, with 1,591 members, were scattered through the rest of Austria. From this it appears that approximately 75 per cent of the membership was located in Bohemia. The number of unions with a membership of 50 or less was 65; the number with a membership of 51 to 100 was 38, and the number with a membership of over 100 was 33. The average size of the local unions was 78.4 members. The benefit features provided by the unions most frequently took the form of out-of-work relief, legal protection, and assistance in case of emergency; sick relief and aid for traveling follow closely, while a funeral benefit was provided by 26 unions in Bohemia.

The investigation showed that most of the unions are of comparatively recent origin. Of the 132 unions reporting as to this point, 4 were founded before 1891, 38 between 1891 and 1895, and 90 between 1896 and 1900. The number of district federations in 1900 was 9.

The following table shows the financial operations of the unions for the year ending December 31, 1900:

[www.libtool.com.cn](http://www.libtool.com.cn)

RECEIPTS, EXPENDITURES, ASSETS, AND LIABILITIES OF THE MINERS' AND SMELTERS' UNIONS IN AUSTRIA IN 1900.

[Source: Die Arbeitervereine in Oesterreich nach dem Stande vom 31 Dezember 1900. Conversion of Austrian into United States money was made on the basis of 1 crown=\$0.208.]

Provinces.	Number of unions reporting.	Receipts.				Expenses.				Assets.	Liabilities.	
		Entrance fees.	Members' dues.	Other.	Total.	Benefit features.	Newspapers.	Organization and propaganda.	Other.			Total.
Styria .....	2	\$164	\$3,499	\$161	\$3,824	\$328	\$1,229	\$516	\$1,669	\$3,762	\$2,146	\$23
Bohemia .....	78	215	8,158	4,852	13,220	5,060	2,268	877	8,784	11,929	6,825	941
Moravia .....	1	8	118	12	138	6	25	12	45	88	a 90	.....
Silesia .....	1	32	60	.....	92	4	1	.....	16	20	b 108	.....
Total .....	82	419	11,830	5,025	17,274	5,398	3,513	1,405	5,488	15,799	c 9,169	964

<sup>a</sup> Not including 17 crowns (\$3.45) for one society for which no other data were reported.

<sup>b</sup> Not including 132 crowns (\$26.80) for one society for which no other data were reported.

<sup>c</sup> Not including 149 crowns (\$30.25) for two societies for which no other data were reported.

As shown in the preceding table, the receipts in the calendar year 1900 of the 82 unions reporting their financial condition amounted to 85,096 crowns (\$17,274). This amount included 58,276 crowns (\$11,830) received as regular dues, 2,067 crowns (\$419) received as entrance fees, and 24,753 crowns (\$5,025) received from miscellaneous sources. The total expenditures amounted to 77,830 crowns (\$15,799), of which 26,594 crowns (\$5,398) was for the benefit features enumerated in the table on page 80, 17,304 crowns (\$3,513) for newspapers, 6,921 crowns (\$1,405) for propaganda, and 27,011 crowns (\$5,483) for miscellaneous purposes. The assets of the unions amounted to 45,166 crowns (\$9,169) and the liabilities to 4,749 crowns (\$964).

The preceding statements refer to all the unions reported by the investigation of the Austrian labor bureau. The "Gewerkschaft," the organ of the unions affiliated with the trade-union commissions, publishes frequent accounts of the activities of the national federation of miners and smelters. The following account of the present condition of the federation is based on the reports of this publication.

According to the "Gewerkschaft," the total number of persons employed in Austria in lignite, coal, iron ore, lead, and copper mining on March 1, 1904, was 120,210. Of this number 9,256, or 7.7 per cent, were members of the federation, leaving 92.3 per cent outside of the federation. On September 30, 1904, the federation had a membership of 11,531, an increase over the preceding date of 2,275.

The following table gives, by districts, the number of mine workers employed in lignite, coal, iron ore, lead, and copper mining in Austria on March 1, 1904, and the number and per cent of mine workers belonging to the federation.

NUMBER OF EMPLOYEES IN THE LIGNITE, COAL, IRON ORE, LEAD, AND COPPER MINING INDUSTRIES, AND THE NUMBER AND PER CENT OF MEMBERS OF THE FEDERATION OF MINE WORKERS IN AUSTRIA, BY DISTRICTS, MARCH 1, 1904.

www.libtool.com.cn [Source: Die Gewerkschaft, 1904.]

District.	Number of employees.						Members of the federation.	
	Lignite mining.	Coal mining.	Iron ore mining.	Lead ore mining.	Copper ore mining.	Total.	Number.	Per cent of total employees. (a)
Komotau, Brünx, and Teplitz...	27,725	144	.....	.....	.....	27,869	1,060	8.80
Falkenau and Elbogen .....	6,473	.....	.....	.....	.....	6,473	880	13.59
Pilsen and Mies .....	.....	7,006	.....	284	.....	7,240	1,484	19.81
Brünn (Rossitz) .....	.....	2,572	.....	.....	.....	2,572	225	8.75
Styria, Lower and Upper Austria, Tyrol, Salzburg, Carinthia, Carniola, Istria, and Dalmatia .....	17,172	* 612	1,371	2,669	794	22,618	3,116	13.78
Prague (Kladno) and Schlan .....	.....	9,025	852	.....	.....	9,877	147	1.49
Mährisch-Ostrau and Galicia .....	1,146	39,657	.....	.....	.....	b 40,798	2,288	5.61
Kuttenberg .....	196	2,572	.....	.....	.....	2,768	106	3.83
Total .....	52,712	61,588	2,223	2,903	794	b 120,210	9,256	7.70

a Computed.

b The sum of the items does not agree with this total, but the figures are reproduced as found in the source quoted.

As to the nationalities of the 9,256 members of the Federation of Austrian Mine Workers on March 1, 1904, it is found that 2,905 were Germans, 3,269 Czechs, 1,144 Poles, 1,467 Slovenians, and 471 Italians. This is shown in the following table, in which the figures are arranged by districts, as in the preceding table:

NUMBER OF MEMBERS OF THE FEDERATION OF MINE WORKERS IN AUSTRIA, BY NATIONALITY AND DISTRICTS, MARCH 1, 1904.

[Source: Die Gewerkschaft, 1904.]

District.	Germans.	Czechs.	Poles.	Slovenians.	Italians.	Total.
Komotau, Brünx, and Teplitz .....	429	631	.....	.....	.....	1,060
Falkenau and Elbogen .....	811	69	.....	.....	.....	880
Pilsen and Mies .....	398	1,036	.....	.....	.....	1,434
Brünn (Rossitz) .....	.....	225	.....	.....	.....	225
Styria, Lower and Upper Austria, Tyrol, Salzburg, Carinthia, Carniola, Istria, and Dalmatia .....	1,159	19	.....	1,467	471	3,116
Prague (Kladno) and Schlan .....	.....	147	.....	.....	.....	147
Mährisch-Ostrau and Galicia .....	2	1,142	1,144	.....	.....	2,288
Kuttenberg .....	106	.....	.....	.....	.....	106
Total .....	2,905	3,269	1,144	1,467	471	9,256

Prior to the organization of the Federation of Mine Workers, statistics of the trade unions affiliated with the trade-union commissions were published annually in "Die Gewerkschaft." The information concerning trade unions which follows relates, therefore, only to this class of miners' unions.

The following table shows, by sex, the membership of the mine workers' unions in Austria on December 31 of the years 1892, 1896, 1899, and 1901 to 1903, as reported by the organ of the trade-union commissions of Austria:

MEMBERSHIP OF MINE WORKERS' UNIONS AFFILIATED WITH TRADE-UNION COMMISSIONS IN AUSTRIA, BY SEX, ON DECEMBER 31 OF THE YEARS 1892, 1896, 1899, AND 1901 TO 1903.

[Source: 1892, 1896, 1899, Protokoll des 3 Gewerkschafts Kongresses; 1901, Die Gewerkschaft, 1902; 1902, Protokoll des 4 Kongresses der Gewerkschaften; 1903, Die Gewerkschaft, 1904.]

Year.	Males.	Females.	Total.
1892.....	3,340	60	3,400
1896.....	8,441	116	8,557
1899.....	13,396	187	13,583
1901.....	7,411	158	7,564
1902.....	7,700	116	7,816
1903.....	8,304	146	8,450

The income of the unions is derived principally from entrance fees, from regular membership dues at the rate of 30 heller (6.1 cents) per week, and from subscriptions to the two organs, "Glückauf," at a cost of 2.48 crowns (50.3 cents) per year, with a circulation of 3,500 in 1902, and "Nazdar," at a cost of 4 crowns (81.2 cents) per year, with a circulation of 3,150 in 1902, both publications being issued at Turn three times a month.

The following table shows in detail, the receipts and the expenditures of the mine workers' unions during the years 1901, 1902, and 1903, and the assets at the end of each year:

RECEIPTS AND EXPENDITURES OF MINE WORKERS UNIONS AFFILIATED WITH TRADE-UNION COMMISSIONS IN AUSTRIA FOR THE YEARS 1901, 1902, AND 1903.

[Source: Die Gewerkschaft, 1902 and 1904, and Protokoll des 4 Kongresses der Gewerkschaften Oesterreichs, 1903. Conversion of Austrian into United States money was made on the basis of 1 crown=\$0.208.]

Year.	Balance from previous year.	Receipts from—			Total receipts.	Total receipts, including balance from previous year.	Total expenditures.
		Entrance fees.	Regular dues.	Other sources.			
1901.....	\$2,138.44	\$216.60	\$10,707.85	\$1,371.81	\$12,236.26	\$14,434.70	\$11,652.51
1902.....	3,164.78	416.62	11,899.14	1,616.63	13,932.44	17,097.17	12,292.63
1903.....	4,304.54	462.28	8,815.24	3,478.96	12,751.45	17,556.99	14,272.90

Year.	Expenditures for—									Total expenditures.
	Relief.	Legal protection.	Official organ.	Library.	Educa-tion.	Agitation and organiza-tion.	Confer-ences and general assem-blees.	Admin-istration.	Other purposes.	
1901...	\$3,010.50	\$568.14	\$2,205.60	\$326.68	\$471.88	\$1,285.46	\$275.12	\$1,638.33	\$1,870.80	\$11,652.51
1902...	3,780.16	283.97	2,424.28	299.63	164.08	1,123.82	671.56	2,919.44	685.69	12,292.63
1903...	3,177.42	839.98	2,484.84	150.07	240.09	1,286.80	757.00	4,401.61	935.14	14,272.90

\* The balance of receipts over expenditures for 1901 does not equal this amount, which is reproduced as found in the source quoted.

The following table shows, in detail, the relief expenditures of the unions during each of the years in question:

[www.libtool.com.cn](http://www.libtool.com.cn)

RELIEF EXPENDITURES OF MINE WORKERS' UNIONS IN AUSTRIA, IN DETAIL, DURING THE YEARS 1901, 1902, AND 1903.

[Source: Die Gewerkschaft, 1902 and 1904, and Protokoll des 4 Kongresses der Gewerkschaften Oesterreichs. Conversion of Austrian into United States money was made on the basis of 1 crown = \$0.208.]

Year.	Transportation.	Unemployed.	Sick.	Invalidity.	Widows.	Orphans.	Funeral.	Distress.	Total.
1901.....	\$81.73	\$935.80	\$1,529.85	\$107.43	\$26.56	\$25.18	\$100.79	\$203.16	\$3,010.50
1902.....	70.28	2,182.82	1,262.57	17.86	.....	.....	34.75	211.93	3,730.16
1903.....	127.79	1,914.01	792.55	.....	.....	.....	.....	343.07	3,177.42

Of the district organizations of mine workers the district union of the Austrian Alpine countries is the strongest and most important with regard to membership and financial condition. It was organized in September, 1891. In 1894 it had a membership of only 400, with its sphere of activity confined to the localities of Köflach, Wies, and Voitsberg, but during the next four years it extended its influence over all the Alpine countries, embracing the political divisions of Styria, Carinthia, Carniola, Upper and Lower Austria, Salzburg, and Istria. In 1902 the receipts of the union amounted to 14,456.88 crowns (\$2,934.75), its expenditures were 15,352.02 crowns (\$3,116.46), and its assets at the end of the year were 8,000 crowns (\$1,624). The union was represented at the constituent convention of mine workers assembled at Turn May 23, 1903, and its delegates took a prominent part in the deliberations of the convention and voted in favor of the organization of the National Union of Mine Workers. At a general conference held at Leoben June 28, 1903, attended by 35 delegates representing a membership of 1,600 mine workers, a resolution was adopted by a unanimous vote in favor of joining the Federation of Austrian Mine Workers recently organized, and of transferring its assets to the national federation, the resolution to go into effect on October 1, 1903.

The first annual statement of the Federation of Austrian Mine Workers, covering the period from October 1, 1903, to September 30, 1904, shows an active membership on September 30, 1904, of 11,531, distributed according to political divisions as follows: Bohemia, 3,622; Silesia, 2,253; Moravia, 1,114; Styria, 2,967; Upper Austria, 45; Lower Austria, 79; Salzburg, 60; Tyrol, 38; Carniola, 155; Carinthia, 125; Istria, 659, and Galicia, 414.

## LABOR DISPUTES.

Until recent years strikes were rare in Austria. Labor organizations were prohibited until the enactment of the laws of November 15, 1867, and April 7, 1870<sup>(a)</sup>. In the scattered accounts of strikes, which are the only sources of information prior to 1884, the mining industry takes a leading place, especially in Bohemia. In that industry disputes were quite frequent in the early seventies, particularly disputes resulting from demands for higher wages. These disputes sometimes resulted in strikes, which were usually unsuccessful.

Mine strikes of considerable magnitude occurred as follows: In December, 1881, in Moravia, for increased wages and the control by the workers of the sick relief and widows' funds; in February, 1882, near Pilsen, in Bohemia, from 2,000 to 4,000 coal miners struck for a 10-hour day, the abolition of Sunday work, higher wage rates, and the reinstatement of discharged employees; and in April, 1882, near Dux, in Bohemia, there was a strike for an 8-hour day, the abolition of contract work, reform of the relief funds, and the election of mine inspectors by the working people. These strikes were unsuccessful, strikers in many cases having been discharged and arrested.

With the exception of an unsuccessful strike of lignite miners in Bohemia, for increased wages and weekly payments, there was no strike of importance in the mining industry after 1882 until 1889.

In May, 1889, the strike movement among coal miners in Germany extended into Austria, strikes occurring in various parts of Bohemia and in Styria. The demands were for increased wages and an 8-hour shift. The strikers met with some degree of success. Another large coal strike occurred in Moravia in 1890.

From this time on the labor movement among coal miners became more active, and the strikes increased in importance. A convention of mine workers held at Gratz, Styria, in December, 1891, resulted in a number of strikes in Styria the following year. The demands made by the strikers in these cases were for the reinstatement of employees who were discharged for taking part in mine workers' organizations, the establishment of a minimum wage scale, and suitable regulations for enforcing the 8-hour shift which had been previously granted. The operators answered by discharging many of the employees and causing them to forfeit their interest in the miners' relief funds. The strikes were complete failures. Miners' strikes also occurred in Carniola the same year.

For the year 1894 and subsequent years information regarding strikes in the coal and lignite mining industries has been published in the official strike reports of the Austrian labor bureau. In consequence, it is possible to reproduce complete statistics in tabular form for the

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<sup>a</sup> See page 77.

period from 1894 to 1903. These statistics are given in the tables below, which show, by years, (1) the number of strikes, the establishments involved in strikes, the number of strikers and of other persons thrown out of work, etc.; (2) the causes of the strikes; (3) their results, and (4) their duration.

STRIKES IN THE COAL AND LIGNITE MINING INDUSTRIES IN AUSTRIA, 1894 TO 1903.

[Source: Die Arbeitseinstellungen und Aussperrungen in Österreich, 1896-1903.]

Year.	Strikes.	Estab- lish- ments in- volved.	Total em- ployees.	Strikers.		Others thrown out of employ- ment.	Strikers reem- ployed.	New em- ployees after strikes.
				Num- ber.	Percent of total em- ployees.			
1894 .....	13	74	35,808	22,986	64.19	3,268	22,827	498
1895 .....	4	5	1,976	626	31.68	57	609	12
1896 .....	11	96	43,750	30,120	68.85	1,101	29,650	.....
1897 .....	25	32	10,832	3,632	33.53	237	3,540	68
1898 (a) .....	29	32	10,066	7,046	70.00	356	6,956	7
1899 (b) .....	26	32	5,035	3,477	69.06	385	3,359	70
1900 (c) .....	40	272	105,578	78,791	74.63	3,817	74,575	2,400
1901 (d) .....	40	45	19,906	7,496	37.66	345	7,947	64
1902 (e) .....	63	70	33,011	13,573	41.12	998	13,229	167
1903 (f) .....	40	43	22,466	12,341	54.93	429	12,060	69

a Including 1 strike involving 1 establishment and 52 strikers in the naphtha industry.

b Including 2 strikes involving 4 establishments and 103 strikers in the zinc-mining industry.

c Including 1 strike involving 1 establishment and 14 strikers in the naphtha industry and 1 strike involving 2 establishments and 248 strikers in the zinc-mining industry.

d Including 1 strike involving 1 establishment and 46 strikers in the gold-mining industry, 3 strikes involving 7 establishments and 2,291 strikers in the naphtha industry, and 1 strike involving 1 establishment and 22 strikers in sulphur mining.

e Including 2 strikes involving 2 establishments and 565 strikers in the smelting industry and 2 strikes involving 3 establishments and 273 strikers in the naphtha industry.

f Including 1 strike involving 1 establishment and 104 strikers in the lead-mining industry, 1 strike involving 1 establishment and 26 strikers in the gold-mining industry, and 1 strike involving 102 strikers in the copper-mining industry.



## STRIKES IN THE COAL AND LIGNITE MINING INDUSTRIES IN AUSTRIA, BY CAUSES, 1894 TO 1903.

[Source: Die Arbeitseinstellungen und Aussperrungen in Österreich, 1898-1903. A considerable number of strikes were due to two or more causes, and the facts in such cases have been tabulated under each cause. Hence the totals for this table necessarily do not agree with those in the other tables.]

Year.	Against reduction of wages.	For increase of wages.	For change in method of payment.	For reduction of hours.	For discharge of workmen, foremen, etc.	Against obnoxious treatment.	Against discharge of employees.	Against obnoxious rules.	Other causes.	Total.
1894	4	5	1	2	2	1			4	19
1895		3					1			4
1896	1	2		1	1				5	11
1897	2	10		3		1	5		6	27
1898 (a)	1	10		2	2	1	9		6	31
1899 (b)	2	13					5	1	5	26
1900 (c)	4	15	3	2			3	1	14	42
1901 (d)	2	16	1	3	3	2	6	1	10	44
1902 (e)	16	19	3	2	1	1	3	11	7	68
1903 (f)	5	18	3		4		6	1	4	41

<sup>a</sup> Including 1 strike involving 1 establishment and 52 strikers in the naphtha industry.

<sup>b</sup> Including 2 strikes involving 4 establishments and 103 strikers in the zinc-mining industry.

<sup>c</sup> Including 1 strike involving 1 establishment and 14 strikers in the naphtha industry and 1 strike involving 2 establishments and 243 strikers in the zinc-mining industry.

<sup>d</sup> Including 1 strike involving 1 establishment and 46 strikers in the gold-mining industry, 3 strikes involving 7 establishments and 2,291 strikers in the naphtha industry, and 1 strike involving 1 establishment and 22 strikers in sulphur mining.

<sup>e</sup> Including 2 strikes involving 2 establishments and 565 strikers in the smelting industry and 2 strikes involving 3 establishments and 273 strikers in the naphtha industry.

<sup>f</sup> Including 1 strike involving 1 establishment and 104 strikers in the lead-mining industry, 1 strike involving 1 establishment and 26 strikers in the gold-mining industry, and 1 strike involving 102 strikers in the copper-mining industry.

## RESULTS OF STRIKES IN THE COAL AND LIGNITE MINING INDUSTRIES IN AUSTRIA, 1894 TO 1903.

[Source: Die Arbeitseinstellungen und Aussperrungen in Österreich, 1898-1903. The percentages were computed.]

Year.	Strikes which—						Strikers in strikes which—					
	Succeeded.		Succeeded partly.		Failed.		Succeeded.		Succeeded partly.		Failed.	
	Num-ber.	Per cent of total.	Num-ber.	Per cent of total.	Num-ber.	Per cent of total.	Num-ber.	Per cent of total.	Num-ber.	Per cent of total.	Num-ber.	Per cent of total.
1894	4	30.77	5	38.46	4	30.77	966	4.20	15,835	68.89	6,185	26.91
1895	1	25.00	1	25.00	2	50.00	180	28.75	80	12.78	366	58.47
1896			4	36.36	7	63.64			19,283	64.02	10,837	35.98
1897	5	20.00	10	40.00	10	40.00	789	21.72	1,412	38.83	1,431	39.40
1898 (a)	2	6.90	12	41.38	15	51.72	58	8.2	3,939	56.91	3,049	43.27
1899 (b)	3	11.54	12	46.15	11	42.31	446	12.83	1,352	38.88	1,679	48.29
1900 (c)	6	15.00	21	52.50	13	32.50	2,465	3.13	74,321	94.33	2,005	2.54
1901 (d)	3	7.50	13	32.50	24	60.00	554	7.39	3,458	46.13	3,484	46.48
1902 (e)	7	11.11	12	19.05	44	69.84	1,070	7.88	3,469	25.56	9,084	66.56
1903 (f)	2	5.00	8	20.00	30	75.00	40	.32	6,455	52.31	5,846	47.37

<sup>a</sup> Including 1 strike involving 1 establishment and 52 strikers in the naphtha industry.

<sup>b</sup> Including 2 strikes involving 4 establishments and 103 strikers in the zinc-mining industry.

<sup>c</sup> Including 1 strike involving 1 establishment and 14 strikers in the naphtha industry and 1 strike involving 2 establishments and 243 strikers in the zinc-mining industry.

<sup>d</sup> Including 1 strike involving 1 establishment and 46 strikers in the gold-mining industry, 3 strikes involving 7 establishments and 2,291 strikers in the naphtha industry, and 1 strike involving 1 establishment and 22 strikers in sulphur mining.

<sup>e</sup> Including 2 strikes involving 2 establishments and 565 strikers in the smelting industry and 2 strikes involving 3 establishments and 273 strikers in the naphtha industry.

<sup>f</sup> Including 1 strike involving 1 establishment and 104 strikers in the lead-mining industry, 1 strike involving 1 establishment and 26 strikers in the gold-mining industry, and 1 strike involving 102 strikers in the copper-mining industry.



DURATION OF STRIKES IN THE COAL AND LIGNITE MINING INDUSTRIES IN AUSTRIA,  
1894 TO 1908.

[Source: Die Arbeitseinstellungen und Aussperrungen in Österreich, 1898-1908.]

Year.	1 to 5 days.	6 to 10 days.	11 to 15 days.	16 to 20 days.	21 to 25 days.	26 to 30 days.	31 to 35 days.	36 to 40 days.	41 to 50 days.	51 to 100 days.
1894.....	8	.....	.....	1	1	.....	1	1	.....	1
1895.....	8	1	.....	.....	.....	.....	.....	.....	.....	.....
1896.....	4	3	2	.....	.....	1	.....	.....	1	.....
1897.....	16	6	.....	2	1	.....	.....	.....	.....	.....
1898 (a).....	22	8	2	.....	.....	.....	1	.....	1	.....
1899 (b).....	19	8	1	.....	1	.....	1	.....	.....	1
1900 (c).....	26	2	2	1	.....	.....	.....	1	.....	8
1901 (d).....	36	8	.....	.....	.....	.....	1	.....	.....	.....
1902 (e).....	55	6	.....	.....	.....	.....	1	1	.....	.....
1908 (f).....	34	1	2	2	.....	1	.....	.....	.....	.....

a Including 1 strike involving 1 establishment and 52 strikers in the naphtha industry.

b Including 2 strikes involving 4 establishments and 108 strikers in the zinc-mining industry.

c Including 1 strike involving 1 establishment and 14 strikers in the naphtha industry and 1 strike involving 2 establishments and 248 strikers in the zinc-mining industry.

d Including 1 strike involving 1 establishment and 46 strikers in the gold-mining industry, 3 strikes involving 7 establishments and 2,291 strikers in the naphtha industry, and 1 strike involving 1 establishment and 22 strikers in sulphur mining.

e Including 2 strikes involving 2 establishments and 565 strikers in the smelting industry and 2 strikes involving 3 establishments and 273 strikers in the naphtha industry.

f Including 1 strike involving 1 establishment and 104 strikers in the lead-mining industry, 1 strike involving 1 establishment and 26 strikers in the gold-mining industry, and 1 strike involving 102 strikers in the copper-mining industry.

Important coal mine strikes occurred in Austria in 1894, 1896, and 1900.

In 1894, 34.3 per cent of all strikers reported in Austria were coal mine workers. During that year three important coal mine strikes occurred involving, respectively, 12,563, 5,011, and 2,518 strikers. The first of these, which involved 22 coal mines and 1 coking establishment, in Moravia and Silesia, was due to the refusal of the mine operators to grant a holiday on May 1, the recognized labor day among organized employees of Austria. As a condition of their return to work the strikers demanded an increase of wages of from 20 to 30 per cent, an 8-hour shift, and a long list of other concessions regarding methods of wage payments, working arrangements, reemployment of all strikers, etc. The strike, which was organized by several trade unions, lasted from May 1 to May 18. During the strike an encounter took place between the strikers and the police in which 11 mine workers were killed and 36 wounded. The strike became the subject of a parliamentary inquiry and was settled through the intervention of the public authorities. Nearly all the strikers returned to work without receiving any concessions from the operators, the strike, which resulted in a loss of 100,944 working shifts, having been a complete failure.

The strike which involved 5,011 mine workers occurred in Silesia, lasting from November 2 to November 26, 1894. It affected 6 coal mines, and was undertaken by one of the trade unions to resist an increase in the length of the working shift. It resulted in complete failure, being terminated through the intervention of the mine authorities.

The last-mentioned strike, involving 2,518 mine workers and 15 coal mines, occurred in Bohemia, and lasted from April 13 to May 17, 1894. The demands in this case were for the establishment of a minimum wage for all classes of employees, an 8-hour shift, the dismissal of several mine bosses, etc. All except a few unimportant demands were refused, the strike being terminated in favor of the operators through the intervention of the mine authorities. In an encounter between the strikers and the police during the strike 3 mine workers were killed and 8 were wounded. This strike likewise became the subject of a parliamentary inquiry.

In 1896 there were two important strikes, one in Moravia and Silesia involving 29 coal mines and 18,020 mine workers, and the other in Bohemia, involving 54 coal mines and 8,346 mine workers.

The first-mentioned strike, which lasted from February 24 to March 23, was undertaken on account of the dismissal of a number of mine workers accused of too much agitating among their fellow-employees. As a condition of returning to work the strikers demanded an increase of from 10 to 25 per cent in their wages, weekly wage payments, and the reinstatement of the discharged employees. The strike was undertaken at the instance of the mine workers' unions. It was settled through the intervention of the public authorities, some slight concessions having been made concerning the first two demands. The last demand was refused. This strike caused a loss of 257,440 working shifts.

The strike in Bohemia lasted from September 29 to October 10, 1896, and was undertaken at the instance of a number of mine workers' unions to enforce a demand for higher wages; for a 7-hour shift in some mines, an 8-hour shift in others, and a 4-hour shift on Saturdays; for the abolition of night shifts, except in emergencies; for free oil, etc.; for reform of the miners' relief societies, and for redressing other grievances of minor importance. This strike was attended with considerable disorder, resulting in personal injury to some of the officials and destruction of property. Seventy-six mine workers were arrested and convicted for disorder. The strike, which was a complete failure, was terminated by the mine authorities after a loss of 29,817 working shifts.

In the whole history of the strikes of Austria there is no record of any strike in which there were so many participants, so large a territory covered by the strikes, or such tenacity on the part of the strikers as in the general strike of coal and lignite miners in Bohemia, Moravia, and Silesia in 1900. There were involved altogether in this strike 77 coal mines, 142 lignite mines, 4 coking establishments, and 1 repair shop. As nearly as could be estimated, these establishments employed 87,364 persons before the strike, of whom 65,680, or 75.2 per cent, participated in the strike. Of the strikers 1,981 were women. The strike began January 2 and ended April 17, lasting 105 days. About

3,000 persons other than strikers were thrown out of employment on account of the strike. About 30 mines closed entirely and the others produced very little while the strike was in progress.

The strike began at two mines in the district of Ostrau, in Moravia, where the operators deemed it advisable to make a change in the hour for beginning the night shift. This change, although it involved no lengthening of the shift, was inconvenient to the mine workers and was resisted by the latter. On the day when the change was to take effect the mine workers appeared at the usual time, but owing to the change in the hour for beginning they were refused admission at that time. A strike resulted, which in a few days extended over the entire district. In the beginning efforts were made to effect a conciliation, and several meetings were held between representatives of the miners and mine operators, but as these failed to agree the strike movement continued to spread. On January 7 a representative of the imperial ministry of agriculture arrived in Moravia and endeavored to bring about an agreement, but he also was unsuccessful. On January 10 the mine workers' representatives presented to a general conference of operators held at Vienna a list of demands as follows: An 8-hour shift for all underground and surface workers, including time spent in descending and ascending; the introduction of weekly wage payments; the fixing of a minimum wage per shift; the removal of a certain mine superintendent; free oil, free coal, and free tools; a general pardon to all strikers, and the payment of wages for the full time lost while on strike.

On the same day the mine operators offered to grant the following concessions: A 5 per cent increase in wages, free oil, free coal, and the regulation of the night shift before Sundays and holidays, so that all miners may be outside the mines not later than 10 hours after their entrance.

On the following morning, through the intervention of the Ostrau district mine office, the operators of the two mines above mentioned acceded to the original demands of their employees, and, in view of the concessions made by the Vienna conference, the strike leaders of the district declared the strike off and requested the workers to return to the mines. The movement had, however, extended beyond their control, and one district after another became affected until it covered eight mine districts in Bohemia, Moravia, and Silesia. The number of strikers which, on January 11 amounted to about 1,200, had increased to 51,500 on January 27.

Local committees were organized by strikers in all sections of the country affected, at which all sorts of demands were formulated. In all cases, however, the demands included an 8-hour shift and the establishment of a minimum wage. In 16 mines no demands whatever were made, the strikes being purely sympathetic. There was through-

out the strike no centralized leadership or strong organization on the part of the strikers.

During the latter part of January the Imperial Government sent the minister of justice to Moravia, and a section chief of the ministry of agriculture to Bohemia, to attempt a conciliation. The various conciliation boards (*Einigungsämter*) were also called into service, but without results. Finally on February 6 the Imperial Government, through a representative, announced before one of the conciliation boards that a commission would be appointed in March for the purpose of preparing a legislative bill for the compulsory reduction of the working shift in mines.

On February 15 the strike reached its maximum strength, after which the men gradually returned to work. This decline in the strike was attributed to the realization by the strikers of the hopelessness of carrying out the demand for the 8-hour day, and also to the above-mentioned promise of the Government. By the end of March there remained but 6,500 men on strike, and the strike committee advised all men to return to work. The strike ended completely on April 17.

After the termination of the strike concessions were made by the mine operators as follows: From 5 to 10 per cent increase in wages in 121 establishments; from 12½ to 36 quintals (1,378 to 3,968 pounds) of free coal per mine worker in 11 establishments; free oil in 25 establishments; free tools in 3 establishments; free explosives in 16 establishments; abolition of wage deductions for time spent in sharpening tools in 29 establishments; reduction of hours of labor in 16 establishments; shortening of the working shift on days preceding Sundays and holidays in 10 establishments; financial aid to miners' relief societies in 7 establishments.

Of the 65,680 strikers, 61,688 returned to work, 1,057 were discharged, 2,908 refused to return, and 27 were unaccounted for; 2,310 new workmen were employed.

In the entire strike district there had been 1,402 meetings of labor organizations, of which 46 were dissolved by the authorities. One hundred and eighty proposed meetings were forbidden. During the strike the districts involved were occupied by the military to preserve order and protect property. No serious disturbances occurred, however, a few hundred arrests having been made for individual minor offenses.

It was estimated that there was a loss in production of 4,700,000 metric tons of coal and over 100,000 metric tons of coke. There was a loss of about 3,000,000 working shifts, and the miners were reported to have lost over 9,000,000 crowns (\$1,827,000) in wages. Contributions amounting to 326,572 crowns (\$66,294) were made by labor organizations throughout Austria.

Public sentiment seemed to favor the strikers throughout the country, and frequent demands were made upon Parliament to compel a

settlement of the dispute. An important result of this public sentiment was the enactment of the law of June 27, 1901, <sup>(a)</sup> restricting the hours of labor in mines to 9 per shift.

### LEGISLATION.

The conditions of mine ownership and the conduct of mining operations in Austria are fundamentally different from those which prevail in the United States, owing primarily to the survival of the mine prerogative or right of sovereignty belonging to the reigning prince. In accordance with this prerogative certain reserved minerals occurring in their natural strata are subject to the exclusive disposition of the Government. - In this class of reserved minerals are metals and certain other mine products, including all kinds of coal and lignite.

The entire subject of ownership, control, and operation is regulated by the mining code of 1854 and the various amendments and decrees supplementary thereto.

The right to legally procure and possess real estate qualifies also for the ownership and prosecution of mining claims.

### PROSPECTING.

The privilege of prospecting for or taking reserved minerals can be procured only by carefully prescribed grants or concessions, in connection with which the agricultural or other surface proprietor has no prior rights except that due compensation must be made for damage actually occasioned by mining operations, and that prospecting within buildings and inclosed yards and gardens is not permitted without the consent of the owner. The interests of the surface proprietor are to be considered before the beginning of such operations, and an attempt must be made to reach agreement with him with reference to his demands for indemnification. On failure to reach an agreement, however, the political authorities may be asked to intervene, and, the terms prescribed by them being complied with, the mining undertakings may be begun. If the occupation is likely to be lengthy, a regular method of expropriation must be observed and the land must be bought by the mine proprietor. He may also buy land and water rights for all purposes of his works, either within or without the limits of his grant.

The right to legally procure and possess real estate qualifies also for the ownership and prosecution of mining claims.

The right of searching or prospecting in any locality may be granted to a number of petitioners, or it may, by compliance with certain requirements, be made an exclusive right within a fixed circu-

<sup>a</sup> See pages 99 and 100.

lar area having a radius of 425 meters (1,394.35 feet.) Search rights have a duration of but one year, but may be renewed from year to year on payment of the annual fees [4 florins (\$1.62)], and the performance of 27 days' work within the year, though the latter requirement is not rigidly enforced.

Under these rights a prospector may make as many openings as he sees fit, in so far as older mining rights are not interfered with, and may extend his operations sufficiently to demonstrate the location and quality of the discovered minerals. He can not, however, dispose of the minerals taken while prospecting, without the consent of the mine authorities.

A prospector may secure the right of making experimental cuttings underground from a starting point within a granted mine area, provided that he works no injury to prior rights.

• Every exploration right affords a basis for an application for at least one mine area, which is to be a parallelogram containing 45,116 square meters (53,958.74 square yards), the shorter side of which shall measure not less than 106 meters (347.77 feet). For coal claims this area is doubled, the longer sides bordering, and in cases where the exploration shafts reach a depth of 94 meters (308.40 feet) a second duplication of area may be allowed.

#### MINING GRANTS.

Grants relative to mine workings are of three kinds: (1) Those for deep mines, which have the area given above and extend without bounds as to height or depth (except in cases where a surface mine has already been granted). These grants include the right to take all reserved minerals found within the designated area.

(2) Those conveying the right to the unassigned portions lying between two mining grants. These are to be assigned to applicants who have mine property adjacent thereto, and if different claimants can not agree to a division, such unassigned portions are to be held and worked as partnership property.

(3) Grants of surface mines, which convey a right to take the reserved minerals occurring in alluvial deposits, marshes, etc., and extend no farther in depth than to the bed rock. No such right can be granted where a deep-mine claim already exists, but a deep-mine claim can be granted beneath a surface mine, the owner of the latter to receive indemnification for any damages sustained.

Surface-mine grants are of such form as the petitioner may desire, if the approval of the mine authorities is secured, and may extend to an area of 115,000 square meters (137,540 square yards).

Of several claimants for a grant the earlier has precedence. If claims are made contemporaneously and an apportionment is not agreed upon, a partnership holding may be granted.



## CONCESSIONS.

Concessions form a third class of mining rights, and are themselves of two classes—those relating to auxiliary workings and those which provide for the construction of district galleries. Auxiliary workings are workings partly or wholly outside one's own mine area, and designed to facilitate the operation of one or more mines, as for the securing of better ventilation, drainage, or haulage ways. They may be constructed by a single mine proprietor, by two or more proprietors in partnership, or by an outside person who proposes to furnish certain benefits for an agreed compensation. The minerals taken in the course of such construction belong not to the constructor of the working but to the proprietor of the area within which it is situated.

If an entire mine district will be benefited, the concession of a district gallery is allowed on a proper showing as to its desirability and the practical results expected. Proprietors who assent are obligated to contribute a support restricted by the terms of their agreement. Those who withhold assent are liable for nothing unless actually benefited, in which case a proportionate compensation will be exacted in favor of the proprietor of the district gallery, so long as such benefit continues. The rights and obligations of subsequent acquirers of mining rights in the district are fixed by the mine board, and are fully stated both in the original concession and in the deeds of grant to such later claimants.

Besides these separate undertakings, there is a provision that owners of mines less advantageously situated, and lying near mines enjoying superior advantages of haulage ways, drainage, and the like, may secure from the proprietors of the latter, though not to their excessive disadvantage, certain privileges of ingress, egress, ventilation, use of hoisting and pumping machinery, etc. This may be done either by voluntary agreement or by an appeal to the mine authorities. In any case the compensation to be paid and the conditions generally must be passed upon by the mine authorities before the matter can be considered settled.

## MAPS.

As soon as the connected workings in any deep mine reach an extent of 190 meters (623.36 feet), a map must be prepared showing accurately the location and the extent of the workings, which must be corrected from time to time, so that all cuttings of more than 95 meters (311.68 feet) length shall appear. The mine authorities are to be allowed to freely inspect and copy from these maps, but only for official use in the correction of the district maps.

## OFFICIAL CONTROL AND INSPECTION.

For the enforcement of the laws and for the public supervision of the mining industry, there are—

(a) Boards of district officials (fixed at 27 in number by a decree of 1895), with local authority, and having the powers in general of a court of first instance.

(b) Four boards of superior mine officials (*Berghauptmannschaften*) to which appeals may be taken from the district boards, and from which certain classes of grants must be obtained.

(c) The ministry of agriculture, which is the highest authority.

All inspection necessary for the accomplishment of the objects for which the mine boards are formed must be made officially. In this connection it is required that inspections be made of all mines from time to time and that the results be reported to the board; that charts and working plans be inspected in strict official secrecy for the purpose of correcting the district maps; that such orders be issued as are necessary to insure compliance with the provisions of the mining code, and that accidents likely to cause extensive injury or to which attention is called by interested individuals be investigated, and, in case the remedies already provided are inadequate, that orders for such as are necessary be issued.

The aid of the political authorities is to be invoked for the remedying of conditions which endanger the safety of persons, buildings, lands, springs, wells, etc., although in urgent cases preliminary measures may be undertaken by the mine authorities with the assistance of experts.

## SAFETY OF EMPLOYEES, ETC.

The regulations as to safe conditions of the workings of a mine have regard not only to the protection of the employees within the mine, but also to the interests of persons who use or who may wish to use such workings in connection with explorations or operations in adjoining mines. Thus in deep mines each principal working must be kept fit for passage and the work therein must be done in such a manner that further exploitation shall not be unnecessarily hindered or made difficult. Especially is it to be considered an unlawful hindrance to such further exploitation if the presence of useful minerals is knowingly made unrecognizable or otherwise concealed by a mine owner or by another person with his knowledge.

The general mining code prescribes continuous operation of all workings during the customary mining season in each district, with an adequate force of employees, for 8 hours each day. This requirement may be waived by reason of obstacles which, in the judgment of the authorities, afford sufficient grounds for the cessation of labor, as, for instance, the interruption of traffic, and extensions of time for the resumption thereof may be allowed. During such periods, however,



the mines must be kept safe and in a workable condition. Fines and ultimate forfeiture are the penalties for nonconformance with these requirements. A violation of the mining law, which also involves an infraction of the general penal law, renders the guilty person liable to punishment under both codes.

Each proprietor is accountable for the observance of the mine laws in the working of his mine, and this duty is not avoided by the leasing of his property. This obligation rests also upon the joint owners of partnership mines, whose names so appear in the mine records.

Among the regulations as to safety, the following are prescribed by the law:

- (a) The adequate fencing of all open shafts to prevent the falling in of man or beast;
- (b) The suitable safeguarding of fallen-in workings or those in danger of falling in;
- (c) The suitable timbering of shafts more than 18 meters (59.05 feet) in depth; the proper safeguarding of ways (ladders, footpaths, etc.); the daily inspection of hoisting engines and machinery;
- (d) The nonuse of such tools as would endanger the safety of workmen;
- (e) Special attention to points where there is danger of fire, and the prompt extinguishing of all fires;
- (f) Care for adequate ventilation;
- (g) The use of safety lamps in mines having explosive gases.

An ordinance of July 4, 1904, makes examinations for indications of anchylostomiasis (worm sickness) obligatory on all workmen, overseers, etc., who have been employed in foreign mines, or in any place where the presence of the disease is suspected, within five years prior to the date of the publication of the ordinance. The methods of examination and of combating the disease where found are prescribed in detail, and the local mine and health authorities are jointly charged with the administration of the law.

#### EMPLOYMENT.

*Rules.*—Besides the rules prescribed for the safety of employees, service rules (*Dienstordnung*) must be prepared for each mine, which, after careful examination and approval by the mine authorities, are to be published and posted in and about the mine and other working places. Since the recognition of the miners' associations by the act of August 14, 1896, the local workers' committee, composed of delegates chosen to represent each mine in the workers' assembly for the district, has the right to examine and pass upon the draft of mine rules. Experts may also be consulted as to the adequacy of these rules, which, after adoption, have the force of law. The mine authorities are required to

endeavor to procure uniformity in the regulations in force in each district.

These rules must contain specific provisions regarding the various classes of workers and overseers and their duties, and provisions as to the employment of women and children as regards their physical strength and the compulsory education of the latter; the relation between workers and overseers; the time and duration of labor; the behavior of employees in and outside of the service; the system of wage payments to be used, including provisions for payments in cases of sickness and accident; the penalties for violations of mine rules, and the dissolution of the employment relation.

It may be here stated that some of the points specified are covered by supplementary acts having general application.

*Termination.*—Unless otherwise provided in the local rules or by contract or other provisions, officials and overseers employed at mines may not leave or be dismissed from their service until after three months' notice; workmen must give or receive two weeks' notice. The commission of a crime or misdemeanor or of an offense against the security of the person, honor, or property of the employer, according to the criminal code, destroys the right to receive notice and the guilty person may be summarily dismissed. Neglect of duty and lack of proper respect and obedience toward superiors, the carrying on of another business incompatible with his duties as an employee, or making a wrongful use, to the detriment of the employer, of his knowledge of mine conditions gained in the service also furnish grounds for the dismissal of a person so offending. Officials who receive degrading treatment from their superiors, and employees of all classes who suffer abuse or whose contracts as to maintenance, payment of wages, etc., are not complied with may leave service immediately on giving notice. Permission to leave the service can not be refused on account of any claim preferred by a mine owner or third party against the person desiring to leave.

Whenever an employee leaves the service of an employer the latter is required to furnish a certificate of release in which must be stated the working class to which the employee belongs, the relief association of which he is a member, the date of his latest payment to the same, and the dates of entry upon and release from employment. Without such certificate no workman or overseer who has had service in an Austrian mine can be again employed. (By a decree of 1866 this certificate is superseded by a pass book to be furnished each employee, containing the data specified.)

At each mine a complete register of the employees, both workers and overseers, must be kept, the same to be open to the inspection of the mine and political authorities whenever demanded.

*Wages.*—Wages are to be paid at least monthly. Within the limits of this provision the minister of agriculture may establish by decree a maximum period for wage payments. Each mine owner is required to embody in his mine rules a provision as to advance payments. All sums owing at the time of an employee's leaving service are to be paid immediately. No judicial attachments or executions may be issued against either contract or time wages of mine workers.

Agreements among mine employees for the purpose of obtaining higher wages or for other purposes, whether by refusal to work, by refractory conduct or otherwise, or by instigating others to such conduct are offenses against the penal code, punishable by imprisonment for periods of from eight days to three months. Mine proprietors are likewise forbidden to make agreements designed to reduce the earnings of workmen by laying them off or by suspending operations, or to in any way impose more unfavorable conditions of employment.

Complaints by employees may be made either to the mine authorities or to the law courts, as the nature of the case may determine. The district mine official is required to give conscientious attention to such complaints and to seek to procure an amicable settlement of all difficulties.

*Superintendents and foremen.*—A supplementary law of December 31, 1893, requires the appointment of mine superintendents (*Betriebsleiter*) who shall have the management of the operation of all mines coming under the supervision of the mine authorities. Applicants desiring such positions must have satisfactorily completed a regular course of study in a technical school for mining and must have had at least three years' practical experience in mining operations.

A superintendent thus appointed shares with the mine owner the responsibility of enforcing the mining law and of observing the decrees and orders relative to mining operations.

The mine owner must report, not later than at the date of entrance upon his service, the name of any superintendent appointed, submitting also the certificate of his fitness. The operation of a mine, except in cases of justifiable necessity, without the supervision of a properly qualified superintendent, or the acceptance of the post of superintendent by a person not properly qualified, renders the offending party or parties liable to a fine.

Mine bosses (*Betriebsaufseher*) must be persons who have been graduated from an inferior school of mines or whose practical fitness for their positions has been proven. They hold positions subordinate to those of mine superintendents, but their appointments and the certificates of their competency must be transmitted to the district authorities in the same manner as is prescribed for the superintendents. By a decree relative to the above enactment, it is required that of the three years of practical experience provided for at least two years

shall have been spent in actual mining operations, and that for not less than three months the applicant shall have been engaged in mine surveying. For employment in mines producing fire damp the applicant must show an acquaintance with the operation of such mines, gained by actual experience.

Mine bosses who are not graduates of an inferior mine school must be able to read and write and must have had at least three years' experience by being employed at all the various kinds of mine labor in their usual order and for the customary period. Those who are charged with oversight of but a single operation or portion of the work, however, may be received on a showing of at least two years' employment in the kind of position applied for. Certificates of service are the proof required in these cases.

*Women and children.*—The employment of women and children, hours of labor, and Sunday rest are regulated by the act of June 21, 1884. This act prohibits the employment at mine work of children under 14 years of age. In exceptional cases, however, children between the ages of 12 and 14 years may be employed at light labor above ground, if such employment be requested by the parents or guardians and specifically authorized by the proper officials, but not to the prejudice of the requirements as to school attendance.

Females may be employed only at surface work. Mothers must not be employed until six weeks after confinement, except upon a physician's certificate of ability to work, when the time may be reduced to four weeks.

Boys under 16 and girls under 18 may be employed only at such labor as will not be detrimental to their physical development.

*Hours of labor.*—The act of June 21, 1884, fixed the length of the shift and the working time, which are the same for surface employees, a shift for them being the time of actual employment, while for pit workers the shift begins with the entering of the shaft and ends with the exit therefrom, the time of ascent and descent being included therein. By this law a shift could not exceed 12 hours per day nor the actual time worked 10 hours. Concessions were made for mines difficult of access and for cases of emergency. On June 27, 1901, the above law was amended as regards underground workers by establishing 9 hours as the maximum shift for such employees, the time to be reckoned from entrance to exit, and interruptions arising from the nature of the work, as also the rest periods, to be counted as a part of the shift. If, however, such intervals of time are passed above ground the time required for coming out and returning is not to be included in the reckoning. By way of exception, in mines which can not be profitably worked on the basis of a 9-hour shift, the provisions of the law of 1884 are allowed still to control, after a hearing before the proper authorities has indicated the necessities of the case.

Exceptions may also be granted in the case of mines difficult of access in mountainous districts, but the aggregate weekly work time of any employee may not exceed 54 hours.

*Sunday labor.*—Except in those classes of work which can not be interrupted or which can be done only while the regular operations are suspended, all work in the mines must cease on Sundays. The Sunday rest must begin not later than at 6 a. m. on Sunday and continue for 24 hours.

The limitations as to hours of labor and Sunday rest may be waived in cases of imminent danger to life or health or to property.

#### REPORTS.

Each mine proprietor is required to furnish freely to the mine authorities for official use all desired information as to the minerals taken, the crude product obtained therefrom, the amount of fuel consumed, the value of the product, the number and kinds of workmen, facts as to their families, and other information as to the conditions of operation.

#### REGULATIONS.

Though the general mining law contains provision for the adoption and promulgation of local regulations by the mine proprietors, with the approval of the district authorities, decrees have been issued from time to time applicable to specified departments. The following regulations are to be found in decrees of 1876 and 1879 for the department of Cracow and in an ordinance of 1895 for the district of Mährisch-Ostrau, which were promulgated as supplementary to the general law, and which may be accepted as fairly representative of similar requirements throughout the empire:

*Escape shafts.*—At least two exits must be provided at each mine, which must be separated from each other by a rock partition, and so provided with ladders that it shall be at all times possible for the entire force of workmen to reach the surface through one shaft in case the other shall become unusable. Single shafts may be temporarily used with the permission of the mine authorities, but such shafts must be provided with an isolated air way and be capable of use for passage in both divisions. If two shafts discharge superficially into a single opening such double exit must be equipped with a fireproof partition. Each shaft used for entry or exit must be supplied with securely fixed ladders having a slope of not more than 80° and with rounds not less than 20 centimeters (7.87 inches) nor more than 30 centimeters (11.81 inches) apart and uniformly spaced. Perpendicular

ladders are allowed only by way of exception in shafts of less than 20 meters (65.62 feet) depth, after permission from the mine authorities. The rounds of such ladders shall stand at least 15 centimeters (5.91 inches) from the sides of the shaft.

Platforms must be placed at intervals of not more than 6 meters (19.68 feet), and the ladders must project above these at least 1 meter (3.28 feet) unless secure hand holds are provided to take the place of such extension.

Where shafts are also used for hoisting minerals, the ladder way must be securely separated from the hoistway, and can be used for ingress and egress only when no hoisting is being done.

The wearing of wooden shoes while ascending or descending ladders and the carrying of tools thereon are forbidden.

*Hoists, etc.*—Catches or other checking devices must be provided on all hoists; apparatus operated by steam, water, or horsepower must be furnished with a suitable brake which the attendant can control from his post of duty. Automatic signal devices are required to be installed by means of which the ascent and descent of the buckets are indicated. Trap doors or similar self-acting devices must be used for closing the mouth of the shaft where coal is handled by engines or winches.

Loading places must afford adequate security for workmen, and, where necessary, side passages must be so constructed as to allow the hoist attendant to move about without passing underneath the shaft.

Tools and small objects must be taken up and down in boxes. Men may not accompany animals in the ascent or descent, nor may timbers be thrown down the shaft. Slings may be used for handling timbers only in exceptional cases and when clamps are used.

Coal may be hoisted in shafts used for the movement of workmen only when the ways used for the two purposes are adequately separated, but in cases of alterations or repairs workmen who have obtained permission from the foreman or his deputy may use the hoistways for coal as a means of ingress or egress. Traveling in slings or empty mineral conveyances or in belts is permitted only with like consent, although the district authorities may, on application, give their assent to the customary use of belts for hoisting and lowering workmen.

The installation of a rope elevator in a shaft requires the special assent of the district officials. Such apparatus must be tested monthly, and must be carefully examined each day before being used. The rope must be of good quality, and is to be coupled to the cage by means of a chain of a carrying power at least three times that of the rope, and so arranged that no catching or buckling of the links can occur.



The cage must be securely covered, and is to be provided with a safety clutch, to prevent falling in case the rope should break. Competent and responsible persons must have charge of cages at all times, and of the hoisting, lowering, and emptying of buckets. The number of persons that may be carried is fixed by the local mine authorities.

The speed of the cage must be regular, and may not exceed 2 meters (6.56 feet) per second. Special rules are required at each mine regulating the time and manner of entrance and exit and particulars as to speed, signals, conduct of workmen, etc. While men are being carried every other operation in the shaft must cease. In mines where hoists are used, a shaft, or a suitable portion thereof, must be properly equipped with ladders for the use of workmen who may prefer them.

*Traveling ways.*—The track for haulage ways must be firmly laid and secured, and loading places and scaffolds must be placed horizontally at shafts and planes. Whatever be the power used, if the slope is sufficient to cause the cars to move by gravity, they must be so equipped with brakes that they can at any time be instantaneously stopped.

Lamps are to be placed in passageways equipped with rope trams, unless such passageways are lighted naturally, and in all cases lamps must be provided after nightfall. Trammers moving cars are required to have a lamp on the front of the same, to keep to a suitable speed, and to maintain such distances from one another as to avoid danger of collisions. Where hauling is done by machinery, signal devices must be placed at appropriate intervals, to be fixed upon by the foreman.

Approaches to gravity planes must be equipped with barriers, to be closed by the trammers after the passage of each car.

Where self-acting planes open directly into haulage ways, guard rails must be provided behind which workmen may pass in safety, or there must be ways leading around such openings. Movable barriers or track bars must be placed on the loading platform of tramways to prevent the escape of loaded cars before they are coupled. The brake devices on self-acting planes must be automatic and under control of persons occupying places of perfect safety.

While hauling is being carried on in any slope, no traveling shall be done therein unless a separate way is substantially partitioned off. Traveling in the haulage way is permissible only to workmen engaged in its repair, during which time hauling must cease throughout the entire slope. The use of hauling machinery for the carrying of persons requires special permission from the overseers or their deputies.

*Signals.*—Mine shafts more than 20 meters (65.62 feet) in depth must be equipped with a device by means of which workmen in the mine can clearly understand the movements and intentions of the person or persons in charge of the hoisting apparatus. Certain signals are pre-

scribed, and others not conflicting may be adopted, schedules of which are to be posted where the men can inform themselves thereon. If the shaft exceeds 20 meters (65.62 feet) in depth the district officials must approve the apparatus before it is put into operation; if the depth exceeds 70 meters (229.66 feet) such additional apparatus must be installed as will enable employees at all points to hear the signals given, and until such installation is made and approved the sending of men into the shaft is forbidden.

*Ventilation.*—The provisions as to ventilation here set forth are found in an ordinance of 1895 relative to coal mines in the district of Mährisch-Ostrau.

Mines are divided into two danger classes (*Gefahrenklassen*), according to the amount of carburet of hydrogen present in the total outflow of air, such outflow to correspond to an assumed uniform movement of 1.5 cubic meters (52.97 cubic feet) per minute per ton of daily output, or of 2 cubic meters (70.63 cubic feet) per minute for each man employed in the mine. The computation as to workmen is to be based on the largest number of men in a shift. Each horse is to be considered as the equivalent of four men.

In the first or least dangerous class of mines are included those in which the amount of carburet of hydrogen in the outflow does not exceed 1.5 per cent, those producing a greater amount being included in the second class. The nature of the production of the gas, whether flowing or in abrupt discharges, as well as the development of coal dust and the position of rock masses, etc., are to be considered in determining this classification. The classification is effected by the district mine board.

The division of a single working into separate danger classes is not lawful. The classification of mines is to be revised every 3 years in so far as special causes do not prevent such revision, and the workmen in each mine shall be informed as to the class of such mine and as to any change therein.

Of the two escape shafts required in mines, one is to be used for the intake and one for the outflow of air; where a single shaft is used it must be divided into separate air ways. Intake shafts must be provided with fireproof shut-offs to be usable in case of fire to prevent its spread as well as the drawing of smoke into the mine. There must also be means provided for the continuance of ventilation at such times through other channels.

The amount of fresh air entering each mine and the supply to each separate working place must be so apportioned that the requirement of an outflow of at least 1.5 cubic meters (52.97 cubic feet) per minute per ton of daily output for each workman or foreman employed shall cause a movement of at least 3 cubic meters (105.94 cubic feet) per minute in mines of the first class, and of 4 cubic meters (141.26 cubic



feet) per minute in those of the second. The mine authorities may permit modifications of the above rule in mines producing little or no gas. [www.libtool.com.cn](http://www.libtool.com.cn)

The air ways must be so arranged that the rate of the outgoing current shall not exceed 6 meters (19.68 feet) per second, except in ways in which no work is being performed and which are entered only occasionally, as for inspection, and in these the rate shall not exceed 10 meters (32.81 feet) per second. Main air ways or shafts shall have a face of at least 3 square meters (32.29 square feet), the others generally not less than 1 square meter (10.76 square feet). In ways obstructed with many cars the cross section of the cars must be subtracted from that of the way in computing the clear face for ventilation. If air ways are not adequate and can not be enlarged, the working force must be proportionately reduced.

The conveying of air to active workings through old, broken workings, as well as the discharge of air exclusively through such channels, is forbidden.

Ventilation by natural air currents alone is not allowed. The use of ventilating furnaces, of the chimneys of boiler fires, of aspirators, the heating of the outgoing air with steam, and the like, are permissible only as temporary expedients, and require the special assent of the authorities. In such cases air to support combustion must be brought directly from the surface, and the flame must not be allowed to come into contact with the outgoing current. In no case are open fires permitted.

The system of ventilation throughout a mine must, in general, be by the drawing off or pumping of the air. The separate ventilation of working places may be either by suction or by blowing. The machinery used must be of such capacity as to be able at all times to exceed the minimum ventilation required by 25 per cent. Motors must be provided with a self-registering pressure meter and with a device for recording the number of revolutions. Inspections of ventilating machinery must be regularly made. Ventilation must in general be uninterrupted, and to this end, local conditions being considered, mechanically driven machinery is required. The use of hand fans is permitted only as auxiliary and only in mines of the first class, their operation to be continuous except during rest periods of the workmen at the points supplied thereby. Detailed regulations are laid down for the ventilation of vertical, oblique, and horizontal workings, for the distance between break-throughs, and for the different methods of working (long wall, room and pillar, etc.), and for testing for the presence of gas.

Concavities in the roof and unnecessary enlargements or sharp turns in passageways are, as far as possible, to be avoided. In driving passageways which approach closed up old workings advance borings must be made.

Separate air ways must be supplied with independent currents, and not more than 100 men are to be employed in each ventilation section. Air charged with more than 1.5 per cent of carburet of hydrogen must be carried as directly as possible to an exit, without coming in contact with another working place. If the gas content at any time exceeds 2.5 per cent and air currents can not be introduced to remedy such conditions, work at the affected place must be abandoned unless by exception it is continued under constant inspection and special regulations provided by the mine board. Working places debarred from operation on account of excessive gas content must be made inaccessible to the fresh air and care must be taken to prevent the exit therefrom of gas.

The total outflow of air from each mine must be measured weekly, and all separate outgoing currents at least monthly. The atmospheric pressure and temperature are also to be regularly noted at fixed points above ground, unless self-registering instruments are provided and a continuous record is kept of such measurements and observations. Maps showing the course of ventilation from entrance to exit are to be made and revised so as to present a correct view of the system at all times.

Analyses are to be made monthly of the outgoing air at the general exit and at least quarterly at the principal division points. Reports are required showing the amount and condition of the air current, the number of overseers, workmen, and horses in the current at the time the test was made, and the output in tons in 24 hours of the mine section supplied by the current tested. Copies of these reports are to be furnished quarterly to the mine board of the district.

Before the working force enters the mine, specially designated persons must examine all working places for the presence of gas after rest periods and when such places have been unused for longer than four hours. An authorized person must also make an examination during each shift at such places as are indicated to him; and, lastly, each room boss must examine his own working place before beginning as well as during his shift, and especially at the close. The safety lamp used in such examination must be capable of detecting the presence of as little as 1.5 per cent of gas.

Doors must be so placed as to split the currents and to prevent the intermingling of outgoing and incoming air. Such doors must be self-closing, and at important points where doors are frequently opened, two doors must be installed at such a distance apart that one can be kept closed when the other is opened.

Workmen are forbidden to make any alterations in any ventilating device or arrangement without orders from a superior, and they must report immediately as to any discovered defects or injuries.

Care is to be taken to prevent an accumulation of coal dust, and where such has gathered it must be thoroughly wetted before removal. Where floating dust is found the floors, walls, and timbers must be sprinkled in the principal haulage ways and planes, as well as in the subordinate passages, and in all other ways and passages joined thereto for a distance of at least 50 meters (164.04 feet).

*Lighting.*—Lamps must be placed in all engine rooms, hoistways, and near shafts and planes. Descent and ascent, as well as going about in mines, without a light are strictly forbidden. Open lamps may be used only in shafts and pit-eyes lying in the inflowing current of air in mines of the first danger class. Safety lamps and, by permission of the mine board, incandescent electric lamps are prescribed for use elsewhere.

The kinds of safety lamps to be used are named, and their required construction and measurements are given in detail. Material deviation from the prescribed standards or the use of other lamps requires the permission of the mine authorities. Lamps must be closed with a magnet lock, or other equally well-known and approved device, and must likewise have an inside arrangement for lighting.

New safety lamps must be examined before being put into use and all must receive an annual inspection by an expert official. Lamps must be furnished by the mine proprietors, and the use of those individually owned is forbidden to the workmen. Such records are required as will show to what workman any lamp is issued.

An isolated fireproof chamber, separated from the shaft and having an independent ventilation, is to be provided for a lamp room. Where benzine lamps are used, the storage rooms for benzine must be distinct from the lamp room. A lamp tender is charged with the care and control of all lamps and is held responsible for the good condition of those given out by him. After lighting, and before they are given out, lamps must be tested by being blown upon from all sides with compressed air.

If a lamp becomes dirty or injured or is red hot from the presence of gas likely to cause explosion, it must be extinguished by turning down the wick or cutting off the supply of air, but never by blowing it out. Extinguished lamps are not to be relighted, but reserve lamps in sufficient numbers are to be kept in readiness at some prescribed point in the mine. Opening lamps in a mine or carrying into the mine appliances for opening them, as well as the carrying of materials for smoking, are strictly forbidden.

*Explosives, blasting, etc.*—Blasting may be done only by specially appointed shot firers, who are to be made familiar with the nature and use of the explosives employed; or it may be done by the mine bosses. Explosives must be kept under lock and key, protected from sun and rain, and are to be issued only in the quantity needed for use in the

current day and at as short a time as possible before firing. The miners themselves shall receive no explosives. Cartridges prepared with fuses, which remain unused at the close of the day, must be taken in charge by a proper person and put in a safe place separate from other explosives. Precautionary instructions are given as to the handling of frozen nitroglycerin compounds; the use of warm water in a double vessel and of a temperature not exceeding 40° C. (104° F.) is recommended for thawing. Single cartridges may be carried on the person of a workman to prevent freezing. Moist powder must not be dried on a hearth at an open fire, or in any place where the temperature exceeds 40° C. (104° F.).

Cartridges are to be set by the use of a wooden rod and without the application of much force. The adjusted priming cartridge is to be set gently on the explosive charge without the use of a rammer. A loose layer of material is to be placed next to the cartridge for a thickness of at least 1 decimeter (3.94 inches); the remainder of the packing may be firmly pressed, but not tamped by striking. The use of small coal or coal dust for packing is forbidden. If clay is not at hand, water may be used, if practicable, or wet sand or moss. The fuse is to be so set as to prevent, as far as possible, the generation of gases in exploding the charge. The use of black powder and other slow-firing explosives is absolutely forbidden.

The driller is to be careful in cutting the hole and in loading and tamping, so that the blowing out of shots will be avoided. If a shot has missed it is not to be drilled out, but if it can not be fired by an adjoining blast, the packing is to be partially removed with a wooden dipper and a discharge effected by placing a second charge in the same hole.

Where blasting is done with nitroglycerin, especially when an organic absorbent material is used, the utmost care must be taken to provide thorough ventilation. Shot firers are to be provided with safety lamps which can be safely used in the presence of a gas content of 1.5 per cent. Immediately before the firing of each shot the firer must carefully examine the working place for a distance of 10 meters (32.81 feet) from the charged hole for the presence of gas and coal dust. If no coal dust is found, but a gas content of 1.5 per cent, blasting may be done only with a safety explosive. If the gas content exceeds 2.5 per cent, no blasting may be done; likewise blasting may not be done if gas has collected locally in dangerous quantities in cavities within the range given, even though the air current shows a smaller amount than 2.5 per cent. If no gas is present, but coal dust is found, sprinkling must be resorted to and the blasting done with a safety powder; if there be dust and 1.5 per cent of gas, no blasting can be done.

Blasting in the coal is permitted with safety explosives only. In mines of the second danger class, blasting in the coal in the driving of

vertical ways is strictly forbidden. Rock may be broken up by blasting only in upward coursing currents having free vent and where cul-de-sacs are avoided.

The simultaneous discharge of two or more shots is permitted only when they are fired by electricity.

Places of refuge are to be provided for the workmen, if possible outside the air currents of those places in which the blasting occurs, into which the men shall go before the firing of shots, and which shall be, if necessary, provided with protecting doors.

Smoking by workmen using explosives is strictly forbidden.

The supply magazine must be properly closed and inspected, and no explosives may be carried to the home of any foreman or laborer. Record is to be kept of the names of workmen to whom explosives are supplied and of the amounts furnished.

When necessary for public or personal safety, explosives are to be destroyed.

*Inspection.*—The carrying out of the prescribed instructions and inspections devolves upon a supervisory force. Overseers (*Vorhauer*, *Oberhauer*, *Steiger*), having charge usually of not more than 50 men, must visit each working place at least once during each shift; isolated places where single workmen are employed must be visited twice.

Next in rank is the mine boss (*Obersteiger*), to whom the overseers report, and who is especially charged with the ventilation of the mine. If day and night shifts are employed, the two bosses supervise the shifts in weekly alternation, and must reciprocally impart all observations and fixed instructions.

The oversight and direction of the entire mine devolves upon a mine superintendent (*Betriebsleiter*), who is charged with the duty of seeing that all prescribed regulations are exactly obeyed. He is required to keep a continuous record of the conditions as to ventilation, coal dust, violations of rules, etc., as these are reported to him by his subordinates.

*Accidents.*—For the instruction of mine superintendents and subordinate officials in the matter of first aid in cases of accident, a suitable handbook on the subject is to be provided at each mine, and necessary bandages and dressings are to be kept constantly in readiness.

General instructions must also be given to overseers and workmen as to procedure after an explosion, including attempts at rescue and the use of any rescuing appliances provided.

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**CHAPTER II.**

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**COAL MINE LABOR IN BELGIUM.**

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## CHAPTER II.

### COAL MINE LABOR IN BELGIUM.

#### OUTPUT, VALUE, AND DISTRIBUTION OF PRODUCT.

The coal fields of Belgium lie in the provinces of Hainaut, Namur, and Liege, forming a belt which crosses the southern part of the Kingdom from southwest to northeast. The coal measures follow the dip of the carboniferous limestone and form a deep trough. The coal crops out at the surface near Namur, where, owing to an elevation of the bottom of the calcareous valley, the coal deposit is small and of comparatively little importance. From this point the strata dip toward the southwest and northeast, forming the Hainaut and Liege coal fields. In Liege the deposit reaches a depth of 1,500 meters (1,640 yards), and in Hainaut it appears to reach a depth of 2,500 meters (2,734 yards).

The coal belt has a total length of 170 kilometers (105.6 miles). It averages from 8 to 9 kilometers (5 to 5.6 miles) in width, attaining a maximum of 19 kilometers (11.8 miles) in Hainaut and 18 kilometers (11.2 miles) in Liege. It extends into Germany on the east and into France on the west.

The coal formation includes a large number of seams of from 0.35 meter to 2 meters (1.15 to 6.56 feet) in thickness. Those exceeding 1 meter (3.28 feet) are rare, however, the average thickness of the seams worked being about 0.65 meter (2.13 feet). The number of seams at any place is usually proportionate to the depth of the vertical section of the coal measures. The maximum number of seams is 60 at Liege, 107 at Charleroi, and 114 at Mons. At Mons there may be some seams that have not yet been discovered. Many of the richest seams have been completely exhausted.

Although the seams are numerous and contain almost every description of mineral coal, much difficulty is experienced in working them on account of their thinness. Their course in the central part of the belt is very crooked, alternating in zigzag horizontal and vertical layers. In the north the seams appear in much more regular horizontal strata.



The coal produced is of a rich quality, varying from a superior flaming coal (flénu), which resembles the cannel coal of Great Britain, to the anthracite, and including gas coal and forge and coking coal, suitable for steam generating and for domestic purposes.

With the exception of a few sterile regions in the center and in the north, the entire coal belt is being exploited. In 1901, 218 concessions for mining were in force, but only 119 mines were in operation. The total area of the 218 concessions was 139,303 hectares (344,218 acres).

The coal belt is divided into five regions or districts known respectively as Couchant de Mons, Centre, Charleroi, Namur, and Liege. The first three of these are in the province of Hainaut. In 1902 a new coal field was discovered in the north central part of Belgium. It has an estimated area of 160,000 hectares (395,360 acres). It is known as the "Bassin de la Campine," and extends in the form of a wedge-shaped triangle from Maestricht to Maasseyck on the east to Lierre, near Antwerp, on the west.

Belgium was probably the first country in continental Europe in which coal was regularly used as fuel. A legend, which is current in Belgium, speaks of a blacksmith named Hullos at Liege, whose attention was directed to the use of coal in some mysterious way about the close of the ninth century, and who subsequently used it with profit in his forge. It is believed that the French word for coal "houille" is derived from the name of this Belgian blacksmith. Coal mining operations have been going on regularly since about the twelfth century, the oldest mines being in the provinces of Liege and Hainaut. No reliable statistics are available of the development of the coal mining industry in Belgium prior to the establishment of the present Belgian government. Since 1831, when the collection of official statistics of coal production was begun, the output has increased about tenfold.

Belgium at present ranks fifth in Europe as a coal producing country, but in proportion to its area its product is greater than that of any other European country. In its per capita production it ranks next to Great Britain.

The following table shows the production in metric tons of coal mined in Belgium in each year from 1831 to 1903, and the total value and the value per metric ton during each year from 1831 to 1902:

## PRODUCTION OF COAL IN BELGIUM, BY PROVINCES, 1831 TO 1903, AND TOTAL VALUE AND VALUE PER METRIC TON, 1831 TO 1902.

Source: Value of product, 1831 to 1849, Statistique rétrospective des mines, minières, carrières, etc. (Extrait des annales des mines de Belgique, tome I); 1850 to 1902, Annales des mines de Belgique, tome IX, 2<sup>e</sup> livraison; Quantity of coal produced, 1831 to 1890, Annales des travaux publics, tome XL (Développement de l'industrie houillère en Belgique); 1881 to 1899, Statistique des mines, minières, carrières, etc. (Extraits des annales des travaux publics, tomes XLI-LII; Extraits des annales des mines de Belgique, tomes I-V); 1900-1903, Annales des mines de Belgique, tomes VI, VIII, IX. The average value per ton was computed. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193. In the original reports the total value was reported in thousands of francs for the years 1831 to 1849. The coal production reported in Namur from 1840 to 1850 includes a small quantity produced in the province of Luxemburg. Production includes coal consumed at mines in addition to coal marketed. A metric ton = 2,204.6 pounds.

Year.	Quantity of coal produced (metric tons).				Total value of product at mine.	Value per metric ton.
	Hainaut.	Namur.	Liege.	Total.		
1831.....	1,765,000	84,480	455,536	2,305,016	\$3,873,896	\$1.66
1832.....	1,737,000	81,660	461,873	2,280,833	3,756,745	1.65
1833.....	1,945,000	78,000	506,405	2,531,405	4,185,305	1.65
1834.....	1,819,000	97,575	520,000	2,436,875	4,046,052	1.66
1835.....	1,965,000	81,800	591,931	2,638,731	4,827,123	1.83
1836.....	2,349,371	97,174	627,916	3,074,461	7,399,041	2.41
1837.....	2,469,605	92,473	666,729	3,228,807	8,161,970	2.53
1838.....	2,415,909	103,954	740,408	3,260,271	8,263,102	2.53
1839.....	2,599,011	124,397	755,753	3,479,161	8,708,932	2.50
1840.....	2,951,781	125,058	853,124	3,929,963	8,944,199	2.28
1841.....	2,968,875	123,038	935,854	4,027,767	8,204,623	2.04
1842.....	3,059,183	135,378	946,002	4,141,463	7,341,334	1.77
1843.....	2,874,453	141,456	966,365	3,982,274	6,982,161	1.75
1844.....	3,290,628	134,004	1,019,908	4,445,240	7,689,892	1.73
1845.....	3,670,486	162,625	1,086,045	4,919,156	9,099,757	1.85
1846.....	3,798,335	160,887	1,078,380	5,037,402	9,152,060	1.82
1847.....	4,201,331	159,014	1,303,905	5,664,450	10,094,865	1.78
1848.....	3,654,742	157,782	1,050,170	4,862,694	7,945,617	1.63
1849.....	4,018,195	170,195	1,063,453	5,251,843	5,885,342	1.12
1850.....	4,420,761	177,002	1,222,225	5,820,588	8,968,979	1.54
1851.....	4,753,861	187,857	1,292,999	6,233,517	9,600,489	1.54
1852.....	5,234,768	182,678	1,377,908	6,795,254	10,242,517	1.51
1853.....	5,483,009	185,004	1,503,374	7,172,687	12,060,227	1.68
1854.....	6,154,062	209,990	1,582,790	7,947,742	16,570,320	2.08
1855.....	6,458,416	230,861	1,720,053	8,409,330	20,081,070	2.39
1856.....	6,219,132	218,009	1,774,678	8,212,419	20,353,541	2.48
1857.....	6,441,182	201,804	1,740,016	8,383,002	19,390,823	2.31
1858.....	6,855,011	217,774	1,852,929	8,925,714	19,951,784	2.24
1859.....	7,099,328	220,850	1,840,326	9,160,702	20,073,197	2.19
1860.....	7,507,720	204,628	1,898,647	9,610,995	20,675,665	2.15
1861.....	7,935,645	243,661	1,878,457	10,057,163	21,232,891	2.11
1862.....	7,795,170	246,000	1,893,075	9,935,645	20,165,647	2.03
1863.....	8,101,102	255,667	1,988,861	10,345,330	20,223,006	1.95
1864.....	8,670,372	266,335	2,221,729	11,158,336	21,336,055	1.91
1865.....	9,206,058	305,734	2,328,011	11,840,703	23,911,062	2.02
1866.....	9,851,624	358,687	2,564,551	12,774,662	29,149,694	2.28
1867.....	9,595,280	389,886	2,770,956	12,755,822	30,542,008	2.39
1868.....	9,398,550	310,669	2,589,070	12,298,289	25,798,431	2.10
1869.....	9,840,330	303,038	2,798,726	12,942,094	26,270,403	2.03
1870.....	10,196,330	338,407	3,162,181	13,697,118	28,686,821	2.09
1871.....	10,037,230	350,889	3,345,557	13,733,176	29,684,045	2.16
1872.....	11,616,166	389,688	3,653,694	15,658,948	40,251,666	2.57
1873.....	11,652,953	450,870	3,674,578	15,778,401	68,164,010	4.13
1874.....	10,698,130	440,124	3,530,775	14,669,029	46,495,632	3.17
1875.....	10,968,175	491,865	3,551,791	15,011,331	44,359,144	2.96
1876.....	10,486,080	474,075	3,367,943	14,328,098	37,464,900	2.61
1877.....	10,259,374	371,888	3,307,761	13,938,323	29,520,783	2.12
1878.....	11,003,623	414,620	3,481,432	14,899,175	28,529,524	1.91
1879.....	11,448,351	417,456	3,581,305	15,447,292	27,983,078	1.84
1880.....	12,548,307	494,662	3,823,629	16,866,698	32,748,141	1.94
1881.....	12,554,306	419,669	3,899,876	16,873,951	31,594,019	1.87
1882.....	13,131,942	460,165	3,993,482	17,590,969	35,947,855	1.93
1883.....	13,497,113	485,450	4,195,191	18,177,754	35,662,629	1.96
1884.....	13,510,966	477,439	4,063,064	18,051,469	38,202,244	1.84
1885.....	12,925,815	439,853	4,071,855	17,437,603	28,839,079	1.71
1886.....	12,801,340	384,660	4,099,343	17,285,343	27,510,008	1.59
1887.....	13,470,060	359,255	4,549,309	18,378,624	28,501,682	1.53
1888.....	13,993,140	428,173	4,797,168	19,218,481	31,269,488	1.63
1889.....	14,447,355	467,005	4,955,620	19,869,980	36,229,555	1.82

<sup>a</sup> The low value here shown is undoubtedly the result of a typographical error in the Belgian report, in which the total value is placed, in round numbers, at 30,494,000 francs (\$5,885,342). The average selling price per ton, however, is said to have been 7.52 francs which, multiplied by the total number of tons produced, would equal, in round numbers, 39,494,000 francs, or \$7,622,342. Assuming the latter figure to be correct, the average price per ton of product would then be \$1.45.

<sup>b</sup> This total and the sum of the items do not agree, but the figures are reproduced as found in the source quoted.

PRODUCTION OF COAL IN BELGIUM, BY PROVINCES, 1831 TO 1903, AND TOTAL VALUE AND VALUE PER METRIC TON, 1831 TO 1902—Concluded.

[Source: Value of product, 1831 to 1849, Statistique rétrospective des mines, minières, carrières, etc. (Extrait des annales des mines de Belgique, tome I); 1850 to 1902, Annales des mines de Belgique, tome IX, 2<sup>e</sup> livraison; Quantity of coal produced, 1831 to 1880, Annales des travaux publics, tome XL (Développement de l'industrie houillère en Belgique); 1881 to 1890, Statistique des mines, minières, carrières, etc. (Extraits des annales des travaux publics, tomes XLI-LII); Extraits des annales des mines de Belgique, tomes I-V; 1900-1903, Annales des mines de Belgique, tomes VI, VIII, IX. The average value per ton was computed. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193. In the original reports the total value was reported in thousands of francs for the years 1831 to 1849. The coal production reported in Namur from 1840 to 1850 includes a small quantity produced in the province of Luxembourg. Production includes coal consumed at mines in addition to coal marketed. A metric ton = 2,204.6 pounds.]

Year.	Quantity of coal produced (metric tons).				Total value of product at mine.	Value per metric ton.
	Hainaut.	Namur.	Liege.	Total.		
1890.....	14,766,520	541,009	5,066,431	20,365,960	\$51,821,111	\$2.54
1891.....	14,250,340	546,537	4,878,767	19,675,644	47,758,618	2.43
1892.....	14,253,750	537,919	4,791,504	19,583,173	38,848,627	1.96
1893.....	14,071,430	495,517	4,843,572	19,410,519	35,011,332	1.80
1894.....	15,016,050	506,080	5,012,371	20,534,501	36,919,379	1.80
1895.....	14,892,430	516,890	5,045,284	20,457,604	37,318,036	1.82
1896.....	15,491,320	519,830	5,241,220	21,252,370	38,987,948	1.83
1897.....	15,422,800	533,590	5,536,066	21,492,446	42,599,715	1.96
1898.....	15,861,160	573,600	5,653,515	22,088,335	46,878,519	2.12
1899.....	15,581,380	641,360	5,840,328	22,072,068	52,967,673	2.40
1900.....	16,532,630	739,295	6,190,892	23,462,817	78,834,671	3.36
1901.....	15,863,500	745,780	5,784,130	22,213,410	65,296,899	2.94
1902.....	15,886,970	754,040	6,236,460	22,877,470	58,291,377	2.55
1903 (a).....	16,665,510	747,500	6,437,810	23,870,820		

a Provisional figures.

During the period of 73 years the coal production has increased from 2,305,016 metric tons in 1831 to 23,870,820 metric tons in 1903, the maximum production being reached in the latter year.

The value of the product has increased from \$3,873,896 in 1831 to \$58,291,377 in 1902, a greater rate even than the production, it having been about thirteen and one-half times as great in 1899 and about twenty times as great in 1900 as in 1831, but during the year 1900 very high prices obtained on account of the unusual industrial activity. There was a marked recession in the value of output in 1901 and 1902. Compared by decades, there is shown a steady increase in the average annual production from one decade to another. The average value of the annual product, however, shows a decrease in the decade from 1881 to 1890, the average value of coal produced during this period having been \$33,957,868 as against \$38,220,212 for the previous decade. The average value per metric ton varied considerably from year to year, but the average for 10-year periods shows no very decided tendency either upward or downward.

The province of Hainaut produces nearly three-fourths of the Belgian coal output. It is in this province that the deepest collieries are found.

The average depth at which coal-mining operations are carried on varies slightly from year to year. In 1899 the average depth of the workings was 475 meters (1,558.39 feet) in Hainaut, 313 meters (1,026.90 feet) in Namur, 334 meters (1,095.80 feet) in Liege, and 433 meters (1,420.60 feet) in the Kingdom as a whole.

Notwithstanding the thinness of the seams in the Belgian coal fields, coal-mining operations are carried on with good results. This is shown in the following table, which gives the total gains and losses as reported each year by the mining companies from 1861 to 1902:

GAIN AND LOSS FROM MINING OPERATIONS IN BELGIUM REPORTED EACH YEAR FROM 1861 TO 1902.

[Source: 1861 to 1899, Statistique des mines, minières, carrières, etc. (Extraits des annales des travaux publics, tomes XLVI-LII; Extraits des annales des mines de Belgique, tomes I-V); 1900 to 1902, Annales des mines de Belgique, tome VI, VIII. Gain per ton was computed. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193. A metric ton = 2,204.6 pounds.]

Year.	Mines operated at a gain.	Amount of gain.	Mines operated at a loss.	Amount of loss.	Total general gain. (a)	Average gain per metric ton.
1861	109	\$2,520,001	81	\$633,233	\$1,886,768	\$0.19
1862	101	2,122,421	77	633,233	1,489,188	.15
1863	108	2,100,998	73	658,902	1,442,096	.14
1864	112	2,496,455	72	433,285	2,063,170	.18
1865	114	3,188,167	56	519,942	2,668,225	.23
1866	124	4,020,728	47	452,392	4,468,336	.35
1867	119	4,419,700	52	457,410	3,962,290	.31
1868	102	2,622,677	66	693,442	1,929,035	.16
1869	102	2,416,030	68	866,377	1,550,652	.12
1870	107	3,129,109	62	722,206	2,406,903	.18
1871	106	3,303,195	62	545,225	2,757,970	.20
1872	128	7,263,160	39	406,072	6,857,087	.44
1873	142	18,720,614	35	676,079	18,044,535	1.14
1874	111	6,085,097	68	1,653,431	4,431,666	.30
1875	104	4,563,392	71	2,074,364	2,488,928	.17
1876	84	2,749,385	96	2,023,991	725,394	.05
1877	69	1,835,044	109	2,048,696	b 213,651	b .02
1878	66	1,632,201	102	1,930,000	b 297,799	b .02
1879	70	1,553,457	96	1,587,039	b 33,582	(c)
1880	85	2,096,386	79	1,354,088	742,278	.04
1881	77	1,683,339	83	1,967,056	b 283,517	b .02
1882	85	2,116,245	73	1,194,477	921,768	.05
1883	80	2,176,481	73	1,296,767	879,694	.05
1884	78	1,985,777	71	777,790	1,207,987	.07
1885	81	2,025,728	69	696,887	1,328,841	.08
1886	77	1,688,557	67	694,414	994,143	.06
1887	90	2,089,097	50	402,984	1,687,013	.09
1888	91	2,924,143	42	506,625	2,417,518	.13
1889	104	4,659,590	28	427,688	4,231,901	.21
1890	122	11,651,930	12	311,309	11,340,620	.56
1891	105	7,340,582	28	419,389	6,921,173	.35
1892	82	3,140,630	42	870,623	2,270,006	.12
1893	66	2,139,559	59	905,324	1,234,235	.06
1894	71	2,245,825	51	682,950	1,562,875	.08
1895	77	2,249,357	45	647,959	1,601,398	.08
1896	81	2,575,450	39	472,329	2,103,121	.10
1897	94	4,111,363	23	336,920	3,774,443	.18
1898	95	4,843,470	18	351,472	4,491,998	.20
1899	104	7,459,354	11	155,616	7,303,738	.33
1900	108	19,628,756	10	353,815	19,274,941	.82
1901	93	10,620,240	26	620,769	9,999,471	.45
1902	87	7,007,676	32	787,320	6,240,356	.27

<sup>a</sup> The figures in this column do not agree with those in the table on p. 139, partly because the originals of these figures were reported in round numbers, and partly because they were obtained from a different source.

<sup>b</sup> Loss.

<sup>c</sup> Less than 1 cent loss.

The annual gain from operations does not include profits realized from auxiliary industries, such as the manufacture of coke, briquettes, etc., nor the income from reserve funds or sources other than the actual coal-mining operations.

During but 4 out of the 42 years, from 1861 to 1902, have the mining operations of Belgium as a whole been conducted at a loss. These were the years 1877, 1878, 1879, and 1881, when there was a falling off in the price of coal, which had been abnormally high for several years. The greatest average net loss for the country as a whole was 0.10 franc (2 cents) per ton in 1878. The greatest average gain, on the other hand, was 5.93 francs (\$1.14) per ton in 1873. During that year the price of coal was higher than during any other year of the period.



The average annual gain, when considered by decennial periods, was higher during the last ten years than during any of the three decades preceding.

Belgium, like Great Britain and Germany, exports more coal than it imports, but the exports and imports are small in comparison with the home consumption. The following table shows the total production, the imports and exports of coal, and the amount left for home consumption during the years 1831 to 1903:

PRODUCTION OF COAL IN BELGIUM, QUANTITY IMPORTED AND EXPORTED, AND QUANTITY REMAINING FOR HOME CONSUMPTION, 1831 TO 1903.

[Source: 1831 to 1871, Statistique rétrospective des mines, minières, carrières, etc. (Extrait des annales des mines de Belgique, tome I); 1872 to 1890, Statistique des mines, minières, carrières, etc. (Extrait des annales des travaux publics, tome XLI); 1891 to 1897, Statistique des mines, minières, carrières, etc. (Extrait des annales des travaux publics, tome XLIX); 1898 to 1899, Statistique des mines, minières, carrières, etc. (Extrait des annales des travaux publics, tome L); 1891 to 1900, Annales des mines de Belgique, tome VI; 1901, 1902, Annales des mines de Belgique, tome VIII; 1903, Tableau général du commerce avec les pays étrangers pendant l'année 1903. The imports and exports for the years 1862 to 1887 include the estimated coal equivalents of coke, and those for the years 1888 to 1887, 70 tons of coke=100 tons of coal; 1888 to 1900, 73.5 tons of coke=100 tons of coal, and 100 tons of patent fuel=90 tons of coal; 1901, 100 tons of coke=134.5 tons of coal, and 100 tons of patent fuel=91 tons of coal; 1902, 100 tons of coke=133.8 tons of coal, and 100 tons of patent fuel=90.6 tons of coal. By comparing this table with the one that follows, it will be observed, however, that the application of these bases does not always produce the figures shown below. No explanation of this apparent discrepancy can be given. A metric ton=2,204.6 pounds.]

Year.	Quantity of coal (metric tons).				Year.	Quantity of coal (metric tons).			
	Produced.	Im-ported.	Ex-ported.	Remain- ing for home consump- tion.		Produced.	Im-ported.	Ex-ported.	Remain- ing for home consump- tion.
1831	2,305,016	2,882	469,515	1,838,383	1868	12,298,589	254,736	4,526,023	8,027,302
1832	2,280,833	11,882	318,715	1,974,000	1869	12,942,894	227,373	4,563,498	8,606,769
1833	2,531,405	11,726	576,061	1,967,070	1870	13,697,118	232,239	3,999,403	9,929,954
1834	2,436,875	23,619	647,540	1,812,954	1871	13,733,176	205,330	4,403,996	9,534,510
1835	2,638,731	15,484	695,587	1,968,728	1872	15,658,948	222,319	5,678,119	10,203,148
1836	3,074,461	22,448	773,612	2,323,297	1873	15,778,401	708,567	5,308,360	11,181,608
1837	3,228,807	28,417	789,084	2,468,140	1874	14,669,029	467,426	4,758,127	10,378,228
1838	3,260,271	34,705	775,535	2,519,441	1875	15,011,331	733,464	4,986,513	10,758,282
1839	3,479,161	28,365	745,769	2,761,757	1876	14,329,578	843,744	4,644,372	10,528,950
1840	3,929,963	30,424	779,473	3,180,914	1877	13,938,523	687,479	4,337,351	10,288,651
1841	4,027,767	27,808	1,015,194	3,040,381	1878	14,899,175	730,505	4,713,135	10,916,545
1842	4,141,463	35,192	1,014,715	3,161,940	1879	15,447,292	744,436	5,087,271	11,104,457
1843	3,982,274	30,856	1,086,322	2,926,808	1880	16,866,698	944,486	5,739,865	12,071,319
1844	4,446,240	11,449	1,243,399	3,213,290	1881	16,873,951	1,049,561	5,783,719	12,139,700
1845	4,919,156	9,449	1,543,472	3,385,133	1882	17,590,989	1,065,540	5,855,768	12,801,761
1846	5,037,402	11,088	1,355,833	3,692,657	1883	18,177,754	1,318,904	5,865,083	13,631,565
1847	5,664,450	9,930	1,827,105	3,847,275	1884	18,051,499	1,270,567	5,839,561	13,482,505
1848	4,862,694	9,557	1,457,804	3,414,447	1885	17,437,603	1,269,679	5,550,799	13,156,486
1849	5,251,843	10,969	1,664,973	3,597,339	1886	17,265,543	1,033,910	5,569,885	13,740,558
1850	5,820,588	9,397	1,987,184	3,842,901	1887	18,378,624	1,043,518	5,914,636	13,501,506
1851	6,233,517	9,998	2,057,050	4,186,465	1888	19,218,481	1,072,285	5,946,016	14,344,750
1852	6,795,254	8,102	2,103,546	4,699,810	1889	19,899,980	1,031,338	6,269,610	14,631,208
1853	7,172,687	12,845	2,331,595	4,853,937	1890	20,365,960	1,810,311	6,314,035	15,862,217
1854	7,947,742	53,082	2,625,958	5,374,966	1891	19,675,644	1,816,422	6,418,982	15,073,084
1855	8,409,330	68,578	2,974,349	5,303,559	1892	19,583,173	1,749,248	6,204,224	15,128,107
1856	8,212,419	88,709	2,866,137	5,434,991	1893	19,410,519	1,684,869	5,571,361	15,524,024
1857	8,383,902	146,069	2,887,012	5,642,959	1894	20,534,501	1,822,676	6,251,926	16,105,249
1858	8,925,714	107,605	3,091,316	5,942,003	1895	20,457,601	2,027,123	6,280,216	16,224,511
1859	9,160,702	110,069	3,145,235	6,125,336	1896	21,252,370	2,048,590	6,237,907	17,063,353
1860	9,610,895	97,000	3,450,306	6,257,589	1897	21,462,444	2,084,723	6,289,489	17,637,670
1861	10,057,163	92,780	3,379,050	6,770,883	1898	22,068,335	2,449,798	6,086,220	18,451,907
1862	9,935,645	79,764	3,459,427	6,555,982	1899	22,072,068	3,144,111	6,414,501	19,001,676
1863	10,345,330	74,272	3,515,870	6,903,732	1900	23,462,817	3,702,251	7,265,641	19,899,427
1864	11,158,336	68,098	3,978,610	7,247,824	1901	22,215,410	3,153,853	6,586,025	18,781,338
1865	11,840,708	75,742	4,285,586	7,630,859	1902	22,877,470	3,170,378	6,789,689	17,532,205
1866	12,774,662	186,311	4,753,920	8,307,053	1903	23,870,824	4,077,799	6,613,889	21,264,739
1867	12,755,822	453,905	4,302,733	8,906,994					

a This number should apparently be 14,631,708.

b This probably does not include coal consumed at mine.

c Provisional figures.

d Computed from figures shown in the following table, the 1902 bases given in the prefatory note above being used.

The exports are mainly to France, while the imports are mostly from Germany and Great Britain.

The following table showing the total quantity of coal, coke, and briquettes imported and exported is given in order to show the original figures from which those in the preceding table were computed by the Belgian mine office:

QUANTITY OF COAL, COKE, AND PATENT FUEL IMPORTED INTO AND EXPORTED FROM BELGIUM, 1862 TO 1903.

[Source: 1862 to 1871, Statistique rétrospective des mines, minières, carrières, etc. (Extrait des annales des mines de Belgique, tome I); 1872 to 1880, Statistique des mines, minières, carrières, etc. (Extrait des annales des travaux publics, tome XLI); 1881 to 1887, Statistique des mines, minières, carrières, etc. (Extrait des annales des travaux publics, tome XLIX); 1888 to 1890, Statistique des mines, minières, carrières, etc. (Extrait des annales des travaux publics, tome L); 1891 to 1902, Annales des mines de Belgique, tomes VI, VIII; 1903, Tableau général du commerce avec les pays étrangers pendant l'année 1903. A metric ton=2,204.6 pounds.]

Year.	Imports (metric tons).			Exports (metric tons).		
	Coal.	Coke.	Patent fuel.	Coal.	Coke.	Patent fuel.
1862	76,613	2,206		2,801,080	397,213	
1863	69,799	3,131		2,890,074	437,427	
1864	65,562	1,775		3,323,604	458,511	
1865	73,931	1,268		3,667,687	502,529	
1866	179,427	4,819		3,971,772	547,504	
1867	421,219	22,880		3,564,808	516,898	
1868	247,749	4,891		3,754,045	539,965	
1869	214,339	9,124		3,581,235	687,584	
1870	220,656	8,108		3,175,828	576,501	
1871	200,769	3,193		3,678,024	508,180	
1872	210,829	8,034		4,608,016	749,072	
1873	671,836	24,312		4,157,003	801,820	
1874	454,869	8,790		3,902,885	599,020	
1875	704,518	20,262		4,063,960	645,787	
1876	805,580	26,716		3,828,482	571,123	
1877	656,278	21,841		3,515,020	575,632	
1878	701,416	20,362		3,889,411	576,607	
1879	727,906	11,571		4,235,751	566,064	
1880	917,033	19,217		4,525,085	850,346	
1881	1,015,870	23,584		4,476,783	914,885	
1882	1,043,994	15,082		4,292,025	1,094,620	
1883	1,263,334	38,899		4,441,314	996,645	
1884	1,223,691	32,813		4,619,192	854,258	
1885	1,238,116	22,094		4,338,330	848,726	
1886	1,002,671	21,867		4,272,335	907,942	
1887	1,016,678	18,788		4,591,000	926,545	
1888	1,033,169	27,461	1,579	4,141,008	1,060,754	324,893
1889	1,004,624	18,545	1,345	4,279,700	1,219,959	317,161
1890	1,719,334	65,339	1,704	4,533,785	1,064,769	317,628
1891	1,621,665	140,576	3,686	4,750,232	933,668	358,691
1892	1,486,212	196,054	5,542	4,539,485	991,028	351,570
1893	1,288,640	287,590	5,545	4,849,887	941,663	480,225
1894	1,337,009	326,188	4,317	4,539,525	879,278	573,463
1895	1,530,364	362,834	3,452	4,661,477	870,983	459,702
1896	1,693,376	260,273	1,561	4,649,799	863,067	459,974
1897	2,017,344	269,606	632	4,448,544	909,486	615,074
1898	2,202,517	280,590	1,756	4,579,955	878,435	666,265
1899	2,844,374	296,508	10,725	4,568,938	1,008,740	525,625
1900	3,288,510	289,673	21,813	5,260,991	1,073,313	604,964
1901	2,930,574	154,247	17,160	4,820,300	829,421	714,455
1902	3,233,510	230,612	33,285	5,078,278	824,256	671,700
1903	3,554,807	308,877	43,835	4,923,368	841,142	623,691

EMPLOYEES.

Since 1831 the number of employees exclusive of salaried persons has increased from 29,000 in that year to 134,889 in 1902, or 365.1 per cent. The total coal output during the same period increased from 2,305,016 tons to 22,877,470 tons, or 892.5 per cent, or about two and one-half times the relative increase in the number of employees. The following table shows the number of wageworkers, by provinces, and the average product per wageworker for each year, from 1831 to 1902:

NUMBER OF EMPLOYEES IN AND ABOUT COAL MINES IN BELGIUM, BY PROVINCES, AND PRODUCT PER EMPLOYEE, 1831 TO 1902.

[Source: 1831 to 1835, Annales des travaux publics de Belgique, tome I; 1836 to 1840, Mines, usines métallurgiques, machines à vapeur—compte rendu publié par le ministre des travaux publics, 1846; 1841 to 1850, Exposé de la situation du Royaume, publié par le ministre de l'intérieur, 1852; 1851 to 1887, Statistique des accidents survenus dans les charbonnages de 1831 à 1888; 1888 to 1899, Statistique des mines, minières, carrières, etc. (Extraits des annales des travaux publics, tomes XLVI-LII; Extraits des annales des mines de Belgique, tomes I-V); 1900 to 1902, Annales des mines de Belgique, tomes VI, VIII. Salaried employees are not included. The product per employee was computed. A metric ton=2,204.6 pounds.]

Year.	Employees in coal mines.				Product per employee (metric tons).	Year.	Employees in coal mines.				Product per employee (metric tons).
	Hainaut.	Namur.	Liege.	Total.			Hainaut.	Namur.	Liege.	Total.	
1831.....	(a)	(a)	7,798	29,000	79	1867.....	69,307	2,094	21,338	93,339	137
1832.....	(a)	(a)	6,670	28,000	81	1868.....	66,916	2,379	20,087	89,382	138
1833.....	(a)	(a)	6,540	28,300	89	1869.....	67,660	2,139	20,129	89,928	144
1834.....	21,186	b 782	6,630	28,598	85	1870.....	68,831	2,193	20,969	91,993	149
1835.....	20,868	b 794	6,927	28,589	92	1871.....	69,707	2,321	22,058	94,286	146
1836.....	20,880	889	7,375	c 29,144	105	1872.....	73,684	2,072	22,508	96,893	158
1837.....	23,011	1,043	9,349	c 33,403	97	1873.....	79,556	3,450	24,896	107,902	146
1838.....	25,241	1,282	10,648	c 37,171	88	1874.....	80,075	3,540	26,016	109,631	134
1839.....	24,793	1,165	11,089	37,047	94	1875.....	80,629	3,062	26,429	110,720	136
1840.....	27,596	1,036	10,548	39,150	100	1876.....	79,047	3,773	25,723	108,543	132
1841.....	26,198	1,190	10,241	37,629	107	1877.....	74,875	3,253	23,215	101,343	138
1842.....	27,955	1,159	10,788	39,902	104	1878.....	73,660	2,667	22,415	99,032	150
1843.....	27,104	1,041	9,358	37,503	106	1879.....	73,967	2,691	22,156	96,714	156
1844.....	27,719	1,110	9,661	38,480	115	1880.....	76,363	3,111	23,456	102,930	164
1845.....	29,178	1,226	11,031	c 41,435	119	1881.....	75,214	2,568	23,569	101,351	166
1846.....	31,539	1,265	12,681	45,488	111	1882.....	77,357	2,650	23,694	103,701	170
1847.....	33,735	1,301	13,791	48,847	116	1883.....	79,129	2,814	24,309	106,252	171
1848.....	31,282	1,220	12,275	d 44,778	109	1884.....	79,189	2,752	23,641	c 105,582	171
1849.....	33,114	1,343	11,674	46,131	114	1885.....	76,965	2,766	23,464	103,085	169
1850.....	34,811	1,359	11,779	47,949	121	1886.....	75,100	2,276	22,906	100,282	172
1851.....	35,468	1,417	12,615	49,500	126	1887.....	76,322	2,025	23,392	100,739	182
1852.....	37,794	1,488	12,591	51,873	131	1888.....	76,635	2,332	24,510	103,477	186
1853.....	39,382	1,463	13,359	54,204	132	1889.....	79,960	2,513	26,009	106,382	183
1854.....	45,290	1,601	15,313	62,194	128	1890.....	85,440	3,322	28,017	116,779	174
1855.....	52,002	1,745	17,233	70,980	118	1891.....	86,800	3,079	28,904	118,983	165
1856.....	53,868	1,774	17,943	73,585	112	1892.....	86,914	3,080	28,584	118,678	165
1857.....	53,358	1,610	17,609	72,577	116	1893.....	85,853	2,713	28,265	116,961	166
1858.....	55,084	1,628	17,138	73,850	121	1894.....	86,066	2,742	28,296	117,103	175
1859.....	58,855	1,609	16,829	77,293	119	1895.....	87,705	2,798	28,454	119,957	172
1860.....	59,542	1,602	17,088	78,232	123	1896.....	87,521	2,835	28,890	119,246	178
1861.....	61,692	1,981	18,002	81,675	123	1897.....	87,708	2,947	30,727	120,382	179
1862.....	60,734	1,727	17,841	80,302	124	1898.....	89,500	3,010	30,239	122,846	180
1863.....	60,091	1,752	17,344	79,187	131	1899.....	91,198	3,070	30,750	125,258	176
1864.....	60,546	1,870	17,363	79,779	140	1900.....	96,078	3,079	32,992	132,749	177
1865.....	62,461	2,091	17,816	82,368	144	1901.....	96,137	3,151	34,204	134,092	166
1866.....	64,973	2,361	19,387	86,721	147	1902.....	96,809	3,034	34,446	134,889	170

a Not reported.  
 b Computed from figures in the other columns.  
 c This number does not agree with that in the table on page 133, which was taken from another source. The reason for the difference is not apparent.  
 d There is a difference of 1 between this total and the sum of the items, but the figures are reproduced as found in the source quoted.

The figures in this table, especially for the years prior to 1891, do not necessarily represent the actual number of wageworkers on the pay rolls of the companies. In arriving at the numbers given in the table it is stated that some mine operators have returned an average of the number of workmen actually on duty at various periods during the year, while in other cases the number of workmen has been determined by dividing the aggregate days worked by all wageworkers during the year by the number of days the mine was in operation.

The production per employee varied considerably from year to year, but there is a noticeable increase from the earlier to the later years of the period. It has equaled or exceeded 150 tons every year since 1877, but, with the exception of 1872, it never reached that amount during any of the preceding forty-seven years of the period. A comparison of the first with the last year of the period shows that the product per employee increased from 79 tons in 1831 to 170 tons in 1902, or 115.2 per cent.

The relation between the number of persons employed above and those below ground has not changed materially during the past fifty-six years. In 1845, 76.13 per cent of the total number were employed below ground; in 1902, 73.10 per cent were so employed.

The table following shows the number and proportion of males and females 16 years of age or over and of children under 16 years of age employed above and below ground from 1845 to 1902.



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NUMBER AND PER CENT OF MALE ADULTS, FEMALE ADULTS, AND CHILDREN UNDER 16 YEARS OF AGE EMPLOYED BELOW AND ABOVE GROUND IN COAL MINES IN BELGIUM, 1845 TO 1902.

[Source: 1845 to 1860, Exposé de la situation du Royaume, publié par le ministre de l'Intérieur, 1852, 1865; 1861 to 1867 and 1873 to 1875, Annales des mines de Belgique, tome IX; 1868 to 1872 and 1876 to 1880, Annuaire statistique de la Belgique, 1879, 1881; 1881 to 1899, Statistique des mines, minères, carrières, etc. (Extraits des annales des travaux publics, tomes XLI-LII; Extraits des annales des mines de Belgique, tomes I-IV); 1900 to 1902, Annales des mines de Belgique, tomes VI, VIII. Salaried employees are not included. The percentages were computed.]

EMPLOYEES BELOW GROUND.

Year.	Males 16 years of age or over.		Females 16 years of age or over.		Children (both sexes) under 16 years of age.		Total.	Per cent of total mine workers.
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.		
1845	24,222	76.79	2,098	6.65	5,223	16.56	31,543	76.13
1846	25,541	74.36	2,573	7.49	6,236	18.15	34,350	75.51
1847	27,535	74.67	2,659	7.21	6,681	18.12	36,875	75.49
1848	25,676	75.31	2,405	7.06	6,011	17.63	34,092	76.14
1849	26,840	76.40	2,333	6.64	5,956	16.96	35,129	76.15
1850	28,471	78.15	2,274	6.24	5,685	15.61	36,430	75.98
1851	29,305	77.32	2,335	6.16	6,262	16.52	37,902	76.57
1852	29,014	75.92	2,794	7.09	6,694	16.99	39,402	75.96
1853	31,788	77.16	2,945	7.15	6,461	15.69	41,194	76.00
1854	36,177	75.35	3,822	7.96	8,014	16.69	48,013	77.20
1855	39,973	72.79	4,458	8.12	10,481	19.09	54,912	77.36
1856	40,224	71.13	4,793	8.48	11,528	20.39	56,545	76.84
1857	39,522	71.29	4,773	8.61	11,144	20.10	55,439	76.39
1858	40,128	71.41	4,956	8.82	11,110	19.77	56,194	76.09
1859	42,580	72.00	5,030	8.51	11,529	19.49	59,139	76.51
1860	42,895	71.54	5,148	8.59	11,911	19.87	59,954	76.64
1861	(a)	(a)	(a)	(a)	(a)	(a)	62,276	76.25
1862	(a)	(a)	(a)	(a)	(a)	(a)	60,411	75.23
1863	(a)	(a)	(a)	(a)	(a)	(a)	59,748	75.45
1864	(a)	(a)	(a)	(a)	(a)	(a)	60,536	75.88
1865	(a)	(a)	(a)	(a)	(a)	(a)	62,352	75.70
1866	(a)	(a)	(a)	(a)	(a)	(a)	67,458	77.79
1867	(a)	(a)	(a)	(a)	(a)	(a)	72,396	77.56
1868	51,210	74.52	5,092	7.41	12,420	18.07	68,722	76.89
1869	51,321	75.24	4,765	6.92	12,289	17.84	68,875	76.89
1870	53,716	75.26	5,151	7.22	12,507	17.52	71,374	77.59
1871	54,254	74.69	5,275	7.26	13,115	18.05	72,644	77.05
1872	57,411	75.31	5,162	6.77	13,659	17.92	76,232	77.11
1873	(a)	(a)	(a)	(a)	(a)	(a)	83,065	76.98
1874	(a)	(a)	(a)	(a)	(a)	(a)	84,634	77.20
1875	(a)	(a)	(a)	(a)	(a)	(a)	84,732	76.53
1876	64,368	77.77	4,579	5.53	<sup>b</sup> 13,819	16.70	82,766	76.25
1877	59,974	77.72	4,325	5.61	12,864	16.67	77,163	76.14
1878	59,007	77.81	4,327	5.71	12,502	16.48	75,836	76.58
1879	58,010	(c)	4,342	(c)	12,186	(c)	74,538	(d)
1880	60,442	77.89	4,714	6.08	12,438	16.03	77,594	75.39
1881	59,000	77.31	4,551	5.96	12,771	16.73	76,322	75.30
1882	61,983	78.65	4,528	5.75	12,295	15.60	78,806	75.99
1883	63,830	79.03	4,609	5.71	12,330	15.26	80,769	76.02
1884	64,354	80.17	5,102	6.36	10,814	13.47	80,270	76.03
1885	63,337	81.52	4,256	5.48	10,101	13.00	77,694	75.36
1886	62,911	83.21	3,511	4.65	9,181	12.14	75,603	75.39
1887	63,292	83.89	3,201	4.24	8,952	11.87	75,445	74.89
1888	65,123	83.45	2,327	4.26	9,588	12.29	78,038	75.42
1889	68,409	83.44	3,233	3.94	10,343	12.62	81,985	75.64
1890	75,315	84.59	3,170	3.56	10,553	11.85	89,038	76.24
1891	77,947	86.37	3,008	3.33	9,293	10.30	90,248	75.85
1892	78,955	88.91	2,676	3.01	7,175	8.08	88,806	74.89
1893	77,730	90.06	2,128	2.47	6,447	7.47	86,305	73.85
1894	78,993	91.27	1,618	1.87	<sup>e</sup> 5,940	6.86	86,551	73.91
1895	80,401	91.93	1,268	1.45	<sup>e</sup> 5,792	6.62	87,461	73.52
1896	80,911	92.39	888	1.01	<sup>e</sup> 5,781	6.60	87,580	73.44
1897	81,678	92.46	636	.72	<sup>e</sup> 6,027	6.82	88,341	73.38
1898	83,718	92.72	424	.47	<sup>e</sup> 6,147	6.81	90,289	73.50
1899	85,646	92.65	289	.31	<sup>e</sup> 6,503	7.04	92,438	73.80
1900	91,597	92.83	<sup>f</sup> 191	.19	<sup>e</sup> 6,886	6.98	98,674	74.33
1901	91,980	93.08	<sup>f</sup> 120	.12	<sup>e</sup> 6,715	6.80	98,815	73.69
1902	91,651	92.95	<sup>f</sup> 84	.09	<sup>e</sup> 6,865	6.96	98,600	73.10

<sup>a</sup> The number could not be found in any of the reports consulted.  
<sup>b</sup> Computed from figures in the other columns. In the source this number is given as 9,719.  
<sup>c</sup> The sum of the totals for underground and surface workers does not agree with the total employees shown in the preceding table, but the figures are reproduced as found in the source quoted.  
<sup>d</sup> No computation was made, for the reason stated in note c.  
<sup>e</sup> Males only.  
<sup>f</sup> Over 21 years of age.

## NUMBER AND PER CENT OF MALE ADULTS, FEMALE ADULTS, AND CHILDREN UNDER 16 YEARS OF AGE EMPLOYED BELOW AND ABOVE GROUND IN COAL MINES IN BELGIUM.

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[Source: 1845 to 1860, Exposé de la situation du Royaume, publié par le ministre de l'intérieur, 1852, 1865; 1861 to 1867 and 1873 to 1875, Annales des mines de Belgique, tome IX; 1868 to 1872 and 1876 to 1890, Annuaire statistique de la Belgique, 1879, 1881; 1881 to 1899, Statistique des mines, minières, carrières, etc. (Extraits des annales des travaux publics, tomes XLI-LII; Extraits des annales des mines de Belgique, tomes I-IV); 1900 to 1902, Annales des mines de Belgique, tomes VI, VIII. Salaried employees are not included. The percentages were computed.]

## EMPLOYEES ABOVE GROUND.

Year.	Males 16 years of age or over.		Females 16 years of age or over.		Children (both sexes) under 16 years of age.		Total.	Per cent of total mine workers.
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.		
1845	6,322	63.91	1,936	19.57	1,634	16.52	9,892	23.87
1846	a 7,114	63.87	2,068	18.57	1,956	17.56	b 11,138	24.49
1847	7,630	63.73	2,111	17.63	2,231	18.64	11,972	24.51
1848	6,899	64.56	1,834	17.16	1,963	18.28	10,696	23.86
1849	7,066	64.22	1,825	16.59	2,111	19.19	11,002	23.85
1850	7,531	65.38	1,771	15.37	2,217	19.25	11,519	24.02
1851	7,543	65.04	1,792	15.45	2,263	19.51	11,598	23.43
1852	8,252	66.17	1,747	14.01	2,472	19.82	12,471	24.04
1853	8,528	65.55	1,951	15.00	2,531	19.45	13,010	24.00
1854	9,222	65.03	2,196	15.49	2,763	19.48	14,181	22.80
1855	10,600	65.97	2,419	15.05	3,049	18.98	16,068	22.64
1856	11,131	65.32	2,567	15.07	3,342	19.61	17,040	23.16
1857	11,274	65.78	2,540	14.82	3,324	19.40	17,138	23.61
1858	11,796	66.81	2,422	13.72	3,438	19.47	17,656	23.91
1859	11,914	65.63	2,663	14.67	3,577	19.70	18,154	23.49
1860	11,805	64.58	2,604	14.25	3,869	21.17	18,278	23.36
1861	(c)	(c)	(c)	(c)	(c)	(c)	19,399	23.75
1862	(c)	(c)	(c)	(c)	(c)	(c)	19,891	24.77
1863	(c)	(c)	(c)	(c)	(c)	(c)	19,439	24.55
1864	(c)	(c)	(c)	(c)	(c)	(c)	19,243	24.12
1865	(c)	(c)	(c)	(c)	(c)	(c)	20,016	24.30
1866	(c)	(c)	(c)	(c)	(c)	(c)	19,263	23.21
1867	(c)	(c)	(c)	(c)	(c)	(c)	20,943	22.44
1868	13,782	66.71	2,887	14.46	3,891	18.83	20,560	23.11
1869	14,137	67.15	2,930	13.92	3,986	18.93	21,053	23.41
1870	14,056	68.17	2,921	14.17	3,642	17.66	20,619	22.41
1871	14,304	66.09	3,136	14.49	4,202	19.42	21,642	22.95
1872	15,068	66.58	3,193	14.11	4,370	19.31	22,631	22.89
1873	(c)	(c)	(c)	(c)	(c)	(c)	24,537	23.02
1874	(c)	(c)	(c)	(c)	(c)	(c)	24,987	22.80
1875	(c)	(c)	(c)	(c)	(c)	(c)	25,888	23.47
1876	17,962	69.68	3,260	12.65	4,555	17.67	25,777	23.75
1877	16,512	68.29	3,263	13.49	4,405	18.22	24,180	23.86
1878	15,545	67.02	3,269	14.06	4,382	18.59	23,196	23.42
1879	16,326	64.91	3,336	13.46	5,440	21.63	d 25,152	(e)
1880	17,191	67.85	3,540	13.97	4,605	18.18	25,336	24.61
1881	16,773	67.01	3,526	14.39	4,748	18.97	25,029	24.70
1882	16,402	65.88	3,592	14.43	4,901	19.69	24,895	24.01
1883	16,765	65.79	3,653	14.34	5,065	19.67	25,483	23.98
1884	16,263	64.25	4,051	16.00	4,998	19.75	25,312	23.97
1885	16,704	65.76	3,847	15.15	4,850	19.09	25,401	24.04
1886	16,381	66.38	3,609	14.62	4,689	19.00	24,679	24.61
1887	16,771	66.31	3,762	14.87	4,761	18.82	25,294	25.11
1888	16,467	64.73	4,051	15.93	4,921	19.34	25,439	24.58
1889	17,067	64.73	4,132	15.65	5,178	19.62	26,397	24.36
1890	15,111	65.29	4,368	15.74	5,262	18.97	27,741	23.76
1891	19,007	66.14	4,436	15.45	5,289	18.41	28,732	24.15
1892	19,736	66.29	5,096	17.12	4,940	16.50	29,772	25.11
1893	20,441	66.90	5,143	16.83	4,972	16.27	30,556	26.15
1894	20,462	66.98	5,314	17.39	4,776	15.63	30,552	26.09
1895	21,306	67.33	5,348	16.98	4,942	15.69	31,496	26.48
1896	21,376	67.50	5,288	16.70	5,002	15.80	31,666	26.56
1897	21,536	67.21	f 5,328	16.63	5,177	16.16	32,041	26.62
1898	21,786	66.92	5,427	16.67	5,344	16.41	32,570	26.50
1899	22,320	68.01	5,238	15.96	5,262	16.03	32,820	26.20
1900	22,517	69.01	5,267	15.52	5,271	15.47	34,075	25.67
1901	24,932	70.68	5,126	14.53	5,219	14.79	35,277	26.31
1902	25,659	70.43	5,143	14.17	5,487	15.12	36,289	26.90

a In the source this number is given as 3,114.

b In the source this number is given as 7,138.

c The number could not be found in any of the reports consulted.

d The sum of the totals for surface and underground workers does not agree with the total employees shown in the preceding table, but the figures are reproduced as found in the source quoted.

e No computation was made, for the reason stated in note d.

f These figures are taken from Annuaire statistique de la Belgique. Those given in Statistique des mines, minières, etc., viz, 4,518, are evidently incorrect.

The effect of legislation upon woman and child labor is well illustrated in the following table, which shows, by sex and age groups, the number of wageworkers employed below and above ground in the Belgian coal mines from the year 1891, when the Belgian administration of mines began publishing the information in such detail, to 1902:

NUMBER OF EMPLOYEES BELOW AND ABOVE GROUND IN COAL MINES IN BELGIUM, BY SEX AND AGE GROUPS, 1891 TO 1902.

[Source: 1891 to 1899, Statistique des mines, minières, carrières, etc. (Extrait des annales des travaux publics, tome V); 1900 to 1902, Annales des mines de Belgique, tome VI, VIII. Salaried employees are not included.]

EMPLOYEES BELOW GROUND.

Year.	Males.				Females.				Total employees below ground.
	Under 14 years.	14 or under 16 years.	16 years or over.	Total.	Under 16 years.	16 or under 21 years.	21 years or over.	Total.	
1891.....	2,535	6,075	77,947	86,557	683	2,285	723	3,691	90,248
1892.....	1,705	5,251	78,955	85,911	219	1,957	719	2,895	88,806
1893.....	1,638	4,765	77,730	84,133	44	1,505	623	2,172	86,306
1894.....	1,573	4,367	78,993	84,933	.....	1,076	542	1,618	86,551
1895.....	1,594	4,198	80,401	86,193	.....	673	595	1,268	87,461
1896.....	1,552	4,229	80,911	86,692	.....	291	597	888	87,580
1897.....	1,904	4,223	81,678	87,705	.....	87	549	636	88,341
1898.....	1,821	4,326	83,718	89,865	.....	19	405	424	90,289
1899.....	2,015	4,488	85,646	92,149	.....	.....	289	289	92,438
1900.....	2,138	4,748	91,597	98,483	.....	.....	191	191	98,674
1901.....	2,169	4,546	91,980	98,695	.....	.....	120	120	98,815
1902.....	2,261	4,604	91,651	98,516	.....	.....	84	84	98,600

EMPLOYEES ABOVE GROUND.

Year.	Males.				Females.				Total surface employees.	All mine workers.
	Under 14 years.	14 or under 16 years.	16 years or over.	Total.	Under 16 years.	16 or under 21 years.	21 years or over.	Total.		
1891.....	989	1,558	19,007	21,554	2,742	2,911	1,528	7,181	28,735	118,983
1892.....	951	1,550	19,736	22,237	2,439	3,424	1,672	7,535	29,772	118,578
1893.....	1,041	1,578	20,441	23,060	2,353	3,526	1,617	7,496	30,556	118,761
1894.....	1,131	1,459	20,462	23,052	2,186	3,703	1,611	7,500	30,552	117,103
1895.....	1,181	1,512	21,206	23,899	2,249	3,769	1,589	7,597	31,496	118,957
1896.....	1,044	1,524	21,376	23,944	2,434	3,768	1,520	7,722	31,666	119,246
1897.....	1,147	1,384	21,536	24,067	2,646	2,964	1,554	7,164	32,041	120,352
1898.....	1,224	1,434	21,786	24,444	2,686	3,961	1,476	8,113	32,557	122,846
1899.....	1,165	1,375	22,320	24,800	2,722	3,800	1,438	7,960	32,820	125,258
1900.....	1,230	1,452	23,517	26,199	2,589	3,787	1,500	7,876	34,075	132,749
1901.....	1,252	1,498	24,932	27,682	b 2,469	3,766	1,368	7,595	35,277	134,092
1902.....	1,389	1,489	25,659	28,537	b 2,609	3,669	1,474	7,752	36,289	134,899

<sup>a</sup> The sum of the items does not agree with this total, but the figures are reproduced as found in the source quoted.

<sup>b</sup> 12 to 16 years.

The law of December 13, 1889, which went into effect with the beginning of the year 1892, and royal decrees dated March 15, 1893, regulate the hours of labor of women and children. It will be observed that when this law became effective the number of females of all ages employed below ground decreased from 3,691 in 1891 to 2,895 in 1892. The number of boys under 16 years of age employed below ground decreased from 8,610 in 1891 to 6,956 in 1892, and the number of females under 21 years of age employed below ground decreased from 2,968 in 1891 to 2,176 in 1892. The number of girls

under 16 years of age employed below ground decreased from 683 to 219. Girls under 16 years of age disappeared entirely from the interior of the mines during the year 1893, and those under 21 years of age disappeared during the year 1898. A comparison of the first and last years of the period shows that the number of females employed below ground in coal mines has decreased from 3,691 in 1891 to 84 in 1902, or 97.7 per cent, and that during the same period the number of boys under 14 years of age employed below ground decreased from 2,535 to 2,261, or 10.8 per cent.

As previously stated, the coal mining regions of Belgium are comprised within five districts, known respectively as Couchant de Mons, Centre, Charleroi, Namur, and Liege. The first three of these are in the province of Hainaut, which employs about three-fourths of all the coal mine workers in the State. Charleroi is the great mining center of Belgium and produces over one-third of the entire coal output. In Namur, where the coal seams are thickest, the production per employee is greatest, while in Couchant de Mons, where the seams are thin, the average production per employee is smallest. A similar relation between thickness of seams and production per employee exists in the other districts. The following table shows for each mining district and for the entire State the number of employees, the production per employee, the number of working days, the average available thickness of seams, and the area mined per year by each miner, for each year from 1889 to 1902:

NUMBER OF EMPLOYEES, AVERAGE DAYS WORKED, PRODUCTION PER EMPLOYEE, AVERAGE THICKNESS OF COAL SEAMS, AND AREA MINED PER YEAR PER MINER, IN BELGIUM, BY MINE DISTRICTS, 1889 TO 1902.

[Source: 1889 to 1899, Statistique des mines, minières, carrières, etc. (Extraits des annales des travaux publics, tomes XLVIII-LII; Extraits des annales des mines de Belgique, tomes I-V); 1900 to 1902, Annales des mines de Belgique, tomes VI, VIII. Salaried employees are not included. The average production per miner, etc., was computed except for the districts of Couchant de Mons, Centre, and Charleroi, where the original figures were used. A metric ton=2,204.6 pounds.]

Mine district and year.	Employees.					Average days worked during year.	Production (metric tons).			Average thickness of seams (inches).	Area mined per miner proper per year (square yards).
	Below ground.			Above ground.	Total.		Per miner proper.	Per underground worker.	Per employee.		
	Miners.	Others.	Total.								
<b>COUCHANT DE MONS.</b>											
1889	6,071	17,124	23,195	6,045	29,240	299	752	197	156	20.9	1,270.2
1890	6,375	18,333	24,708	6,017	30,725	294	701	181	145	22.0	1,200.8
1891	6,507	18,817	25,324	6,650	31,974	286	676	173	138	20.1	1,167.3
1892	6,280	18,008	24,288	6,712	31,000	290	675	175	137	19.7	1,193.6
1893	6,213	17,646	23,859	6,573	30,432	271	656	172	135	20.1	1,156.3
1894	6,298	16,783	23,076	6,366	29,442	294	709	193	152	20.5	1,231.9
1895	6,071	16,837	22,908	6,869	29,777	287	706	187	144	20.9	1,192.4
1896	6,148	16,725	22,873	6,835	29,708	297	738	198	146	20.9	1,247.4
1897	6,138	16,388	22,526	6,859	29,385	283	708	193	148	20.9	1,182.8
1898	6,263	16,725	22,988	6,924	29,912	302	738	201	155	21.3	1,215.1
1899	6,295	16,982	23,277	7,009	30,286	292	726	195	160	21.3	1,156.5
1900	6,158	17,233	23,391	7,075	30,466	300	735	194	149	21.3	1,175.7
1901	5,979	17,314	23,293	7,358	30,651	298	722	185	141	22.4	1,138.6
1902	6,134	17,179	23,313	7,458	30,771	294	722	190	144	22.8	1,121.8

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NUMBER OF EMPLOYEES, AVERAGE DAYS WORKED, PRODUCTION PER EMPLOYEE, AVERAGE THICKNESS OF COAL SEAMS, AND AREA MINED PER YEAR PER MINER, IN BELGIUM, BY MINE DISTRICTS, 1889 TO 1902—Continued.

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[Source: 1889 to 1899, Statistique des mines, minières, carrières, etc. (Extraits des annales des travaux, publics, tomes XLVIII-LII; Extraits des annales des mines de Belgique, tomes 1-V); 1900 to 1902, Annales des mines de Belgique, tomes VI, VIII. Salaried employees are not included. The average production per miner, etc., was computed except for the districts of Couchant de Mons, Centre, and Charleroi, where the original figures were used. A metric ton=2,204.6 pounds.]

Mine district and year.	Employees.					Average days worked during year.	Production (metric tons).			Average thickness of seams (inches).	Area mined per miner proper per year (square yards).
	Below ground.			Above ground.	Total.		Per miner proper.	Per underground worker.	Per employee.		
	Miners.	Others.	Total.								
<b>CENTRE.</b>											
1889 (a)	4,659	12,898	17,557	6,251	23,808	302	912	270	199	24.4	1,498.6
1890 (a)	4,765	14,543	19,308	6,874	26,182	300	1,027	254	187	25.2	1,469.9
1891 (a)	4,808	15,127	19,935	6,698	26,633	294	1,015	245	183	24.4	1,472.3
1892 (a)	5,045	14,868	19,913	6,872	26,785	293	936	237	176	23.6	1,408.9
1893	3,490	10,093	13,583	4,846	18,429	282	889	228	168	24.8	1,344.3
1894	3,571	10,056	13,627	4,768	18,395	302	938	246	182	24.4	1,381.4
1895	3,508	10,358	13,866	4,800	18,666	293	923	234	173	24.8	1,352.7
1896	3,434	10,271	13,705	4,898	18,603	299	984	246	182	24.0	1,459.1
1897	3,471	10,160	13,631	4,883	18,514	296	973	248	182	24.8	1,425.6
1898	3,489	10,544	14,033	4,795	18,828	298	981	244	182	24.4	1,448.2
1899	3,494	10,782	14,276	4,882	19,158	287	963	236	175	25.2	1,368.2
1900	3,783	11,620	15,403	5,078	20,481	297	959	236	177	25.2	1,375.4
1901	3,898	11,698	15,596	5,348	20,944	295	967	227	169	24.8	1,304.8
1902	3,937	11,950	15,887	5,587	21,474	292	911	226	167	25.6	1,312.0
<b>CHARLEROI.</b>											
1889 (b)	4,668	14,536	19,204	7,608	26,812	289	1,102	267	192	29.1	1,338.3
1890 (b)	5,092	15,661	20,753	7,780	28,533	287	1,061	260	189	29.5	1,347.9
1891 (b)	5,015	15,165	20,180	8,013	28,193	276	991	246	176	29.1	1,279.7
1892 (b)	5,101	15,401	20,502	8,627	29,129	291	1,039	258	182	28.3	1,369.4
1893	6,447	19,021	25,468	11,554	37,022	288	1,065	270	186	29.1	1,367.0
1894	6,703	19,813	26,516	11,713	38,229	297	1,075	272	188	29.1	1,389.8
1895	6,854	20,270	27,124	12,328	39,452	298	1,075	271	188	29.1	1,374.2
1896	6,866	20,429	27,295	11,915	39,210	300	1,103	277	193	29.1	1,401.7
1897	7,043	20,657	27,700	12,109	39,809	299	1,093	278	191	29.5	1,361.0
1898	7,163	21,061	28,244	12,516	40,760	300	1,090	277	192	29.1	1,373.0
1899	7,243	22,043	29,286	12,468	41,754	286	1,061	262	184	29.9	1,301.2
1900	8,122	23,965	32,087	13,044	45,131	299	1,031	261	185	29.1	1,291.7
1901	7,801	23,575	31,376	13,166	44,542	292	1,004	250	176	28.7	1,289.3
1902	7,706	23,250	30,956	13,608	44,564	295	1,022	254	177	29.1	1,285.7
<b>NAMUR.</b>											
1889	522	1,271	1,793	720	2,513	287	895	260	186	24.8	1,310.8
1890	716	1,740	2,456	866	3,322	288	756	220	163	24.8	1,105.1
1891	710	1,681	2,391	888	3,279	282	770	229	167	25.6	1,181.3
1892	669	1,569	2,238	842	3,080	288	804	240	175	24.0	1,187.6
1893	559	1,354	1,913	800	2,713	287	886	259	183	27.2	1,237.9
1894	532	1,412	1,944	798	2,742	293	951	260	185	29.1	1,246.2
1895	554	1,433	1,987	811	2,798	294	933	260	185	29.5	1,203.2
1896	565	1,454	2,019	816	2,835	297	920	257	183	30.7	1,157.7
1897	596	1,470	2,066	881	2,947	300	895	258	181	30.3	1,179.3
1898	618	1,595	2,213	894	3,107	305	928	259	185	27.6	1,179.3
1899	626	1,745	2,371	939	3,310	295	1,025	271	194	31.1	1,145.8
1900	671	2,015	2,686	993	3,679	297	1,102	275	201	31.5	1,219.9
1901	690	1,992	2,682	1,089	3,751	297	1,081	278	199	32.7	1,160.1
1902	650	1,923	2,573	1,061	3,634	295	1,160	293	207	33.5	1,202.0
<b>LIEGE.</b>											
1889	4,361	15,875	20,236	5,773	26,009	297	1,136	245	191	29.1	1,367.0
1890	4,593	17,220	21,813	6,204	28,017	293	1,101	232	180	28.7	1,347.9
1891	4,713	17,705	22,418	6,486	28,904	288	1,035	218	169	28.7	1,277.3
1892	4,577	17,288	21,865	6,719	28,584	293	1,047	219	168	28.7	1,325.2
1893	4,575	16,907	21,482	6,783	28,265	294	1,069	225	171	29.1	1,296.5
1894	4,629	16,759	21,388	6,907	28,295	300	1,063	234	177	28.3	1,352.7
1895	4,698	16,878	21,576	6,878	28,454	300	1,075	234	177	28.0	1,373.0
1896	4,863	16,825	21,688	7,202	28,890	300	1,078	242	181	27.6	1,390.9
1897	4,950	17,468	22,418	7,309	29,727	305	1,118	247	186	27.2	1,460.3
1898	5,015	17,796	22,811	7,428	30,239	306	1,127	248	187	27.2	1,473.5
1899	5,131	18,097	23,228	7,522	30,750	301	1,140	252	190	28.0	1,435.2
1900	5,446	19,662	25,107	7,885	32,992	295	1,137	247	188	28.7	1,399.3
1901	5,441	20,427	25,868	8,336	34,204	303	1,063	224	169	27.6	1,359.9
1902	5,524	20,329	25,851	8,575	34,446	301	1,125	241	181	27.6	1,438.8

a Including the western part of Charleroi district.

b The western portion of this district was included in Centre prior to 1893.

c The sum of the items does not agree with this total, but the figures are reproduced as found in the source quoted.



NUMBER OF EMPLOYEES, AVERAGE DAYS WORKED, PRODUCTION PER EMPLOYEE, AVERAGE THICKNESS OF COAL SEAMS, AND AREA MINED PER YEAR PER MINER, IN BELGIUM, BY MINE DISTRICTS, 1889 TO 1902—Concluded.

[Source: 1889 to 1899, Statistique des mines, minières, carrières, etc. (Extraits des annales des travaux publics, tomes XLVIII-LII; Extraits des annales des mines de Belgique, tomes I-V); 1900 to 1902, Annales des mines de Belgique, tomes VI, VIII. Salaried employees are not included. The average production per miner, etc., was computed except for the districts of Couchant de Mons, Centre, and Charleroi, where the original figures were used. A metric ton=2,204.6 pounds.]

Mine district and year.	Employees.					Average days worked during year.	Production (metric tons).			Average thickness of seams (inches).	Area mined per miner proper per year (square yards).
	Below ground.			Above ground.	Total.		Per miner proper.	Per underground worker.	Per employee.		
	Miners.	Others.	Total.								
BELGIUM.											
1889.....	20,281	61,704	81,985	26,397	108,382	295	980	242	183	25.6	1,377.8
1890.....	21,541	67,497	89,038	27,741	116,779	293	945	229	174	26.4	1,324.0
1891.....	21,753	68,495	90,248	28,735	118,983	<sup>a</sup> 286	905	218	165	25.2	1,284.5
1892.....	21,672	67,134	88,806	29,772	118,578	292	904	221	165	24.8	1,313.2
1893.....	21,284	65,021	86,305	30,556	116,861	285	912	225	166	25.6	1,276.1
1894.....	21,728	64,823	86,551	30,552	117,103	298	945	237	175	26.0	1,325.2
1895.....	21,685	65,776	87,461	31,496	118,957	295	943	234	172	26.0	1,309.6
1896.....	21,876	65,704	87,580	31,666	119,246	299	971	243	178	26.0	1,358.7
1897.....	22,198	66,143	88,341	32,041	120,382	296	968	243	179	26.0	1,331.1
1898.....	22,548	67,741	90,289	32,557	122,846	302	980	245	180	26.0	1,356.3
1899.....	22,789	69,649	92,438	32,820	125,258	292	969	239	176	26.4	1,297.7
1900.....	24,179	74,495	98,674	34,075	132,749	300	970	238	177	26.8	1,297.7
1901.....	23,809	75,006	98,815	35,277	134,092	294	933	225	166	26.4	1,266.6
1902.....	23,969	74,631	98,600	36,289	134,889	295	954	232	170	26.8	1,282.1

<sup>a</sup> This figure is placed at 290 in the comparative tables published in certain later reports. The explanation given is that prior to 1893 the figures represent rather the average days of extraction of coal than the average days worked per employee. Since 1893, however, the method observed in determining this average is to divide the aggregate days of presence at the mines by the total number of wageworkers reported by the mine operators, thus giving an approximately correct average of days worked per employee. On the new basis the average for 1892 would be 293 while those for 1889 and 1890 can not be determined for the reason that the aggregate days of presence at the mines during those years is not shown in the reports at hand.

<sup>b</sup> The sum of the items does not agree with this total, but the figures are reproduced as found in the source quoted.

## WAGES.

In Belgium some classes of miners are paid by the day and some at piecework rates. Certain mines pay all their employees by the day. Miners proper, however, are usually paid by piecework. The haulage is paid for sometimes by the day and sometimes by the carload. The piecework is usually measured by the surface worked, the wages being paid by the square meter. Payment by the ton is not deemed practicable because the thickness of the seams differs and the hardness or softness of the coal has also to be taken into consideration. A miner will sometimes mine as little as 2 tons in a day, and sometimes as much as 7 or 8, according to the working conditions. Wages are not regulated by sliding wage scales, but depend mainly upon the labor market.

The figures of average wages in all the presentations relate to wageworkers exclusive of salaried employees.

The Belgian census of trades and industries taken on October 31, 1896, shows for each coal mine in Belgium in operation on that date the number of employees and the wages per day in each occupation. These wage data were obtained from the pay rolls of the

mining companies and represent the actual wages paid each employee for a normal day's work on the last pay day preceding the census enumeration. The wage statistics for each occupation as published in the census report are given only for individual mines and can not therefore be presented in summary form for Belgium as a whole or by mine districts or provinces. The following table, however, gives a summary of male and female adults, and children employed above and below ground in and about coal mines on October 31, 1896, by wage groups:

**EMPLOYEES BELOW AND ABOVE GROUND IN ALL COAL MINES IN BELGIUM ON OCTOBER 31, 1896, BY CLASSIFIED WAGES PER DAY AND BY SEX AND AGE GROUPS.**

[Source: Recensement général des industries et des métiers (31 octobre 1896). Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193. The figures in the columns under "total employees" were computed.]

Classified wages per day.	Male adults.		Female adults.	
	Below ground.	Above ground.	Below ground.	Above ground.
Under 0.50 franc (\$0.097).....			a 1	a 176
0.50 to 0.99 fr. (\$0.097 to \$0.191).....			46	2,896
1.00 to 1.49 fr. (\$0.193 to \$0.288).....	b 189	b 430	312	1,485
1.50 to 1.99 fr. (\$0.290 to \$0.384).....	1,211	873	453	77
2.00 to 2.49 fr. (\$0.386 to \$0.481).....	3,803	2,950	80	13
2.50 to 2.99 fr. (\$0.483 to \$0.577).....	9,906	6,766	1	
3.00 to 3.49 fr. (\$0.579 to \$0.674).....	20,526	4,271		
3.50 to 3.99 fr. (\$0.676 to \$0.770).....	16,637	1,703		
4.00 to 4.49 fr. (\$0.772 to \$0.867).....	14,575	1,067		
4.50 to 4.99 fr. (\$0.869 to \$0.963).....	6,466	396		
5.00 to 5.49 fr. (\$0.965 to \$1.060).....	2,585	243		
5.50 to 5.99 fr. (\$1.062 to \$1.156).....	950	44		
6.00 to 6.49 fr. (\$1.158 to \$1.253).....	486	41		
6.50 to 6.99 fr. (\$1.255 to \$1.349).....	230	9		
7.00 fr. (\$1.351) or over.....	310	14		
Total.....	77,873	18,787	873	4,646
Wages not reported.....	2,524	720	164	696

Classified wages per day.	Males under 16 years of age.		Females under 16 years of age.		Total employees.	
	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.
Under 0.50 franc (\$0.097).....	3	8		3	3	11
0.50 to 0.99 fr. (\$0.097 to \$0.191).....	80	734		1,138	a 81	a 2,048
1.00 to 1.49 fr. (\$0.193 to \$0.288).....	1,999	1,126	c 4	c 1,367	d 2,238	d 5,818
1.50 to 1.99 fr. (\$0.290 to \$0.384).....	e 2,748	e 338			e 4,271	e 2,696
2.00 to 2.49 fr. (\$0.386 to \$0.481).....					4,256	3,027
2.50 to 2.99 fr. (\$0.483 to \$0.577).....					9,966	6,769
3.00 to 3.49 fr. (\$0.579 to \$0.674).....					20,526	4,271
3.50 to 3.99 fr. (\$0.676 to \$0.770).....					16,637	1,703
4.00 to 4.49 fr. (\$0.772 to \$0.867).....					14,575	1,067
4.50 to 4.99 fr. (\$0.869 to \$0.963).....					6,466	396
5.00 to 5.49 fr. (\$0.965 to \$1.060).....					2,585	243
5.50 to 5.99 fr. (\$1.062 to \$1.156).....					950	44
6.00 to 6.49 fr. (\$1.158 to \$1.253).....					486	41
6.50 to 6.99 fr. (\$1.255 to \$1.349).....					230	9
7.00 fr. (\$1.351) or over.....					310	14
Total.....	4,830	2,206	4	2,508	83,580	28,147
Wages not reported.....	196	132	1	112	2,885	1,662

a Including all female adults who earned less than 1 franc (\$0.193) per day.  
 b Including all adult males who earned less than 1.50 francs (\$0.290) per day.  
 c Including all females under 16 years of age who earned 1 franc (\$0.193) or over per day.  
 d Including all adult males who earned less than 1.50 francs (\$0.290) per day and all females under 16 years of age who earned 1 franc (\$0.193) or over per day.  
 e Including all males under 16 years of age who earned 1.50 francs (\$0.290) or over per day.



The most recent investigation by the Belgian Government of the wages paid to coal mine workers was in May, 1900, when statistics were gathered according to the plan followed in taking the industrial census of October 31, 1896. In the publication of the results of the investigation, the wage statistics were presented side by side with those of 1896. The report of this investigation gives a fair picture of wage conditions at these two periods, and shows at the same time the changes that occurred between the year 1896, which may be regarded as a year of average activity in the coal-mining industry in Belgium, and the year 1900, which was a year of exceptional prosperity.

The census statistics of 1896 cover all coal-mining enterprises in Belgium, while the investigation of May, 1900, covers returns from 63 out of a total of 110 enterprises, or 57 per cent, employing, in 1896, 89,512 out of a total of 116,274 mine workers, or 77.3 per cent. Some of the 63 enterprises reporting in 1900 did not send wage returns of all their mines, and the wage data for such mines were, therefore, omitted from the comparative figures taken from the census returns. In this way the actual number of mine workers considered as in the employ of the 63 mining enterprises in 1896 was reduced to 88,287. The same mines employed 100,138 mine workers in 1900. These figures which are for identical establishments constitute the basis for the wage statistics contained in the report above mentioned.

The following table shows, for the two periods, the classified wages of the various categories of underground and surface workers and a summary of wages of all employees combined.

In the combination of underground and surface workers it has been possible to distribute among the higher wage groups the males under 16 years of age who earned over 1.50 francs (29 cents) and the females under 16 years of age who earned over 1 franc (19.3 cents). These higher rates could not be shown in that detail for the separate classes of occupations.

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EMPLOYEES BELOW AND ABOVE GROUND IN 63 COAL-MINING ENTERPRISES IN BELGIUM IN OCTOBER, 1896, AND IN MAY, 1900, BY CLASSIFIED WAGES PER DAY, AND BY OCCUPATION, SEX, AND AGE GROUPS.

[Source: Statistique des salaires dans les mines de houille, octobre 1896-mai 1900. Conversion of Belgian into United States money was made on the basis of 1 franc=\$0.193.]

EMPLOYEES BELOW GROUND.

Classified wages per day.	Miners.		Cage men, loaders, drivers, trammers, etc.		Gallerycutters, timbermen, gallery repairers, fillers, etc.		Unclassified.		Total.	
	1896.	1900.	1896.	1900.	1896.	1900.	1896.	1900.	1896.	1900.
<b>MALE ADULTS.</b>										
Under 1.50 francs (\$0.290).....	4	1	106	5	34	.....	11	2	155	8
1.50 to 1.99 fr. (\$0.290 to \$0.384).....	19	2	635	83	150	16	57	18	861	119
2.00 to 2.49 fr. (\$0.386 to \$0.481).....	152	2	1,608	478	866	109	234	55	2,860	642
2.50 to 2.99 fr. (\$0.483 to \$0.577).....	503	8	4,253	996	2,447	336	457	152	7,660	1,492
3.00 to 3.49 fr. (\$0.579 to \$0.674).....	1,876	84	8,562	1,906	5,494	909	524	185	16,456	3,064
3.50 to 3.99 fr. (\$0.676 to \$0.770).....	4,177	151	3,280	3,513	5,703	1,812	284	230	13,444	5,706
4.00 to 4.49 fr. (\$0.772 to \$0.867).....	6,669	767	499	7,164	3,907	3,952	160	194	11,235	12,077
4.50 to 4.99 fr. (\$0.869 to \$0.963).....	3,176	1,733	124	5,784	1,699	4,139	59	194	5,058	11,850
5.00 to 5.49 fr. (\$0.965 to \$1.060).....	983	2,546	92	1,981	751	3,074	62	115	1,888	7,716
5.50 to 5.99 fr. (\$1.062 to \$1.156).....	363	3,274	6	647	393	2,484	23	90	785	6,495
6.00 to 6.49 fr. (\$1.158 to \$1.253).....	119	3,297	2	215	292	2,467	26	82	439	6,061
6.50 to 6.99 fr. (\$1.255 to \$1.349).....	44	3,391	.....	91	145	2,339	1	44	190	5,865
7.00 to 7.49 fr. (\$1.351 to \$1.446).....	18	3,202	.....	23	243	1,775	2	47	263	5,047
7.50 to 7.99 fr. (\$1.448 to \$1.542).....	.....	1,735	.....	7	.....	863	.....	7	.....	2,612
8.00 to 8.49 fr. (\$1.544 to \$1.639).....	.....	735	.....	4	2	556	.....	23	2	1,318
8.50 to 8.99 fr. (\$1.641 to \$1.735).....	.....	443	.....	2	.....	326	.....	.....	.....	771
9.00 to 9.49 fr. (\$1.737 to \$1.832).....	.....	242	.....	.....	4	210	.....	9	4	461
9.50 to 9.99 fr. (\$1.834 to \$1.928).....	.....	108	.....	.....	.....	132	.....	.....	.....	240
10.00 fr. (\$1.930) or over.....	.....	74	.....	.....	.....	317	.....	.....	.....	391
Total.....	18,103	21,795	19,167	22,897	22,130	25,816	1,900	1,447	61,300	71,955
<b>FEMALE ADULTS.</b>										
Under 1.00 franc (\$0.193).....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1.00 to 1.49 fr. (\$0.193 to \$0.288).....	.....	.....	25	1	1	.....	15	.....	41	1
1.50 to 1.99 fr. (\$0.290 to \$0.384).....	.....	.....	218	3	2	.....	12	16	232	19
2.00 to 2.49 fr. (\$0.386 to \$0.481).....	.....	.....	375	1	16	.....	1	3	392	4
2.50 to 2.99 fr. (\$0.483 to \$0.577).....	.....	.....	42	35	1	.....	.....	4	43	39
3.00 to 3.49 fr. (\$0.579 to \$0.674).....	.....	.....	.....	95	.....	4	.....	.....	99	99
3.50 to 3.99 fr. (\$0.676 to \$0.770).....	.....	.....	.....	27	.....	.....	.....	1	.....	28
4.00 francs (\$0.772) or over.....	.....	.....	.....	9	.....	.....	.....	.....	.....	9
Total.....	.....	.....	660	171	20	4	28	24	708	a 199
<b>MALES UNDER 16 YEARS OF AGE.</b>										
Under 0.50 franc (\$0.097).....	.....	.....	2	.....	.....	.....	1	.....	3	.....
0.50 to 0.99 fr. (\$0.097 to \$0.191).....	4	.....	52	1	8	3	3	.....	67	4
1.00 to 1.49 fr. (\$0.193 to \$0.288).....	1	.....	1,321	293	88	18	111	57	1,521	368
1.50 francs (\$0.290) or over.....	1	.....	1,706	2,970	470	437	128	136	2,307	3,543
Total.....	6	.....	3,083	3,264	566	458	243	193	3,898	3,915
<b>FEMALES UNDER 16 YEARS OF AGE.</b>										
Under 0.50 franc (\$0.097).....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
0.50 to 0.99 fr. (\$0.097 to \$0.191).....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1.00 fr. (\$0.193) or over.....	.....	.....	b 3	b 1	.....	.....	.....	.....	b 3	b 1
Total.....	.....	.....	b 3	b 1	.....	.....	.....	.....	b 3	b 1
Total underground workers.....	18,109	21,795	22,913	26,333	22,716	26,278	2,171	1,664	65,909	76,070

a This number is slightly larger than the total number of adult females employed underground in all coal mines in 1900, as shown by the table on page 122, the data for which were obtained from other sources, and by another method, as previously explained in the text.

b In the table on page 122, no females under 16 years of age are reported to be employed underground during this year.

EMPLOYEES BELOW AND ABOVE GROUND IN 63 COAL-MINING ENTERPRISES IN BELGIUM IN OCTOBER 1896, AND IN MAY, 1900, BY CLASSIFIED WAGES PER DAY, AND BY OCCUPATION, SEX, AND AGE GROUPS—Continued.

[Source: Statistique des salaires dans les mines de houille, octobre 1896-mai 1900. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193.]

## EMPLOYEES ABOVE GROUND.

Classified wages per day.	Engineers, firemen laborers.		Washers, sorters, loaders.		Skilled laborers.		Unclassi- fied.		Total.	
	1896.	1900.	1896.	1900.	1896.	1900.	1896.	1900.	1896.	1900.
<b>MALE ADULTS. *</b>										
Under 1.50 francs (\$0.290).....	14	4	187	64	54	8	119	59	374	135
1.50 to 1.99 fr. (\$0.290 to \$0.384).....	59	26	276	226	132	114	210	137	677	503
2.00 to 2.49 fr. (\$0.386 to \$0.481).....	222	76	1,200	405	299	178	620	283	2,341	942
2.50 to 2.99 fr. (\$0.483 to \$0.577).....	752	269	2,710	1,227	699	409	1,288	505	5,449	2,410
3.00 to 3.49 fr. (\$0.579 to \$0.674).....	956	751	1,032	2,339	904	803	574	791	3,466	4,684
3.50 to 3.99 fr. (\$0.676 to \$0.770).....	417	1,033	225	1,655	545	918	189	476	1,376	4,082
4.00 to 4.49 fr. (\$0.772 to \$0.867).....	292	573	167	527	282	688	60	276	801	2,064
4.50 to 4.99 fr. (\$0.869 to \$0.963).....	164	381	62	160	94	342	21	69	341	952
5.00 to 5.49 fr. (\$0.965 to \$1.060).....	95	277	37	132	75	146	15	29	222	584
5.50 to 5.99 fr. (\$1.062 to \$1.156).....	20	90	1	24	20	70	3	7	44	191
6.00 to 6.49 fr. (\$1.158 to \$1.253).....	20	36	2	67	16	21	.....	9	38	133
6.50 to 6.99 fr. (\$1.255 to \$1.349).....	5	12	1	30	4	14	.....	2	10	58
7.00 to 7.49 fr. (\$1.351 to \$1.446).....	5	5	1	5	6	4	1	1	13	15
7.50 to 7.99 fr. (\$1.448 to \$1.542).....	.....	1	.....	1	.....	9	.....	.....	.....	11
8.00 to 8.49 fr. (\$1.544 to \$1.639).....	.....	1	.....	3	.....	.....	.....	.....	.....	6
8.50 to 8.99 fr. (\$1.641 to \$1.735).....	.....	1	.....	.....	.....	2	.....	.....	.....	1
9.00 to 9.49 fr. (\$1.737 to \$1.832).....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9.50 to 9.99 fr. (\$1.834 to \$1.928).....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
10.00 fr. (\$1.930) or over.....	.....	.....	.....	1	.....	.....	.....	.....	2	3
Total.....	3,021	3,536	5,901	6,866	3,130	3,727	3,100	2,646	15,152	16,775
<b>FEMALE ADULTS.</b>										
Under 1.00 franc (\$0.193).....	.....	.....	122	26	.....	.....	17	7	139	33
1.00 to 1.49 fr. (\$0.193 to \$0.288).....	15	3	1,848	636	3	17	464	203	2,330	859
1.50 to 1.99 fr. (\$0.290 to \$0.384).....	2	9	920	2,102	5	25	165	366	1,092	2,502
2.00 to 2.49 fr. (\$0.386 to \$0.481).....	3	1	49	387	.....	4	7	38	59	430
2.50 to 2.99 fr. (\$0.483 to \$0.577).....	.....	.....	5	85	.....	.....	2	8	7	93
3.00 to 3.49 fr. (\$0.579 to \$0.674).....	.....	.....	1	13	.....	.....	.....	2	1	15
3.50 to 3.99 fr. (\$0.676 to \$0.770).....	.....	.....	.....	12	.....	.....	.....	.....	.....	12
4.00 fr. (\$0.772) or over.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	20	13	2,945	3,261	8	46	655	624	3,628	3,944
<b>MALES UNDER 16 YEARS OF AGE.</b>										
Under 0.50 franc (\$0.097).....	.....	.....	6	.....	1	.....	.....	.....	.....	7
0.50 to 0.99 fr. (\$0.097 to \$0.191).....	10	.....	555	128	13	17	36	13	614	158
1.00 to 1.49 fr. (\$0.193 to \$0.288).....	55	35	627	573	108	114	139	100	929	822
1.50 fr. (\$0.290) or over.....	18	31	129	353	34	89	74	51	255	524
Total.....	83	66	1,317	1,054	156	220	249	164	1,805	1,504
<b>FEMALES UNDER 16 YEARS OF AGE.</b>										
Under 0.50 franc (\$0.097).....	.....	.....	2	1	.....	.....	1	.....	.....	1
0.50 to 0.99 fr. (\$0.097 to \$0.191).....	2	.....	706	257	.....	1	51	1	759	269
1.00 fr. (\$0.193) or over.....	2	1	977	1,548	.....	1	52	35	1,031	1,585
Total.....	4	1	1,685	1,808	.....	2	104	36	1,793	1,845
Total surface workers.....	3,128	3,616	11,848	12,987	3,294	3,995	4,108	3,470	22,378	24,068

EMPLOYEES BELOW AND ABOVE GROUND IN 63 COAL-MINING ENTERPRISES IN BELGIUM IN OCTOBER, 1896, AND IN MAY, 1900, BY CLASSIFIED WAGES PER DAY, AND BY OCCUPATION, SEX, AND AGE GROUPS.—Concluded.

[Source: Statistique des salaires dans les mines de houille, octobre 1896-mai 1900. Conversion of Belgian into United States money was made on the basis of 1 franc=\$0.193.]

EMPLOYEES ABOVE AND BELOW GROUND.

Classified wages per day.	Employees.		Classified wages per day.	Employees.	
	1896.	1900.		1896.	1900.
<b>MALE ADULTS.</b>			<b>MALES UNDER 16 YEARS OF AGE.</b>		
Under 1.50 francs (\$0.290).....	529	143	Under 0.50 franc (\$0.097).....	10	.....
1.50 to 1.99 fr. (\$0.290 to \$0.384).....	1,538	622	0.50 to 0.99 fr. (\$0.097 to \$0.191).....	681	162
2.00 to 2.49 fr. (\$0.386 to \$0.481).....	5,201	1,584	1.00 to 1.49 fr. (\$0.193 to \$0.288).....	2,450	1,190
2.50 to 2.99 fr. (\$0.483 to \$0.577).....	13,109	3,902	1.50 to 1.99 fr. (\$0.290 to \$0.384).....	1,910	1,968
3.00 to 3.49 fr. (\$0.579 to \$0.674).....	19,922	7,788	2.00 to 2.49 fr. (\$0.386 to \$0.481).....	545	1,200
3.50 to 3.99 fr. (\$0.676 to \$0.770).....	14,820	9,788	2.50 to 2.99 fr. (\$0.483 to \$0.577).....	103	574
4.00 to 4.49 fr. (\$0.772 to \$0.867).....	12,036	14,141	3.00 to 3.49 fr. (\$0.579 to \$0.674).....	4	274
4.50 to 4.99 fr. (\$0.869 to \$0.963).....	5,399	12,802	3.50 to 3.99 fr. (\$0.676 to \$0.770).....	.....	40
5.00 to 5.49 fr. (\$0.965 to \$1.060).....	2,110	8,300	4.00 to 4.49 fr. (\$0.772 to \$0.867).....	.....	8
5.50 to 5.99 fr. (\$1.062 to \$1.156).....	829	6,686	4.50 to 4.99 fr. (\$0.869 to \$0.963).....	.....	3
6.00 to 6.49 fr. (\$1.158 to \$1.253).....	477	6,194			
6.50 to 6.99 fr. (\$1.255 to \$1.349).....	200	5,923	Total.....	5,703	5,419
7.00 to 7.49 fr. (\$1.351 to \$1.446).....	276	5,062			
7.50 to 7.99 fr. (\$1.448 to \$1.542).....	.....	2,623	<b>FEMALES UNDER 16 YEARS OF AGE.</b>		
8.00 to 8.49 fr. (\$1.544 to \$1.639).....	2	1,324	Under 0.50 franc (\$0.097).....	3	1
8.50 to 8.99 fr. (\$1.641 to \$1.735).....	.....	772	0.50 to 0.99 fr. (\$0.097 to \$0.191).....	759	259
9.00 to 9.49 fr. (\$1.737 to \$1.832).....	4	461	1.00 to 1.49 fr. (\$0.193 to \$0.288).....	978	1,181
9.50 to 9.99 fr. (\$1.834 to \$1.928).....	.....	241	1.50 to 1.99 fr. (\$0.290 to \$0.384).....	56	379
10.00 fr. (\$1.930) or over.....	.....	394	2.00 to 2.49 fr. (\$0.386 to \$0.481).....	.....	20
Total.....	76,452	88,730	2.50 to 2.99 fr. (\$0.483 to \$0.577).....	.....	4
			3.00 to 3.49 fr. (\$0.579 to \$0.674).....	.....	2
			Total.....	1,796	1,846
<b>FEMALE ADULTS.</b>			Total employees.....	88,287	100,138
Under 1.00 franc (\$0.193).....	139	33			
1.00 to 1.49 fr. (\$0.193 to \$0.288).....	2,371	860			
1.50 to 1.99 fr. (\$0.290 to \$0.384).....	1,324	2,521			
2.00 to 2.49 fr. (\$0.386 to \$0.481).....	451	434			
2.50 to 2.99 fr. (\$0.483 to \$0.577).....	50	132			
3.00 to 3.49 fr. (\$0.579 to \$0.674).....	1	114			
3.50 to 3.99 fr. (\$0.676 to \$0.770).....	.....	40			
4.00 fr. (\$0.772) or over.....	.....	9			
Total.....	4,336	4,143			

These figures show a decided advance in the wage rates of all classes of employees both above and below ground in 1900, as compared with 1896. Taking as an illustration, the most numerous class of mine workers—the male adults engaged in underground work—it is found that while in 1896 over three-fourths earned 3 francs (57.9 cents) and under 5 francs (96.5 cents), in 1900 less than one-half came within that class. Wages under 2 francs (38.6 cents) per day had almost disappeared, only 127 underground mine workers coming under that class in 1900, as compared with 1,016 in 1896. On the other hand, the returns for 1896 showed that no underground mine workers earned over 9.49 francs (\$1.832), while in 1900, 631 earned more than that amount. From the comparative figures obtained for male adults engaged in underground work, it is estimated that those earning less than 3 francs (57.9 cents) per day in 1896 had their wages increased about 1 franc (19.3 cents) per day, and those earning from 3 francs (57.9 cents) to 4.50 francs (86.9 cents), or about two-thirds of the entire number, have received an increase of from 1.50 francs (29 cents) to 3

francs (57.9 cents) per day. The increase of wages for male adult surface workers was about 1 franc (19.3 cents); for female adults working underground the increase varied from 1 franc (19.3 cents) to 1.50 francs (29 cents); for female adults doing surface work it was about 0.50 franc (9.7 cents), and for boys working underground, 0.50 franc (9.7 cents). The wages of boys doing surface work and of girls showed a slight increase.

While the number of men and boys engaged in underground mine work showed a considerable increase, the number of women and girls so employed decreased from 711 in 1896 to 200 in 1900. With regard to surface work, however, the number of men, women, and girls showed an increase and the number of boys a decrease from 1896 to 1900. On the whole, there was an increase in the number of men and girls, and a decrease in the number of women and boys employed in the 63 mining establishments considered.

The difference between the wages paid in certain occupations in 1896 and 1900 is well illustrated in the following table which shows, in percentage form, the distribution throughout the various wage groups of the male adults employed by the 63 coal mining enterprises in 10 principal underground occupations:

PER CENT OF MALE ADULT MINE WORKERS IN EACH GROUP OF CLASSIFIED WAGES PER DAY IN 10 PRINCIPAL UNDERGROUND OCCUPATIONS IN 63 COAL-MINING ENTERPRISES IN BELGIUM, 1896 AND 1900.

[Source: Statistique des salaires dans les mines de houille, octobre 1896-mai 1900. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193.]

Classified wages per day.	Mining.		Loading, transporting, and hoisting.							
	Miners, proper.		Cage men.		Drivers.		Loaders.		Trammers.	
	1896.	1900.	1896.	1900.	1896.	1900.	1896.	1900.	1896.	1900.
Under 1.50 francs (\$0.290).....	0.02	.....	0.13	0.06	0.07	.....	0.32	.....	0.80	0.02
1.50 to 1.99 fr. (\$0.290 to \$0.384).....	.10	0.01	1.26	.44	5.14	0.22	3.71	0.11	3.30	.49
2.00 to 2.49 fr. (\$0.386 to \$0.481).....	.84	.01	4.37	1.33	17.76	2.63	7.37	1.76	8.46	2.11
2.50 to 2.99 fr. (\$0.483 to \$0.577).....	2.78	.04	11.57	1.14	24.32	7.60	22.81	4.43	24.20	4.02
3.00 to 3.49 fr. (\$0.579 to \$0.674).....	10.36	.39	53.96	6.91	38.95	12.96	49.26	8.30	40.93	7.57
3.50 to 3.99 fr. (\$0.676 to \$0.770).....	23.06	.71	23.41	11.48	12.27	19.16	10.71	17.21	19.12	13.67
4.00 to 4.49 fr. (\$0.772 to \$0.867).....	36.84	3.60	4.43	33.62	1.21	29.17	3.86	33.80	2.04	29.46
4.50 to 4.99 fr. (\$0.869 to \$0.963).....	17.53	8.09	.66	31.58	.21	23.34	1.56	20.51	.88	27.02
5.00 to 5.49 fr. (\$0.965 to \$1.060).....	5.43	11.90	.07	9.77	.....	2.96	.34	8.20	.11	10.56
5.50 to 5.99 fr. (\$1.062 to \$1.156).....	2.05	15.14	.07	2.47	.07	1.28	.06	3.59	.08	3.87
6.00 to 6.49 fr. (\$1.158 to \$1.253).....	.65	14.99	.07	.38	.....	.....	.....	1.44	.08	.79
6.50 to 6.99 fr. (\$1.255 to \$1.349).....	.24	15.19	.....	.06	.....	.62	.....	.58	.....	.29
7.00 to 7.49 fr. (\$1.351 to \$1.446).....	.09	14.70	.....	.63	.....	.06	.....	.07	.....	.04
7.50 to 7.99 fr. (\$1.448 to \$1.542).....	.01	8.00	.....	.13	.....	.....	.....	.....	.....	.06
8.00 to 8.49 fr. (\$1.544 to \$1.639).....	.....	3.30	.....	.....	.....	.....	.....	.....	.....	.03
8.50 to 8.99 fr. (\$1.641 to \$1.735).....	.....	1.94	.....	.....	.....	.....	.....	.....	.....	.....
9.00 to 9.49 fr. (\$1.737 to \$1.832).....	.....	1.14	.....	.....	.....	.....	.....	.....	.....	.....
9.50 to 9.99 fr. (\$1.834 to \$1.928).....	.....	.50	.....	.....	.....	.....	.....	.....	.....	.....
10.00 francs (\$1.930) or over.....	.....	.35	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Employees considered in each occupation.....	18,103	21,779	1,512	1,577	1,402	1,790	4,667	5,684	11,249	13,529

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PER CENT OF MALE ADULT MINE WORKERS IN EACH GROUP OF CLASSIFIED WAGES PER DAY IN 10 PRINCIPAL UNDERGROUND OCCUPATIONS IN 63 COAL-MINING ENTERPRISES IN BELGIUM, 1896 AND 1900—Concluded.

[Source: Statistique des salaires dans les mines de houille, octobre 1896-mai 1900. Conversion of Belgian into United States money was made on the basis of 1 franc=\$0.193.

Classified wages per day.	Opening and repairing of galleries.									
	Cross-gallery cutters.		Gallery cutters.		Timbermen, repairing.		Gallery repairers. (a)		Fillers-in.	
	1896.	1900.	1896.	1900.	1896.	1900.	1896.	1900.	1896.	1900.
Under 1.50 francs (\$0.290).....			0.07		0.02		0.24		0.72	
1.50 to 1.99 fr. (\$0.290 to \$0.384).....	0.35		.32	0.02	.52	0.11	1.25	0.21	2.00	0.19
2.00 to 2.49 fr. (\$0.386 to \$0.481).....	.56	0.03	1.60	.05	3.67	.57	5.45	.80	15.50	2.20
2.50 to 2.99 fr. (\$0.483 to \$0.577).....	3.14	.05	4.61	.21	11.13	1.91	11.23	1.56	37.05	6.82
3.00 to 3.49 fr. (\$0.579 to \$0.674).....	13.51	.24	22.88	.58	28.56	4.20	26.08	2.99	35.74	17.95
3.50 to 3.99 fr. (\$0.676 to \$0.770).....	16.97	.64	33.48	1.92	30.21	8.50	22.37	7.24	7.62	29.56
4.00 to 4.49 fr. (\$0.772 to \$0.867).....	18.01	3.52	21.13	12.20	16.84	17.28	20.59	20.12	1.15	29.56
4.50 to 4.99 fr. (\$0.869 to \$0.963).....	18.11	7.05	7.61	20.75	5.58	20.64	8.87	18.43	.13	9.86
5.00 to 5.49 fr. (\$0.965 to \$1.060).....	10.34	10.44	3.44	14.16	2.20	13.19	2.17	12.72	.09	1.88
5.50 to 5.99 fr. (\$1.062 to \$1.156).....	6.22	10.52	2.00	10.49	.68	10.38	.68	8.76		1.51
6.00 to 6.49 fr. (\$1.158 to \$1.253).....	5.28	11.40	1.26	11.32	.24	9.07	.77	9.90		.26
6.50 to 6.99 fr. (\$1.255 to \$1.349).....	2.58	11.76	.71	11.65	.16	7.26	.10	6.70		.11
7.00 to 7.49 fr. (\$1.351 to \$1.446).....	2.95	14.32	.33	7.18	.03	4.43		6.78		
7.50 to 7.99 fr. (\$1.448 to \$1.542).....	.34	10.57	.24	3.20	.16	1.14		1.73		
8.00 to 8.49 fr. (\$1.544 to \$1.639).....	.60	5.45	.10	2.78		.53		.88		
8.50 to 8.99 fr. (\$1.641 to \$1.735).....	.72	4.03	.07	1.34		.07	.20	.59		
9.00 to 9.49 fr. (\$1.737 to \$1.832).....	.13	3.04	.05	.83		.20		.04		
9.50 to 9.99 fr. (\$1.834 to \$1.928).....		1.73	.05	.46		.13		.13		
10.00 francs (\$1.930) or over.....	.19	5.21	.05	.88		.39		.42		
Total.....	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Employees considered in each occupation.....	3,182	3,745	8,069	9,794	6,127	6,998	2,074	2,375	2,348	2,656

<sup>a</sup> Men who restore to their original dimensions and retimber galleries that have become contracted from "squeezing," etc.

The wage statistics thus far presented represent the actual wages paid for a normal day's work at two specified dates. The Belgian mining reports publish from year to year statistics of the average yearly earnings of wageworkers. These figures are obtained by dividing the total wages paid each year by the average number of wageworkers employed. The statistics of total gross earnings of all employees are not published for each year of the 72-year period in any official reports known to this Bureau, and can not therefore be shown in this compilation. The following table shows the number of coal-mine workers in Belgium and their average gross earnings for each year from 1831 to 1902, inclusive:

## AVERAGE ANNUAL GROSS EARNINGS OF COAL MINE EMPLOYEES IN BELGIUM, 1831 TO 1902.

[Source: 1831 to 1849, *Statistique des mines, minières, carrières, etc.* (Extrait des annales des travaux publics, tome XLIX); 1850 to 1902, *Annales des mines de Belgique*, tome IX. Salaried employees are not included. Conversion of Belgian into United States money was made on the basis of 1 franc=\$0.193.]

Year.	Employees.	Gross earnings per employee. (a)	Year.	Employees.	Gross earnings per employee. (a)	Year.	Employees.	Gross earnings per employee. (a)
1831.....	29,000	\$69.48	1855.....	70,980	\$143.56	1879.....	98,714	\$157.59
1832.....	28,000	63.69	1856.....	73,585	138.44	1880.....	102,930	177.69
1833.....	28,300	72.38	1857.....	72,577	136.23	1881.....	101,351	179.76
1834.....	28,598	78.17	1858.....	73,850	138.39	1882.....	103,701	185.40
1835.....	28,598	86.85	1859.....	77,293	140.58	1883.....	106,252	194.16
1836.....	<sup>b</sup> 28,937	96.43	1860.....	78,232	139.92	1884.....	<sup>b</sup> 105,182	176.99
1837.....	<sup>b</sup> 33,222	110.01	1861.....	81,675	139.85	1885.....	103,095	156.97
1838.....	<sup>b</sup> 37,108	115.90	1862.....	80,302	133.51	1886.....	100,282	151.20
1839.....	37,047	111.17	1863.....	79,187	135.03	1887.....	100,739	157.29
1840.....	39,150	105.96	1864.....	79,779	137.93	1888.....	103,477	167.69
1841.....	37,629	101.33	1865.....	82,368	151.36	1889.....	106,382	179.79
1842.....	39,902	99.59	1866.....	86,721	167.43	1890.....	116,779	215.58
1843.....	37,503	92.64	1867.....	93,339	171.36	1891.....	118,963	209.65
1844.....	38,490	93.22	1868.....	89,382	165.25	1892.....	118,578	184.75
1845.....	<sup>b</sup> 41,359	101.52	1869.....	89,928	160.10	1893.....	116,861	171.18
1846.....	45,488	103.45	1870.....	91,993	169.52	1894.....	117,103	181.57
1847.....	49,847	100.94	1871.....	94,286	166.96	1895.....	118,957	182.92
1848.....	<sup>b</sup> 44,777	88.97	1872.....	98,863	202.16	1896.....	119,246	189.20
1849.....	46,131	87.04	1873.....	107,902	261.09	1897.....	120,332	197.61
1850.....	47,949	89.51	1874.....	109,631	228.64	1898.....	122,846	211.78
1851.....	49,500	94.63	1875.....	110,720	224.53	1899.....	125,258	225.83
1852.....	51,873	97.58	1876.....	108,543	198.96	1900.....	132,749	272.72
1853.....	54,204	109.90	1877.....	101,343	161.12	1901.....	134,092	244.56
1854.....	62,194	128.19	1878.....	99,032	162.24	1902.....	134,889	230.94

<sup>a</sup> Computed for the years from 1850 to 1902 from number of employees in this table and the total wages as given in table on page 139. For the other years conversions were made of the wages as given in the source quoted.

<sup>b</sup> This number does not agree with the total in the table on page 118, which was taken from another source. The reason for the difference is not apparent.

During this period the average annual gross earnings per employee increased from \$69.48 in 1831 to \$230.94 in 1902, or 232 per cent. The production per employee during the same period increased from 79 tons to 170 tons, or 115.2 per cent, and the value of the yearly product per employee from \$133.58 to \$432.14, or 223.5 per cent.

While the average yearly earnings per employee varied from year to year, they show as a whole a general upward movement. This is best illustrated by considering the average yearly earnings by decades. Thus, during the seven decades from 1831 to 1900 the average yearly earnings show, with one exception (the decade from 1881 to 1890), a steady increase from one decade to another. The production per employee shows a similar upward movement.

In the next table are brought together, for comparison, the average value per ton of coal produced, the average quantity and value of the annual product per employee, and the average annual gross earnings per employee, for each year from 1831 to 1902.



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VALUE PER METRIC TON OF COAL PRODUCED, PRODUCT PER EMPLOYEE, VALUE OF PRODUCT PER EMPLOYEE, AND GROSS EARNINGS PER EMPLOYEE IN COAL MINES IN BELGIUM, 1831 TO 1902.

[The figures in this table were partly computed and partly reproduced from other tables in this report.]

Year.	Value per metric ton of coal produced.	Product per employee (metric tons).	Value of product per employee.	Gross earnings per employee.	Year.	Value per metric ton of coal produced.	Product per employee (metric tons).	Value of product per employee.	Gross earnings per employee.
1831.....	\$1.68	79	\$133.58	\$69.48	1867.....	\$2.39	137	\$327.22	\$171.38
1832.....	1.65	81	134.17	63.69	1868.....	2.10	138	288.03	155.17
1833.....	1.65	89	147.89	72.38	1869.....	2.03	144	292.13	160.19
1834.....	1.66	85	141.48	78.17	1870.....	2.09	149	311.83	169.45
1835.....	1.83	92	168.85	86.85	1871.....	2.16	146	314.83	166.75
1836.....	2.41	105	253.88	98.43	1872.....	2.57	158	407.15	202.07
1837.....	2.53	97	244.35	110.01	1873.....	4.13	146	603.92	261.13
1838.....	2.53	88	222.30	115.80	1874.....	3.17	134	424.11	228.51
1839.....	2.50	94	235.08	111.17	1875.....	2.96	136	400.64	224.46
1840.....	2.28	100	228.46	105.96	1876.....	2.61	132	345.16	198.98
1841.....	2.04	107	218.04	101.33	1877.....	2.12	138	291.30	161.16
1842.....	1.77	104	183.98	99.59	1878.....	1.91	150	288.06	162.51
1843.....	1.75	106	186.18	92.64	1879.....	1.81	156	283.49	156.14
1844.....	1.73	115	199.79	93.22	1880.....	1.94	164	318.16	177.56
1845.....	1.85	119	219.62	101.52	1881.....	1.87	166	311.74	179.68
1846.....	1.82	111	201.20	103.45	1882.....	1.93	170	327.36	178.72
1847.....	1.78	116	206.66	100.94	1883.....	1.96	171	335.64	194.16
1848.....	1.63	109	177.44	88.97	1884.....	1.84	171	314.47	176.40
1849.....	<sup>a</sup> 1.12	114	<sup>b</sup> 127.58	87.04	1885.....	1.71	169	289.44	156.72
1850.....	1.54	121	187.05	89.55	1886.....	1.59	172	274.33	151.12
1851.....	1.54	126	193.95	94.57	1887.....	1.55	182	282.92	157.30
1852.....	1.51	131	197.45	97.66	1888.....	1.63	186	302.19	167.72
1853.....	1.68	132	222.50	109.82	1889.....	1.82	183	334.28	179.88
1854.....	2.08	128	266.43	128.15	1890.....	2.54	174	443.75	215.58
1855.....	2.39	118	282.91	143.59	1891.....	2.43	165	401.39	209.60
1856.....	2.48	112	276.60	138.38	1892.....	1.98	165	327.62	184.70
1857.....	2.31	116	267.18	136.26	1893.....	1.80	166	299.60	171.19
1858.....	2.24	121	270.17	138.38	1894.....	1.80	172	315.27	181.61
1859.....	2.19	119	259.70	140.50	1895.....	1.82	175	313.71	182.96
1860.....	2.15	123	264.28	139.93	1896.....	1.83	178	326.95	189.14
1861.....	2.11	123	259.97	139.93	1897.....	1.98	170	353.79	197.44
1862.....	2.03	124	251.12	133.56	1898.....	2.12	180	381.60	211.72
1863.....	1.95	131	255.39	135.10	1899.....	2.40	176	422.87	225.42
1864.....	1.91	140	267.45	138.00	1900.....	3.36	177	563.96	272.71
1865.....	2.02	144	290.31	151.31	1901.....	2.94	166	486.88	244.56
1866.....	2.28	147	336.13	167.33	1902.....	2.55	170	432.14	230.94

<sup>a</sup> This should probably read \$1.45. See note <sup>a</sup> on page 113.  
<sup>b</sup> This should probably read \$165.23. See note <sup>a</sup> on page 113.

During the 72-year period the value of coal per ton has naturally fluctuated considerably. Sharp fluctuations are seen to have occurred within periods covering a very few years, but as a rule the advances and declines have extended over long periods. There was a steady upward trend in the average product per wageworker during the first 60 years of the period. During the decade from 1891 to 1900, however, there was a slight recession, the average for this period having been 173 tons as against 174 tons for the preceding decennial period. A still further recession is seen for 1901. The value of product per wageworker and the average gross earnings per wageworker show an upward tendency throughout nearly the whole period.

The annual earnings of employees heretofore shown are the gross earnings charged up as wages paid to mine workers on the books of the mining companies. To ascertain the net earnings, or the amounts actually received by the mine workers, it is necessary to deduct certain amounts retained for the support of miners' provident institu-

tions, for light and explosives, repair of tools, medical service, fines, etc. These deductions fall particularly upon the underground workers. The following table shows for each mining district, during the years 1889 to 1902, the gross earnings per employee, the amounts deducted, the net earnings, and the number of days worked per year, all wageworkers being considered:

GROSS AND NET ANNUAL EARNINGS AND DAYS WORKED PER EMPLOYEE IN EACH COAL-MINING DISTRICT IN BELGIUM, 1889 TO 1902.

[Source: 1889 to 1899, Statistique des mines, minières, carrières, etc. (Extraits des annales des travaux publics, tomes XLVIII-LI); Extraits des annales des mines de Belgique, tomes I-V; 1900, 1901, Annales des mines de Belgique, tomes VI, VIII. Figures for last-mentioned source were all computed. The statistics do not relate to salaried employees. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193.]

Mine district and year.	Gross earnings per employee.	Amount retained per employee.	Net earnings per employee.	Days worked during year per employee.	Mine district and year.	Gross earnings per employee.	Amount retained per employee.	Net earnings per employee.	Days worked during year per employee.
<b>COUCHANT DE MONS.</b>					<b>NAMUR.</b>				
1889	\$168.30	\$2.51	\$165.79	299	1889	\$163.67	\$6.18	\$157.49	287
1890	205.35	3.86	201.49	294	1890	203.61	2.12	201.49	288
1891	193.19	3.28	189.91	286	1891	201.30	1.35	199.95	282
1892	164.44	3.09	161.35	280	1892	169.84	.97	168.87	288
1893	149.77	1.93	147.84	271	1893	158.07	.77	157.30	287
1894	164.82	2.12	162.70	294	1894	169.07	1.35	167.72	293
1895	160.19	1.93	158.26	287	1895	180.46	1.35	179.11	294
1896	168.87	2.12	166.75	297	1896	187.40	.96	186.44	297
1897	171.19	2.51	168.68	283	1897	194.54	.77	193.77	300
1898	191.65	2.12	189.53	302	1898	215.97	.77	215.20	305
1899	203.61	2.12	201.49	292	1899	230.64	.97	229.67	295
1900	239.90	2.12	237.78	300	1900	275.99	1.35	274.64	297
1901	217.21	2.79	214.42	288	1901	264.02	1.54	262.48	297
1902	201.49	2.62	198.87	294	1902	247.37	1.50	245.87	295
<b>CENTRE.</b>					<b>LIEGE.</b>				
1889 (a)	191.65	4.25	187.40	302	1889	191.84	.96	190.88	297
1890 (a)	222.91	4.63	218.28	300	1890	222.72	1.74	220.98	293
1891 (a)	228.13	5.60	222.53	294	1891	217.71	1.74	215.97	288
1892 (a)	198.98	5.02	193.96	293	1892	193.97	1.55	192.42	293
1893	178.14	6.56	171.58	282	1893	186.25	1.16	185.09	294
1894	191.46	6.56	184.90	302	1894	191.84	1.16	190.68	300
1895	188.75	6.56	182.19	293	1895	197.25	1.74	195.51	300
1896	199.56	6.95	192.61	289	1896	198.98	1.93	197.05	300
1897	206.12	7.72	198.40	296	1897	208.83	1.93	206.90	305
1898	219.25	8.69	210.56	298	1898	217.51	1.93	215.58	308
1899	232.57	8.88	223.69	287	1899	228.71	1.93	226.78	301
1900	290.27	9.65	280.62	297	1900	267.69	1.74	265.95	305
1901	261.04	10.14	250.90	295	1901	241.87	1.78	240.09	293
1902	242.96	10.07	232.89	282	1902	233.67	1.87	231.80	301
<b>CHARLEROI.</b>					<b>BELGIUM.</b>				
1889 (b)	171.36	1.35	170.03	289	1889	179.88	2.32	177.56	295
1890 (b)	214.23	3.86	210.37	287	1890	215.58	3.67	211.91	293
1891 (b)	203.62	4.25	199.37	276	1891	209.60	3.47	206.13	c 286
1892 (b)	185.67	4.44	181.23	281	1892	184.70	3.28	181.42	292
1893	174.09	3.86	170.23	288	1893	171.19	3.09	168.10	285
1894	183.16	3.48	179.68	297	1894	181.61	2.89	178.72	298
1895	185.09	3.09	182.00	296	1895	182.96	2.89	180.07	295
1896	191.84	3.09	188.75	300	1896	189.14	3.09	186.05	299
1897	202.46	3.09	199.37	299	1897	197.44	3.28	194.16	296
1898	216.16	3.09	213.07	300	1898	211.72	3.28	208.44	302
1899	232.57	3.09	229.48	286	1899	225.42	3.47	221.95	292
1900	289.12	3.90	285.22	299	1900	272.71	3.47	269.24	300
1901	256.06	2.62	253.44	292	1901	244.56	3.89	240.67	294
1902	242.03	3.44	238.59	292	1902	230.94	3.86	227.08	295

a Including western part of Charleroi.

b The western part of this district was included in Centre prior to 1893.

c See note a to table on page 125.

The amounts retained, as will be seen, vary greatly in the different districts and even in the same district from year to year. The deductions from gross annual earnings were greater in the Centre than in any other district, owing partly, perhaps, to the more general organization of provident institutions, retirement funds, medical services, etc., in that district. In addition, the medical service is almost entirely maintained at the expense of the employees.

The approximate earnings of miners proper (*ouvriers à veine*) are shown in the following table:

AVERAGE ANNUAL EARNINGS OF COAL MINERS PROPER IN BELGIUM, BY MINING DISTRICTS 1889 TO 1900.

[Source: 1889 to 1899 Statistique des mines, minières, carrières, etc. (Extraits des annales des travaux publics, tomes XLVIII-LII; Extraits des annales des mines, minières, carrières, etc., tomes I-V); 1900, Annales des mines, minières, carrières, etc., tome VI. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193.]

Year.	Couchant de Mons.	Centre. (a)	Charlerol. (b)	Namur.	Liege.	Belgium.
<b>Gross earnings:</b>						
1889	\$204.39	\$236.81	\$228.90	\$219.63	\$251.87	\$228.13
1890	239.71	333.70	309.57	296.64	300.89	292.01
1891	232.76	323.47	281.97	278.69	288.54	272.32
1892	193.19	272.13	237.78	212.30	244.15	232.95
<b>Net earnings:</b>						
1893	169.84	206.51	212.30	191.07	233.53	202.65
1894	194.93	235.46	223.88	212.30	245.11	221.95
1895	179.49	225.81	227.74	225.81	247.04	218.09
1896	191.07	248.97	243.18	229.67	248.97	230.44
1897	200.72	264.41	259.59	246.08	264.41	244.72
1898	230.64	279.85	282.75	273.10	275.03	265.76
1899	252.83	303.98	314.59	304.94	293.36	292.01
1900 (c)	299.15	386.00	403.37	390.83	351.26	361.30

a Prior to 1893 this district included the western part of Charlerol.

b Prior to 1893 the western part of this district was included in Centre.

c Data not published since 1900.

The following table shows, for each year from 1870 to 1902, the average daily earnings of all wageworkers employed in and about the coal mines of each coal-mining province, and the averages for the State. The average wages here reported were derived from data furnished to the Belgian mining office by the coal mine operators, and represent the total wage payments divided by the number of wageworkers and the average number of days worked during the year. The figures for the years 1870 to 1889 were furnished by the Belgian ministry of agriculture, industry, and public works to the British royal commission appointed in 1889 to investigate the subject of mining royalties and were published by the latter in its fourth report. The figures for subsequent years were obtained from Belgian official sources.

## AVERAGE DAILY GROSS EARNINGS OF COAL MINE EMPLOYEES IN BELGIUM, BY PROVINCES, 1870 TO 1902.

[Source: 1870 to 1889, Fourth Report of the Royal Commission on Mining Royalties, Great Britain; 1890 to 1899, *Statistique des mines, minières, carrières, etc.* (Extraits des annales des travaux publics, tomes XLIX-LII; Extraits des annales des mines de Belgique, tomes I-V); 1900, 1901, *Annales des mines de Belgique* tomes VI-VIII. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193. Earnings of salaried employees are not included.]

Year.	Hainaut.			Namur.			Liege.			Belgium.		
	Inside workers.	Surface workers.	Inside and surface workers.	Inside workers.	Surface workers.	Inside and surface workers.	Inside workers.	Surface workers.	Inside and surface workers.	Inside workers.	Surface workers.	Inside and surface workers.
1870	(a)	(a)	\$0.56	(a)	(a)	\$0.51	(a)	(a)	\$0.57	\$0.60	\$0.43	\$0.57
1871	(a)	(a)	.55	(a)	(a)	.45	(a)	(a)	.60	.60	.42	.56
1872	\$0.72	\$0.49	.68	(a)	(a)	.59	(a)	(a)	.68	.73	.48	.67
1873	.95	.56	.94	\$1.05	\$0.52	.90	\$0.85	\$0.52	.78	.97	.55	.87
1874	.87	.56	.90	.85	.47	.76	.82	.52	.77	.86	.55	.79
1875	.81	.55	.76	.87	.48	.75	.79	.49	.72	.81	.53	.75
1876	.92	.53	.67	.66	.43	.66	.72	.52	.69	.72	.52	.68
1877	.61	.47	.54	.56	.43	.52	.63	.48	.59	.61	.47	.58
1878	.57	.45	.59	.55	.43	.51	.63	.47	.58	.58	.47	.56
1879	.56	.46	.55	.54	.39	.49	.62	.46	.61	.58	.45	.55
1880	.62	.48	.61	.61	.45	.56	.67	.45	.63	.63	.47	.59
1881	.63	.48	.61	.58	.39	.53	.67	.48	.66	.64	.47	.60
1882	.66	.49	.64	.63	.41	.57	.67	.48	.66	.69	.48	.62
1883	.67	.48	.65	.68	.43	.61	.70	.50	.66	.70	.49	.64
1884	.63	.46	.60	.64	.44	.58	.66	.47	.62	.63	.46	.59
1885	.56	.43	.55	.54	.38	.50	.63	.45	.59	.58	.43	.54
1886	.55	.41	.52	.54	.35	.48	.62	.44	.61	.57	.42	.53
1887	.56	.42	.55	.51	.39	.52	.63	.45	.59	.58	.43	.54
1888	.58	.42	.56	.57	.37	.55	.65	.46	.61	.60	.50	.58
1889	.63	.46	.60	.62	.39	.57	.68	.47	.63	.66	.46	.61
1890	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.81	.50	.74
1891	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.81	.50	.73
1892	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.69	.46	.63
1893 (b)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.63	.46	.59
1894 (b)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.63	.47	.60
1895 (b)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.66	.47	.61
1896 (b)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.67	.47	.62
1897 (b)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.72	.49	.66
1898 (b)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.76	.50	.69
1899 (b)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	.84	.53	.76
1900 (b)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	1.01	.59	.90
1901 (b)	.91	.57	.81	1.00	.60	.88	.90	.58	.82	.91	.57	.82
1902 (b)	.86	.58	.78	.94	.58	.84	.85	.56	.78	.86	.57	.78

a Not reported.

b Net earnings.

The hours of labor below ground in coal mines vary with the occupation and the locality. The following table shows, by coal fields and by occupations, the number of hours per day, including the time of descent and ascent, that underground mine workers were employed in 1902:

HOURS WORKED PER DAY BELOW GROUND IN COAL MINES IN BELGIUM IN 1902, BY COAL FIELDS AND BY OCCUPATIONS.

[Source: Annales des mines de Belgique, tome IX.]

Coal field and occupation.	Number of mines.	Hours worked, including descent and ascent.	Coal field and occupation.	Number of mines.	Hours worked, including descent and ascent.
<b>COUCHANT DE MONS.</b>			<b>CHARLEROI—concluded.</b>		
Miners proper.....	3	9 - 9½	Gangway cutters.....	1	9
	15	10 - 11		33	9½ - 10
Shovelers and car men....	4	8½ - 9½	Gobbers.....	2	10½
	14	10 - 11½		28	9 - 9½
Crossway cutters.....	13	8 - 8½		5	9½ - 10½
	1	9	Hookers-on.....	9	11 - 12
	2	11		25	10 - 10½
Gallery men.....	18	8 - 9		1	11 - 12
Loaders and trammers....	3	10 - 10½			13
	13	11 - 12	<b>NAMUR.</b>		
	2	12½ - 12¾	Miners proper.....	5	8 - 9
Drivers.....	14	10½ - 11½		6	10
	4	12 - 12½	Shovelers and car men....	4	10
Gangway cutters.....	18	8 - 10		3	12
Gobbers.....	1	8½	Crossway cutters.....	1	8½
	12	9 - 10½		1	10
	1	12	Gallery men.....	5	8 - 8½
Hookers-on.....	1	11½	Loaders and trammers....	5	8 - 9
	16	12		2	10 - 10½
	1	12½	Drivers.....	4	11 - 12
<b>CENTRE.</b>			Gangway cutters.....	7	11 - 12
Miners proper.....	2	9		5	8 - 9
	8	10 - 11	Gobbers.....	6	10
Shovelers and car men....	2	9 - 9½		5	8 - 9
	7	10 - 11	Hookers-on.....	6	10
Crossway cutters.....	1	7		3	10 - 10½
	6	8 - 8½		2	12
	2	10 - 11	<b>LIEGE.</b>		
Gallery men.....	7	7½ - 8½	Miners proper.....	8	7½ - 8½
	3	9 - 10½		28	8½ - 9½
Loaders and trammers....	2	9 - 9½		4	10 - 11½
	8	10 - 11	Shovelers and car men....	16	8 - 9½
Drivers.....	4	9 - 10		21	9½ - 10½
	1	10½ - 11	Crossway cutters.....	2	11 - 11½
Gangway cutters.....	5	8 - 9½		8	8 - 8½
Gobbers.....	5	10 - 11		14	9 - 10½
	8	9 - 10	Gallery men.....	5	11 - 12
	2	10½ - 11		1	7½
Hookers-on.....	1	7½		21	8 - 9½
	2	8 - 9½	Loaders and trammers....	16	10 - 11½
	7	11 - 12		14	8½ - 9½
<b>CHARLEROI.</b>				24	10 - 11½
Miners proper.....	35	9½ - 10½		2	12
Shovelers and car men....	2	8 - 9	Drivers.....	5	9 - 9½
	15	10 - 11		30	10 - 11½
	15	11½ - 12½		2	12
Crossway cutters.....	1	6	Gangway cutters.....	14	8 - 9½
	30	7 - 8½		24	10 - 10½
Gallery men.....	35	8 - 9	Gobbers.....	2	11
Loaders and trammers....	3	10½ - 10¾		15	8 - 9½
	31	11 - 12	Hookers-on.....	25	10 - 11
	1	12½		4	8½ - 9½
Drivers.....	2	10½ - 10¾		8	10 - 10½
	32	11 - 12		28	11 - 11½
	1	12½			

The table which follows gives a résumé of the value of the product, the expenditures for wages and other purposes, the profit or loss from operations, and the proportion of the value of the product charged to wages, to other expenditures, and to profits, for each year from 1850 to 1902:

ANNUAL FINANCIAL RESULTS OF COAL MINING OPERATIONS IN BELGIUM FROM 1850 TO 1902.

[Source: Annales des mines de Belgique, tome IX, 2<sup>e</sup> livraison. Conversion of Belgian into United States money was made on the basis of 1 franc=\$0.193. The annual profit per metric ton and the percentages were computed. A metric ton = 2,204.6 pounds.]

Year.	Value of product.	Expenditure.			Profit from operations. (a)	Profit per metric ton.	Per cent of total value of product charged to—		
		Wages.	Other expenditures.	Total.			Wages.	Other expenditures.	Profits.
1850...	\$8,968,979	\$4,292,080	\$3,487,889	\$7,779,949	\$1,189,030	\$0.20	47.85	38.89	13.26
1851...	9,600,499	4,684,223	3,821,049	8,505,872	1,094,617	.18	48.79	39.81	11.40
1852...	10,242,517	5,061,700	4,091,780	9,153,460	1,089,057	.16	49.42	39.95	10.63
1853...	12,060,227	5,957,195	4,356,984	10,314,179	1,746,048	.24	49.39	36.13	14.48
1854...	16,570,520	7,972,756	5,632,335	13,604,991	2,965,529	.37	48.11	33.99	17.90
1855...	20,081,070	10,189,136	6,258,883	16,448,419	3,632,651	.43	50.74	31.17	18.09
1856...	20,353,541	10,187,300	6,802,032	16,989,332	3,363,559	.41	51.05	33.42	16.53
1857...	19,390,823	9,886,932	6,903,403	16,790,335	2,600,488	.31	51.99	35.60	13.41
1858...	19,951,784	10,219,828	7,166,723	17,386,561	2,565,333	.29	51.22	35.92	12.86
1859...	20,073,197	10,866,126	7,239,452	18,105,578	1,967,619	.21	54.13	36.07	9.80
1860...	20,675,585	10,946,186	7,422,323	18,368,489	2,307,076	.24	52.94	35.90	11.16
1861...	21,232,891	11,422,527	7,923,654	19,346,181	1,886,710	.19	53.80	37.32	8.88
1862...	20,165,647	10,721,274	7,955,173	18,676,447	1,489,200	.15	53.17	39.45	7.38
1863...	20,223,806	10,692,815	8,088,973	18,781,788	1,442,018	.14	52.87	40.00	7.13
1864...	21,336,955	11,003,987	8,269,928	19,273,896	2,063,060	.18	51.57	38.78	9.67
1865...	23,911,922	12,467,093	8,776,099	21,243,702	2,668,260	.23	52.14	36.70	11.16
1866...	29,149,094	14,519,309	10,161,473	24,680,782	4,468,312	.25	49.81	34.86	15.33
1867...	30,542,806	15,995,034	10,585,005	26,580,639	3,962,169	.31	52.37	34.66	12.97
1868...	25,798,431	13,876,730	10,031,329	23,908,059	1,890,372	.15	53.79	38.88	7.33
1869...	26,270,403	14,397,917	10,322,426	24,719,819	1,550,584	.12	54.81	39.29	5.90
1870...	28,686,521	16,594,713	10,684,941	26,279,658	2,406,863	.18	54.36	37.25	8.39
1871...	29,684,045	15,732,985	11,193,184	26,926,059	2,757,986	.20	53.00	37.31	9.29
1872...	40,251,966	19,985,788	13,409,017	33,394,895	6,857,071	.44	49.65	33.71	17.04
1873...	65,164,010	28,171,636	18,947,569	47,119,495	18,044,515	1.4	43.23	29.08	27.69
1874...	46,495,632	25,065,007	16,998,408	42,063,915	4,431,717	.30	53.91	36.56	9.53
1875...	44,359,144	24,860,071	17,009,786	41,870,157	2,488,987	.07	56.04	38.35	5.61
1876...	37,464,900	21,595,378	15,143,659	36,739,637	725,263	.05	57.64	40.42	1.94
1877...	29,520,783	16,328,711	13,405,784	29,734,495	213,712	b .02	55.31	45.41	b .72
1878...	28,529,324	16,067,012	12,760,337	28,827,439	297,915	b .02	56.31	44.73	b 1.04
1879...	27,983,978	15,555,053	12,461,378	28,017,531	b 33,553	(c)	55.59	44.53	b 1.12
1880...	32,748,141	18,289,866	13,715,034	32,005,900	742,341	.04	55.85	41.88	2.27
1881...	31,594,919	18,218,747	13,659,331	31,878,378	b 283,459	b .02	57.06	43.23	b .89
1882...	33,947,855	19,226,070	13,799,624	33,026,094	921,761	.05	56.64	40.65	2.71
1883...	33,662,229	20,629,480	14,152,914	34,782,394	879,635	.05	57.85	39.68	2.47
1884...	33,202,244	18,616,669	13,377,865	31,994,234	1,208,010	.07	56.07	40.29	3.64
1885...	29,839,679	16,182,012	12,319,459	28,502,371	1,337,308	.08	54.23	41.29	4.48
1886...	27,510,068	15,162,492	11,353,553	26,516,445	994,163	.06	55.12	41.27	3.61
1887...	28,501,022	15,845,225	10,968,786	26,814,111	1,686,981	.09	55.60	38.48	5.92
1888...	31,269,488	17,352,456	11,499,448	28,851,904	2,417,584	.13	55.49	36.78	7.73
1889...	36,229,655	19,485,999	12,511,843	31,997,742	4,231,913	.21	53.78	34.54	11.68
1890...	51,821,111	25,175,481	15,305,001	40,480,482	11,340,629	.55	48.58	29.54	21.88
1891...	47,758,018	24,944,725	15,892,691	40,837,366	6,921,352	.35	52.23	33.28	14.49
1892...	38,848,627	21,907,079	14,671,339	36,578,568	2,270,059	.12	56.39	37.77	5.84
1893...	35,011,332	20,004,180	13,772,330	33,777,110	1,234,222	.06	57.14	39.34	3.52
1894...	36,919,379	21,262,769	14,093,721	35,356,490	1,562,889	.08	57.59	38.18	4.23
1895...	37,318,036	21,759,537	13,957,855	35,716,638	1,601,398	.08	58.31	37.40	4.29
1896...	38,987,948	22,561,037	14,323,196	36,884,833	2,103,115	.10	57.87	36.74	5.39
1897...	42,589,715	23,788,008	15,026,355	38,815,363	3,774,452	.18	55.86	35.28	8.86
1898...	46,878,519	26,016,155	16,370,366	42,386,521	4,491,998	.20	55.50	34.92	9.58
1899...	52,967,673	28,224,417	17,439,518	45,633,835	7,303,738	.33	53.29	32.92	13.79
1900...	78,834,671	36,202,125	26,356,806	59,559,731	19,274,940	.82	45.92	29.63	24.45
1901...	65,286,899	32,793,871	22,493,357	55,287,428	9,999,471	.45	50.23	34.45	15.32
1902...	58,291,377	31,150,858	20,900,163	52,051,021	6,240,356	.27	53.44	35.85	10.71

a The figures in this column do not agree with those in the table on page 115 for reasons stated in note a to that table.

b Loss.

c Loss of \$0.002.



In the above table the expenditures for wages include money paid only to actual wageworkers above and below ground in coal mines. "Other expenditures" include the cost of coal consumed, timber, cables, oil, explosives, provender, land, rolling stock, machinery, tools, animals, etc.; the salaries of clerks, agents, and officials; compensation for damages to the surface, taxes, employer's contributions to miners' provident funds, and other expenses incident to the operation of the mines, including expenses incurred in opening mines that are not yet productive. Amounts charged against the wages of mine workers and interest paid on loans, which at times are quite heavy, are not included among the "other expenditures."

### ACCIDENTS.

Statistics of accidents in coal mines have been collected and compiled by the Belgian Government since 1831. These relate to both the number of persons killed and the number injured. Injured persons are employees who have received one or more serious wounds while at work. The mine regulations of April 28, 1884, define a serious injury as one which either causes death or which prevents the victim from continuing his normal work, either temporarily or permanently. Persons dying from injuries within one month of the accident are included among the killed.

The following table shows for each year from 1851 to 1902 the number of accidents and the number of persons killed and number injured in the coal mines of each province and in the Kingdom as a whole.



## EMPLOYEES, NUMBER OF ACCIDENTS, AND NUMBER OF EMPLOYEES KILLED AND NUMBER INJURED IN COAL MINES IN BELGIUM, BY PROVINCES, 1851 TO 1902.

[Source: 1851 to 1888, *Statistique des accidents survenus dans les charbonnages de 1831 à 1888* (Extrait des annales des travaux publics, tome XLVII); 1889 to 1899, *Statistique des mines, minières, carrières, etc.* (Extraits des annales des travaux publics, tomes XLVIII-LII; Extraits des annales des mines de Belgique, tomes I-V); 1900 to 1902, *Annales des mines de Belgique*, tomes VI-VIII.]

Year.	Number of employees.	Hainaut.			Namur.			Liege.			Total.		
		Accidents.	Persons killed.	Persons injured.	Accidents.	Persons killed.	Persons injured.	Accidents.	Persons killed.	Persons injured.	Accidents.	Persons killed.	Persons injured.
1851.....	49,500	89	68	28	9	3	6	34	37	12	132	106	46
1852.....	51,873	115	206	39	7	3	4	40	47	9	162	256	52
1853.....	54,204	94	100	17	4	1	1	40	42	13	134	142	30
1854.....	62,194	145	158	39	4	2	3	64	58	14	213	215	56
1855.....	70,980	155	151	53	5	2	4	67	81	18	227	234	75
1856.....	73,585	147	133	46	7	3	9	63	85	22	217	221	77
1857.....	72,577	117	104	29	6	5	1	68	68	22	191	177	52
1858.....	73,850	125	153	36	3	3	1	47	46	14	175	202	51
1859.....	77,293	149	135	19	8	7	1	54	51	27	211	193	47
1860.....	78,232	135	148	40	6	7	7	57	42	27	198	197	67
1861.....	81,675	121	134	43	11	7	9	64	53	17	196	194	69
1862.....	80,302	124	167	58	10	7	7	57	64	12	191	238	77
1863.....	79,187	117	150	45	7	5	2	53	51	13	177	206	60
1864.....	79,779	137	142	48	19	7	17	57	47	17	213	196	82
1865.....	82,368	110	174	16	5	3	2	61	85	20	176	262	38
1866.....	86,721	139	132	30	10	6	7	76	67	16	225	205	53
1867.....	93,339	103	149	51	13	7	6	57	69	9	233	225	66
1868.....	89,352	161	209	36	9	3	6	63	57	22	233	269	64
1869.....	89,928	160	184	24	7	5	2	52	44	13	219	233	39
1870.....	91,993	147	143	32	7	9	9	61	46	22	215	198	63
1871.....	94,286	130	171	29	8	7	3	86	64	27	224	242	59
1872.....	98,863	149	197	19	8	8	1	81	98	24	238	303	44
1873.....	107,902	169	181	33	10	10	3	91	66	35	270	257	71
1874.....	109,631	152	165	52	10	7	3	90	69	51	252	241	106
1875.....	110,720	134	249	26	11	11	1	78	92	48	223	352	75
1876.....	108,543	136	133	12	7	7	1	69	48	33	212	186	46
1877.....	101,343	114	106	18	8	7	4	72	40	43	194	155	65
1878.....	99,032	147	150	29	6	5	4	78	45	47	233	200	80
1879.....	98,714	140	258	56	7	7	7	70	49	34	217	314	90
1880.....	102,930	144	209	54	4	3	1	85	64	33	233	276	88
1881.....	101,351	175	183	59	5	5	5	57	108	18	237	296	77
1882.....	103,701	153	151	28	7	5	6	76	58	30	236	214	64
1883.....	105,252	164	173	24	6	6	6	59	48	47	259	227	71
1884.....	105,582	168	189	40	9	6	4	73	41	37	250	236	81
1885.....	103,095	138	156	70	1	1	1	41	32	15	180	189	85
1886.....	100,282	134	100	46	7	4	3	41	29	28	182	133	77
1887.....	100,739	141	259	44	3	2	1	34	25	19	178	286	64
1888.....	103,477	147	140	51	8	5	2	44	35	12	199	147	65
1889.....	108,382	168	107	84	5	2	3	45	38	14	218	181	101
1890.....	116,779	153	140	40	8	8	2	41	35	7	202	182	49
1891.....	118,983	146	131	50	8	5	3	31	16	19	197	167	69
1892.....	118,578	175	310	66	3	2	2	31	24	11	209	337	79
1893.....	116,861	153	99	62	7	5	2	31	27	9	191	131	78
1894.....	117,103	199	146	95	15	11	8	43	33	15	257	199	118
1895.....	118,957	241	130	118	6	1	6	36	27	9	283	158	133
1896.....	119,246	248	102	156	2	2	2	38	32	8	288	136	166
1897.....	120,382	251	91	172	4	3	2	51	30	27	306	124	201
1898.....	122,846	249	137	159	20	5	18	50	30	32	319	172	209
1899.....	125,258	215	92	130	15	2	13	43	27	20	273	121	163
1900.....	132,749	231	103	133	23	8	18	50	29	24	304	140	175
1901.....	134,092	234	126	145	19	4	18	44	27	20	297	157	183
1902.....	134,889	280	108	177	16	6	11	52	30	28	348	144	216

<sup>a</sup> These figures should apparently be 231.

<sup>b</sup> These figures should apparently be 164.

The official report entitled *Statistique des accidents survenus dans les charbonnages de 1831 à 1888* contains, in addition to the information shown in this table, statistics of accidents occurring from 1831 to 1860, grouped by 10-year periods. During the decade from 1831 to 1840 there were for the whole Kingdom a total of 766 accidents, in which 988 persons were killed and 514 were injured. During the decade from 1841 to 1850 there were 1,698 accidents, which resulted in 1,273 deaths and the injury of 1,139 persons.

The next table shows for the Kingdom as a whole the number of persons killed per 1,000 employed and per 1,000,000 metric tons of coal mined during each year from 1851 to 1902. The figures have been computed from data contained in preceding tables.

EMPLOYEES KILLED PER 1,000 EMPLOYED IN COAL MINES AND PER 1,000,000 METRIC TONS OF COAL MINED IN BELGIUM, 1851 TO 1902.

[Computed from data contained in other tables in this report. A metric ton=2,204.6 pounds.]

Year.	Number killed per 1,000 employees.	Number killed per 1,000,000 metric tons of coal mined.	Year.	Number killed per 1,000 employees.	Number killed per 1,000,000 metric tons of coal mined.	Year.	Number killed per 1,000 employees.	Number killed per 1,000,000 metric tons of coal mined.
1851.....	2.18	17.33	1869.....	2.59	18.00	1887.....	2.84	15.56
1852.....	4.94	37.67	1870.....	2.15	14.46	1888.....	1.75	9.42
1853.....	2.62	19.80	1871.....	2.57	17.62	1889.....	1.36	7.40
1854.....	3.51	27.43	1872.....	3.06	19.35	1890.....	1.56	8.94
1855.....	3.30	27.83	1873.....	2.38	16.29	1891.....	1.40	8.49
1856.....	3.00	26.91	1874.....	2.20	16.43	1892.....	2.84	17.21
1857.....	2.44	21.11	1875.....	3.18	23.45	1893.....	1.12	6.75
1858.....	2.74	22.63	1876.....	1.73	13.12	1894.....	1.62	9.25
1859.....	2.50	21.07	1877.....	1.53	11.12	1895.....	1.33	7.72
1860.....	2.52	20.50	1878.....	2.02	13.42	1896.....	1.14	6.40
1861.....	2.38	19.29	1879.....	3.18	20.33	1897.....	1.03	5.77
1862.....	2.96	23.95	1880.....	2.68	16.36	1898.....	1.40	7.79
1863.....	2.60	19.91	1881.....	2.92	17.54	1899.....	.97	5.48
1864.....	2.46	17.57	1882.....	2.06	12.17	1900.....	1.05	5.97
1865.....	3.18	22.13	1883.....	2.14	12.49	1901.....	1.17	7.07
1866.....	2.36	16.05	1884.....	2.24	13.07	1902.....	1.07	6.29
1867.....	2.41	17.64	1885.....	1.83	10.84			
1868.....	3.01	21.87	1886.....	1.33	7.69			

The above table shows that there were considerable fluctuations from year to year, both as to the death rate per 1,000 employees and per 1,000,000 tons of coal mined, but that the tendency is downward. The highest rates were shown for 1852 and the lowest for 1899.

The next table shows the coal mine accidents by causes.

ACCIDENTS IN COAL MINES AND THEIR RESULTS, BY CAUSES, 1861 TO 1902.

[Source: 1861 to 1888, Statistique des accidents survenus dans les charbonnages de 1831 à 1888 (Extrait des annales des travaux publics, tome XLVII); 1889 to 1899, Statistique des mines, minières, carrières, etc. (Extraits des annales des travaux publics, tomes XLVIII-LII; Extraits des annales des mines de Belgique, tomes I-V); 1900 to 1902, Annales des mines de Belgique, tomes VI, VIII.]

Year.	Breaking of ropes and chains in shafts.			Ladder accidents in shafts.			Other shaft accidents.			Cave-ins, falling of rocks, etc.			Fire-damp explosions.		
	Acci- d'nts.	Per- sons kill'd.	Per- sons in- jur'd.	Acci- d'nts.	Per- sons kill'd.	Per- sons in- jur'd.	Acci- d'nts.	Per- sons kill'd.	Per- sons in- jur'd.	Acci- d'nts.	Per- sons kill'd.	Per- sons in- jur'd.	Acci- d'nts.	Per- sons kill'd.	Per- sons in- jur'd.
1861	25	24	9	6	4	2	22	26	1	79	71	13	7	20	22
1862	33	46	10	2	2	2	31	20	5	63	62	8	5	46	33
1863	26	29	10	2	1	1	17	16	4	74	76	11	8	46	17
1864	29	27	13	6	4	2	26	26	11	84	76	13	6	15	29
1865	31	39	3	4	3	1	19	20	5	58	54	7	5	63	10
1866	30	35	11	5	4	1	28	26	2	91	87	10	8	3	11
1867	22	24	4	4	4	1	31	26	5	89	98	15	5	14	14
1868	31	37	13	11	10	2	21	20	2	90	88	9	4	58	4
1869	22	22	1	8	7	1	19	15	4	80	77	10	6	14	6
1870	40	40	6	6	5	1	22	22	3	75	70	10	8	14	26
1871	26	31	2	2	2	1	19	17	1	95	84	19	5	52	11
1872	20	43	3	2	2	1	31	33	4	85	82	8	9	34	9
1873	30	37	13	3	3	1	21	21	2	114	112	16	9	12	16
1874	30	27	14	6	6	1	30	31	4	79	68	18	8	24	36
1875	20	25	4	3	2	1	32	30	3	79	68	18	5	162	21
1876	23	20	4	6	5	1	29	30	5	67	62	11	5	2	7
1877	28	23	10	1	1	1	26	21	5	61	53	15	4	3	5
1878	22	32	8	5	4	1	21	21	3	89	75	19	5	2	14
1879	11	16	8	3	3	1	23	27	1	78	64	15	7	133	41
1880	18	26	5	3	3	1	30	30	1	79	63	23	7	79	32
1881	17	14	3	5	5	1	22	20	3	69	64	8	7	98	34
1882	18	19	2	1	1	1	13	13	1	92	91	14	6	3	19
1883	15	15	7	5	4	1	22	18	6	98	87	15	6	18	12
1884	15	11	7	2	2	1	20	14	6	87	72	16	7	48	13
1885	10	8	11	1	1	1	15	15	1	66	61	11	9	16	33
1886	13	12	4	1	1	1	16	13	3	75	57	20	5	4	10
1887	16	13	4	1	1	1	17	14	5	76	65	16	4	149	18
1888	12	11	4	3	3	1	17	15	2	79	64	20	3	32	7
1889	14	10	11	1	1	1	13	10	3	82	60	26	7	5	13
1890	14	27	1	1	1	1	14	12	2	85	73	15	4	9	3
1891	17	15	3	1	1	1	7	6	1	74	57	20	3	29	4
1892	16	16	4	4	4	1	14	15	1	74	55	23	3	162	10
1893	7	6	2	1	1	1	16	16	3	74	52	23	3	7	10
1894	21	25	12	1	1	1	13	11	2	100	76	32	9	21	10
1895	14	9	5	1	1	1	16	10	6	110	81	32	3	1	2
1896	8	5	3	1	1	1	8	3	5	116	63	57	1	1	1
1897	10	5	7	1	3	1	7	4	3	116	67	57	1	1	2
1898	9	23	10	1	1	1	4	3	2	132	62	74	8	29	10
1899	12	10	2	1	1	1	16	8	8	85	48	43	1	1	4
1900	11	10	1	1	1	1	14	9	5	108	57	53	4	1	6
1901	9	5	4	1	1	1	21	25	10	104	51	58	3	19	5
1902	6	5	1	2	1	1	19	16	4	115	58	63	11	11	4

## ACCIDENTS IN COAL MINES AND THEIR RESULTS, BY CAUSES, 1861 TO 1902—Concluded.

[Source: 1861 to 1888, Statistique des accidents survenus dans les charbonnages de 1831 à 1888 (Extrait des annales des travaux publics, tomes XLVII); 1889 to 1899, Statistique des mines, minières, carrières, etc. (Extraits des annales des travaux publics, tomes XLVIII-LII; Extraits des annales des mines de Belgique, tomes I-V); 1900 to 1902, Annales des mines de Belgique, tomes VI, VIII.]

Year.	Irruption of water.			Handling and use of explosives.			Other causes (including all surface accidents).			Total.		
	Accidents.	Persons killed.	Persons injured.	Accidents.	Persons killed.	Persons injured.	Accidents.	Persons killed.	Persons injured.	Accidents.	Persons killed.	Persons injured.
1861	1	1		10	6	7	46	42	15	196	194	69
1862	1	14		7	5	7	49	45	12	191	238	77
1863				7		8	43	37	9	177	206	60
1864				10	7	4	52	41	10	213	196	82
1865	2	33		4	1	3	53	40	14	176	262	38
1866				8	4	9	55	46	9	225	205	53
1867	2	3		4	3	1	76	53	27	233	225	66
1868	1	2		6	3	15	69	51	19	233	269	64
1869	2	30		10	9	3	72	69	14	219	233	39
1870				3	2	1	61	45	16	215	198	63
1871	1	2		11	7	6	65	47	21	224	242	59
1872	3	29	1	6	5	4	32	75	15	238	303	44
1873	1	4		10	6	5	82	62	19	270	257	71
1874	2	8	4	16	9	12	81	68	18	252	241	106
1875				9	6	8	75	59	20	223	352	75
1876				9	5	8	73	64	10	212	188	46
1877	2	3		15	7	12	57	44	18	194	155	65
1878				9	5	10	80	61	25	231	200	80
1879				12	9	6	83	62	19	217	314	90
1880				9	3	8	87	72	19	233	276	88
1881	1	2		12	5	8	104	88	21	237	296	77
1882	1	1		14	10	11	91	76	17	236	214	64
1883	1	3		9	6	5	103	76	32	259	227	71
1884	2	2		26	12	21	91	75	18	250	236	81
1885	2	5		6	2	5	71	81	24	180	189	85
1886				19	6	23	54	41	17	182	133	77
1887				12	5	7	52	39	14	178	286	64
1888				11	5	7	74	51	25	199	181	65
1889		2	1	16	5	14	84	55	33	218	147	101
1890	2	1	1	10	3	8	73	57	19	202	182	49
1891	1	1		17	6	14	77	52	26	197	167	69
1892				14	5	12	84	80	30	209	337	79
1893				12	6	7	78	43	38	191	131	73
1894				9	2	9	104	54	53	257	190	118
1895				16	3	17	124	54	71	283	158	133
1896				8	2	8	147	63	90	288	136	166
1897				26	3	24	145	42	107	306	124	201
1898				12	1	12	153	53	101	319	172	209
1899	1	2		16	2	15	141	51	90	273	121	183
1900	1	2		17	4	15	149	57	95	304	140	175
1901	1	1		6	1	5	152	54	101	297	157	183
1902				16	3	14	179	50	129	348	144	216

\* These figures should apparently be 164.

More fatalities were due to cave-ins, including falls of rock, etc., than to any other of the specified causes, while fire-damp explosions were next in importance. The number of deaths from accidents shows a tendency to decrease as a whole, and there has been a decrease in the number of deaths from nearly all the specified causes, which is more noticeable when the decennial averages are compared. The decrease in the number of deaths from fire-damp explosions and from explosives has not been so marked except during the last 10 years of the period. Violent explosions due to the sudden liberation and ignition of fire damp were formerly of rare occurrence, but became more frequent as mining operations were carried to greater depths. The death rate per 1,000 employees from fire-damp explosions, as given in the Belgian reports by 10-year periods from 1831, is reported as follows: from 1831 to 1840, 0.97; from 1841 to 1850, 0.74;

from 1851 to 1860, 0.42; from 1861 to 1870, 0.34; from 1871 to 1880, 0.48; from 1881 to 1890, 0.36; from 1891 to 1900, 0.21. Thus the death rate from this cause has fallen, notwithstanding the increasing danger of the occurrence of such accidents.

### MINERS' RELIEF FUNDS.

The first attempt in Belgium to provide relief for miners in case of accident and invalidity was made in 1812 in the department of the Ourthe. Owing to insufficient support this fund was abandoned after a few years, and it was not until 1830 that a second attempt was made. In that year a number of mine owners in the Liege coal field organized a district provident fund (*caisse de prévoyance commune*) for their employees. In 1839 this fund received the royal approval, and soon after similar funds were organized for the coal fields of Luxemburg, Namur, Couchant de Mons, Charleroi, and Centre. These societies are still in existence and at the present time include nearly all of the coal mining firms in their respective sections. Newly organized firms are required by law to affiliate with these societies.

The legal standing of the provident funds is regulated by the law of 1868, under the provisions of which the Government may recognize them as mutual aid funds when their constitutions contain certain general provisions.

The object of the provident funds is the granting of temporary assistance and of pensions: (a) To workmen engaged in the affiliated establishments; (b) to the widows and the families of these workmen.

To be officially recognized the societies must deposit their rules with the proper official of the ministry of public works. The provident funds enjoy the following advantages: (a) The right of suing and of being sued in the courts; (b) exemption from stamp and registry duties; (c) the right to receive gifts and donations.

The details of the organization of the funds are regulated by royal decrees. The pensions and aid granted by the funds can not be levied upon or otherwise seized by legal process. The funds must send each year to the proper officials of the ministry of public works an account of their receipts and expenditures.

The administration of each fund is vested in the hands of an administrative commission, of which the governor of the province or the commissioner of the district is president *ex officio*. The other members consist of the chief engineer of mines (*ex officio*), a number of representative mine owners or managers of mines, and a number of mine foremen. They serve without pay, though transportation and actual expense of subsistence while on duty are provided. Above the provincial commissions stands a national commission on provident funds, appointed by the King and located in the ministry of public works.

The principal features of the constitution of the Charleroi provident fund are described to show the organization and operation of a typical provident fund, though part of this constitution will have to be revised to make it conform to the law of 1903.

The present constitution of the Charleroi fund was adopted in 1882. The society is a provident fund established for the benefit of the workmen employed in the operation of the mines and other branches of industry in the coal basin of Charleroi in the province of Hainaut, and is conducted under the provisions of the laws of March 28, 1868, and of December 24, 1903. Those participating in the fund are the employees of establishments whose properly authenticated proprietors, directors, etc., have subscribed or will subscribe to the rules of the society. The administrative commission has the sole power to decide as to the admission of new members into the fund. Unless otherwise stipulated, the affiliation of a mine includes all persons engaged in that mine.

The resources of the fund are: (1) The actual assets of the society; (2) the contributions of the mine owners, equal to  $1\frac{1}{2}$  per cent of the wages paid to the workmen; (3) the subsidies of the state and province; (4) gifts, legacies, and other donations. The fund continues the payment of the pensions and relief granted in the earlier years of the association.

Each establishment affiliated with the society has a special aid fund, entirely distinct from the provident fund. Its object is to provide medical aid to injured employees, to grant a pension to such employees for a period not to exceed six months, and, in case of death, to pension their widows and orphans.

In the Charleroi society no deductions for the provident fund or for the special-aid fund may be made from the employees' wages, although in several societies such deductions are made.

The administration of the fund is vested in the hands of an administrative commission of fifteen members. The governor of the province, the commissioner of the district, and the engineer of mines are members ex officio of the commission. The other members of this commission are elected by the society, 8 from the proprietors, directors, etc., and 5 from the foremen, bosses, and workingmen. The elected members serve for a period of 2 years. The commission elects its own officers and appoints the necessary employees of the fund, including the medical officers. The decisions of the commission are by majority vote, but a majority of seven votes is necessary to grant or withdraw a life pension. All mine owners affiliated with the fund transmit each year to the commission a statement of the sums paid and distributed by them on account of the provident fund and on account of the special-aid fund. The commission publishes the tables for the whole fund in May of each year. The commission directs the financial operations

of the fund and decides upon the applications for pensions and other relief.

The Charleroi fund grants both life and temporary pensions as well as temporary relief to injured persons who have not been cured within the six months during which they received aid from the special-aid fund. In addition, aid may be granted in special cases. All pensions must be revised each year after an examination of the condition of the pensioner. The decision of the administrative commission rejecting an application for a pension is subject to appeal to the general assembly of the fund, which may return the application to the commission with instructions for action.

A life pension is granted: (1) To all workmen incapacitated for work as a result of accident; (2) to the widows of workmen killed in an accident; (3) to the dependent parents or grandparents when the deceased was their principal support; (4) to each workman 65 years of age who has been connected with the establishment for 30 complete years. This age of 65 years is reduced to 60 if the workman has been employed underground the greater part of his service. The pension is regulated according to the nature of the work, the amount of the earnings, and the length of service of the workman.

A temporary pension is granted to: (1) The children of a workman who has been incapacitated for work as the result of an accident; (2) the children of a widow whose husband was killed by an accident; (3) children with neither parent living, in case the last surviving parent was killed by an accident; (4) the brothers and sisters of a workman who has been killed by an accident, when they are in need and the deceased was their principal support.

These pensions cease when the recipients reach the age of 16 years. The child of a father or mother receiving a pension, born after the granting of this pension, is entitled to a temporary pension, but no pension will be granted to the children of a marriage contracted by a person receiving a pension. A widow who remarries loses her right to the pension, but is granted, as a settlement, a sum equal to three times the amount of the annual pension. No pension or other assistance is granted to a workman who purposely injures himself, or to the widow, children, or parents of a workman who commits suicide.

In the interval between an accident and the granting of the relief or pension by the provident fund, the special-aid funds connected with each establishment must make proper provision for each case, this provision to be continued for 6 months, and to equal in amount that granted by the provident fund. The administrative commission may reject claims for pensions, etc., if they are not filed within 12 months after the accident, or soon enough to identify the connection between the accident and the disability.



The establishments affiliated with the fund must make a report every 3 months showing, first, the amount due to the fund by the owners of the mining establishments, and second, the amounts disbursed by the establishments on the orders of the commission.

The general assembly of the fund holds a regular annual meeting. This assembly is composed of representatives of all the establishments affiliated with the fund, the establishments being entitled to votes in proportion to the number of their employees, each establishment having at least 1 vote but none having more than 10 votes.\* The assembly elects the officers and administrative commission of the fund and approves the statement of the accounts of the fund.

The following tables compiled from an unofficial source show the pensions and other relief provided by the Charleroi provident fund. The accident rates, however, are regulated by the law of December 24, 1903, and in cases where the accompanying rates are less than the rates prescribed by that law, an increase will be made after the law is put into force in 1905.

RATES OF PENSIONS OF THE MINERS' PROVIDENT FUND OF CHARLEROI, BELGIUM. (e)

[Source: Étude sur les pensions ouvrières d'invalidité et de vieillesse, par Jules Dallemagne. 1897. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193.]

Pension payable to—	Amount per year.
An invalid or permanently injured miner (b).....	\$31.27 to \$52.11
The widow of a boss killed by an accident.....	46.90
The widow of a miner killed by an accident.....	41.69
The parent (widower father or widowed mother) of a miner killed by an accident.....	34.74
The parents (each) of a miner killed by an accident.....	24.32
An aged and invalid boss.....	22.20
An aged and invalid miner.....	19.30
The widow of an invalid or permanently injured miner (c).....	17.37 to 27.79
The child of an invalid or permanently injured miner.....	10.42
The child of a miner killed by accident (mother living).....	10.42
A child who has lost both parents (d).....	21.73
The brother or sister of a miner killed by an accident.....	12.16 to 24.32

a For the basis on which these rates must be revised for use in 1905 see pages 150 to 152.

b The amount of this pension is determined according to the gravity of the injury or invalidity.

c The amount of this pension is fixed according to the age, the composition of the family, and the resources of the widow. The maximum amount is given to aged widows, without unmarried children, and without income. A widow whose support is assured wholly or in part, either by property of her own or by her children, is ordinarily granted the minimum pension.

d In case the family contains more than one child, the pension for each orphan to the number of 3 is \$21.73 per year; to the number of 4, \$20.84; to the number of 5 or 6, \$17.37.

## RATES OF COMPENSATION ALLOWED TO INJURED MINE EMPLOYEES BY THE MINERS' PROVIDENT FUND OF CHARLEROI, BELGIUM. (e)

[Source: Étude sur les pensions ouvrières d'invalidité et de vieillesse, par Jules Dallemagne. 1897. These rates of compensation are based on the amounts which would be granted for total invalidity. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193.]

For those earning daily—	Per diem compensation.	For those earning daily—	Per diem compensation.	For those earning daily—	Per diem compensation.	For those earning daily—	Per diem compensation.
<sup>b</sup> \$0.69	\$0.21	\$0.56	\$0.16	\$0.42	\$0.13	\$0.29	\$0.09
.68	.20	.54	.16	.41	.12	.27	.08
.66	.20	.52	.15	.39	.11	.25	.07
.64	.20	.50	.14	.37	.11	.23	.07
.62	.19	.48	.14	.35	.11	.21	.06
.60	.18	.46	.14	.33	.11		
.58	.17	.44	.14	.31	.10		

<sup>a</sup> For the basis on which these rates must be revised for use in 1905 see pages 150 to 152.

<sup>b</sup> Or over.

In addition to the pensions and compensation just described, the Charleroi society has the following system of optional relief (*secours facultatifs*) which may be granted to those members who would not otherwise be entitled to relief: The parents of a miner who has been killed by an accident receive a compensation of 0.55 franc (10.6 cents) per day during the first year, and from 0.30 franc to 0.50 franc (5.8 to 9.7 cents) after the first year; an aged or invalid boss receives from 0.35 to 0.55 franc (6.8 to 10.6 cents) per day, while an aged or invalid miner receives from 0.30 to 0.45 franc (5.8 to 8.7 cents) per day. In granting this relief the following facts are taken into consideration: (a) The needs of the family; (b) the kind of work which the member has performed; (c) amount of his earnings; (d) the length of time during which he has worked in the affiliated establishment.

Up to 1901 the different provident funds had no reciprocal arrangements by which a mine worker who had worked in more than one coal field could receive proper credit for the time spent in regions other than the one where he was last employed. Thus a mine worker 65 years of age, who had worked for 40 years in the different fields of the province of Hainaut, e. g. 15 years in the Centre, 15 years in the Charleroi and 10 years in the Couchant de Mons field, would have received no pension whatever if the Centre had been his last place of employment, and if the Couchant de Mons had been the last place, the pension would have been a reduced one, equal in amount to slightly over one-third of the normal pension. Since 1901, it has been arranged that these three funds are to grant pensions to workingmen for the total number of years which they have been employed in the province, each fund to grant a partial pension, based on the number of years the miner was employed in its district.

When the proposal for a general accident insurance law was being discussed in 1903, the status of the miners' provident funds was given careful consideration, the conclusions of which are summarized in a statement prefixed to the law itself. The varied activity of the funds and their great value to the workingmen was admitted, but the

fact that they are not insurance organizations operating on an actuarial basis was clearly recognized. In order therefore to make use of their valuable features, the Government decided to retain these organizations as the administrative organs of the law, but to require them to make certain modifications which would put them into harmony with the rest of the system. As passed on December 24, 1903, the accident insurance law contains in article 38 the following provisions, which take the place of corresponding provisions in the law of 1868:

(1) The funds must be recognized by the Government, their constitutions revised and submitted for approbation. (2) The funds must continue the payment of the pensions for accidents begun before the enforcement of this law. (3) The constitutions must provide (a) that all subsidies or contributions for the compensation of accidents to workmen must be at the expense of the proprietor of the establishment; (b) that the funds must provide for the payment of the indemnities and pensions indicated in the law; (c) that the administration and the accounting of the accident compensation must be kept separate from the relief for invalidity and old age; (d) that the provident funds must establish such reserves, guarantees, etc., as shall be ordered by royal decree; (e) that the compensation must not be less than that granted by this law to workmen in other industries; (f) that the constitution shall specify under what conditions an employer can withdraw from the provident fund. Provision may be made for a board of arbitration to which appeals may be made on questions of compensation. The permanent commission on miners' provident funds is to be reorganized by royal decree.

The benefits hitherto given by the six provident funds will therefore have to be revised when the general accident insurance law goes into effect. The benefits to be granted under the new system may be summed up as follows: In case of total invalidity resulting from an accident while at work, the workman is entitled to a pension equal to 50 per cent of his average daily wage; if the incapacity is or becomes partial, the pension will be equal to 50 per cent of the reduction in earning power which the injury has caused. The proprietor of the establishment must furnish medical service and pharmaceutical supplies to the injured workman. If the accident is a fatal one, the compensation comprises: (1) A funeral benefit of 75 francs (\$14.48); (2) the payment to the dependents of the deceased of a sum which would have furnished to the deceased a life annuity equal to 30 per cent of his annual wages. This sum is to be calculated from the tables shown on pages 151 and 152.

The sum is to be divided among the following persons: (a) The consort (either husband or wife) if the same has not been divorced

or legally separated, the widower; however, having a claim to this compensation only when the widow was his sole support; (b) the lawful children of the deceased, as well as among other children under certain circumstances, if the said children are less than 16 years of age; (c) the grandchildren, less than 16 years of age, and the parents and grandparents in case the deceased was their sole support; (d) the brothers and sisters of the deceased, under 16 years of age, in case the deceased was their sole support.

The consort has the right to three-fifths of the amount required to be paid by the employer if there is more than one child, otherwise the consort is entitled to four-fifths of the compensation. The shares of the consort and parents of the deceased are to be converted into life pensions, while the shares of the children are to be converted into pensions which will cease when the children reach 16 years of age. The judge of the court may order other arrangements as to the disposal of the capital sum if he decides that such changes are for the best interests of the parties involved.

Article 8 of the law specifies carefully the manner in which the wages earned by the deceased are to be calculated. If the annual wages exceed 2,400 francs (\$463.20) the excess of this amount is not to be considered when calculating the pension.

The compensations described above are to be paid by the proprietor of the establishment; he is permitted to make arrangements with such private corporations or with such mutual aid societies as have been authorized by the Government to insure employees against industrial accidents, but in no case may the indemnities provided be less than the amounts specified by the law.

The right to the compensation described may not be waived, nor may the sum be levied upon or otherwise seized by legal process.

The following tables show the rates at which the life pensions and the children's temporary pensions are to be calculated. For convenience, the figures for only 5-year periods are given for the adult pensions.

TABLE FOR THE CALCULATION OF LIFE PENSIONS AND RESERVES, TO BE USED IN CONNECTION WITH THE ACCIDENT RELIEF OF THE MINERS' PROVIDENT FUNDS.

[Source: *Revue du travail*, August, 1904. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193.]

Age.	Present value of an annual pension of 1 franc (\$0.193).	Annual pension secured from the payment of 1 franc (\$0.193).	Age.	Present value of an annual pension of 1 franc (\$0.193).	Annual pension secured from the payment of 1 franc (\$0.193).
12 years .....	\$4.8834	\$0.0076	55 years .....	\$2.5730	\$0.0145
15 years .....	4.7533	.0078	60 years .....	2.1994	.0169
20 years .....	4.5483	.0082	65 years .....	1.8278	.0204
25 years .....	4.3550	.0086	70 years .....	1.4725	.0253
30 years .....	4.1326	.0090	75 years .....	1.1475	.0325
35 years .....	3.8791	.0096	80 years .....	.8644	.0431
40 years .....	3.5639	.0104	85 years .....	.6304	.0591
45 years .....	3.2784	.0114	90 years .....	.4470	.0833
50 years .....	2.9359	.0127			

TABLE FOR THE CALCULATION OF TEMPORARY PENSIONS AND RESERVES, TO BE USED IN CONNECTION WITH THE ACCIDENT RELIEF OF THE MINERS' PROVIDENT FUNDS.

Source: Revue du travail, August, 1904. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193.]

Age.	Present value of a temporary pension of 1 franc (\$0.193).	Temporary pension secured from the payment of 1 franc (\$0.193).	Age.	Present value of a temporary pension of 1 franc (\$0.193).	Temporary pension secured from the payment of 1 franc (\$0.193).
Under 1 year .....	\$1.9706	\$0.0189	8 years .....	\$1.3974	\$0.0287
1 year .....	2.1964	.0170	9 years .....	1.2425	.0300
2 years .....	2.1568	.0173	10 years .....	1.0620	.0344
3 years .....	2.0623	.0181	11 years .....	.9159	.0407
4 years .....	1.9484	.0191	12 years .....	.7442	.0501
5 years .....	1.8231	.0204	13 years .....	.5669	.0657
6 years .....	1.6888	.0221	14 years .....	.3839	.0970
7 years .....	1.5463	.0241	15 years .....	.1950	.1910

As at present arranged, therefore, the sickness, accident, invalidity, and old-age insurance of miners in Belgium is conducted by the miners' provident funds, which are required to maintain these sections or departments: First, the special aid funds, located at each establishment, which make provision for sickness and for the immediate relief of distress caused by the occurrence of accident and invalidity; second, the accident section of the miners' provident funds, which is to be regulated by the law of December 24, 1903; and third, the invalidity and old-age section, which provides invalidity and other relief not undertaken by the above-named sections of the provident funds.

The accident compensation law of December 24, 1903, was not put into force until July 1, 1905, and official reports on the operation of the law will not be available for several years. Statistical data and descriptive information on the accident relief of miners, therefore, must be confined to the operations of the provident funds for the period ending December 31, 1902.

The sick insurance and the immediate relief needed after an accident are supplied by the special aid funds which the law requires each mine owner to create for his own establishment. These funds are managed by committees at each establishment and are entirely independent of each other. They may be regarded as auxiliary funds of the six large miners' provident societies, which in some cases make general rules for the management of the special-aid funds. The Charleroi society, for instance, forbids the employers to make any deductions from wages for the support of the special-aid funds. The Centre society requires that a sum of not less than three-fourths of 1 per cent of the wage payments shall be paid to the special-aid funds, one-half the amount to be deducted from wages. In the Luxemburg society this rate is 1 per cent of the wage payments, half of which is deducted from wages. The

aid granted varies greatly. Some funds provide money relief and medical service to sick and injured members; others extend this relief to the family of the members. Some distribute bread and coal, provide pensions which run for long periods, and subsidize hospitals, lodging houses, and schools. The statistical returns of the work of the special aid funds are shown on pages 157 and 158 for the four years 1894, 1895, 1901, and 1902.

The following table shows the membership, receipts, expenditures, liabilities, and assets of the provident funds of Couchant de Mons, Charleroi, Centre, Liege, Namur, and Luxemburg for the years 1845, 1850, 1860, 1870, 1871, 1873 to 1902:

MEMBERSHIP, RECEIPTS, EXPENDITURES, LIABILITIES, AND ASSETS OF THE SIX MINERS' PROVIDENT FUNDS OF BELGIUM, 1845 TO 1902.

[Source: Annuaire statistique de la Belgique, 1871-1902. The six provident funds are those of Couchant de Mons, Charleroi, Centre, Liege, Namur, and Luxemburg. Conversion of Belgian into United States money was made on the basis of 1 franc=\$0.193.]

Year.	Member-ship.	Receipts.					Total.
		Dedu-ctions from wages.	Contribu-tions of employers.	State sub-sidies.	Provincial subsidies.	Other.	
1845.....	22,393	(a)	(a)	(a)	(a)	(a)	\$51,841
1850.....	47,309	(a)	(a)	(a)	(a)	(a)	71,450
1860.....	80,783	(a)	(a)	(a)	(a)	(a)	193,398
1870.....	95,809	(a)	(a)	(a)	(a)	(a)	283,685
1871.....	97,581	(a)	(a)	(a)	(a)	(a)	343,480
1873.....	113,868	(a)	(a)	(a)	(a)	(a)	471,480
1874.....	112,569	(a)	(a)	(a)	(a)	(a)	444,734
1875.....	112,722	(a)	(a)	(a)	(a)	(a)	438,065
1876.....	109,549	(a)	(a)	(a)	(a)	(a)	393,960
1877.....	102,291	(a)	(a)	(a)	(a)	(a)	330,586
1878.....	101,726	(a)	(a)	(a)	(a)	(a)	339,575
1879.....	100,624	(a)	(a)	(a)	(a)	(a)	318,492
1880.....	106,633	(a)	(a)	(a)	(a)	(a)	347,991
1881.....	103,910	(a)	(a)	(a)	(a)	(a)	345,598
1882.....	104,510	(a)	(a)	(a)	(a)	(a)	368,773
1883.....	108,969	(a)	(a)	(a)	(a)	(a)	386,166
1884.....	106,174	\$59,397	\$233,707	\$9,244	\$1,892	\$54,204	358,444
1885.....	101,855	49,867	209,297	8,679	1,892	54,593	324,328
1886.....	100,360	47,120	201,337	8,561	1,891	78,389	337,298
1887.....	100,865	48,302	223,006	8,600	1,891	59,955	341,754
1888.....	104,105	53,082	238,830	8,616	1,891	76,498	378,917
1889.....	110,065	64,463	265,782	8,584	1,891	51,498	392,218
1890.....	117,396	88,914	353,421	8,641	1,891	53,580	506,447
1891.....	117,265	80,027	384,037	8,551	1,891	49,697	524,203
1892.....	116,420	41,538	415,932	8,724	1,890	55,628	523,712
1893.....	114,697	37,434	383,170	8,725	1,886	55,828	487,043
1894.....	117,359	39,836	407,582	8,680	1,883	57,910	515,891
1895.....	119,063	41,326	417,547	8,734	1,292	57,895	526,794
1896.....	120,044	41,785	428,112	8,667	1,286	56,194	536,044
1897.....	118,490	42,937	446,756	8,576	1,481	56,361	556,111
1898.....	123,220	46,477	488,804	8,490	1,347	58,195	603,313
1899.....	123,131	49,910	524,431	8,581	1,307	58,633	642,862
1900.....	133,313	64,369	666,188	8,613	1,478	65,388	806,036
1901.....	134,039	59,896	604,696	8,663	1,264	68,729	743,248
1902.....	134,701	56,344	572,717	8,644	1,264	74,508	713,477

(a) Not reported.



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MEMBERSHIP, RECEIPTS, EXPENDITURES, LIABILITIES, AND ASSETS OF THE SIX MINERS' PROVIDENT FUNDS OF BELGIUM, 1845 TO 1902—Concluded.

[Source: *Annuaire statistique de la Belgique, 1871-1902*. The six provident funds are those of Couchant de Mons, Charleroi, Centre, Liège, Namur, and Luxembourg. Conversion of Belgian into United States money was made on the basis of 1 franc=\$0.193.]

Year.	Expenditures.				Liabilities.	Assets.
	Pensions.	Assistance.	Administra- tion.	Total.		
1845.....	(a)	(a)	(a)	\$32,381	\$23,120	\$133,793
1850.....	(a)	(a)	(a)	61,062	39,066	202,455
1860.....	(a)	(a)	(a)	145,086	94,994	696,607
1870.....	(a)	(a)	(a)	262,424	251,788	1,029,890
1871.....	(a)	(a)	(a)	323,535	259,369	1,044,641
1873.....	(a)	(a)	(a)	320,648	302,911	1,257,731
1874.....	(a)	(a)	(a)	352,276	313,360	1,350,637
1875.....	(a)	(a)	(a)	363,156	324,537	1,426,355
1876.....	(a)	(a)	(a)	376,738	339,109	1,443,449
1877.....	(a)	(a)	(a)	387,853	352,212	1,386,514
1878.....	(a)	(a)	(a)	391,537	339,370	1,333,182
1879.....	(a)	(a)	(a)	375,336	335,477	1,278,256
1880.....	(a)	(a)	(a)	376,502	345,646	1,249,757
1881.....	(a)	(a)	(a)	371,088	345,199	1,224,228
1882.....	(a)	(a)	(a)	372,759	349,881	1,220,184
1883.....	(a)	(a)	(a)	365,339	346,291	1,241,011
1884.....	\$273,843	\$30,661	\$9,071	363,575	344,353	1,234,914
1885.....	b 270,435	b 35,373	b 9,540	b 365,351	331,297	1,193,801
1886.....	259,049	88,511	9,185	356,736	341,504	1,174,453
1887.....	266,728	98,629	10,565	375,922	353,593	1,140,343
1888.....	270,116	102,402	8,424	380,942	360,087	1,141,724
1889.....	274,389	105,257	8,645	388,291	378,994	1,145,652
1890.....	285,162	105,217	8,224	398,603	394,298	1,253,496
1891.....	290,311	111,619	11,121	413,051	391,127	1,364,721
1892.....	304,499	115,460	8,418	428,377	420,806	1,460,056
1893.....	328,717	119,899	9,044	457,660	437,496	1,489,437
1894.....	338,909	121,630	10,243	470,782	461,312	1,534,216
1895.....	355,291	129,769	9,964	495,024	490,911	1,565,987
1896.....	369,029	134,540	8,527	512,096	500,419	1,589,749
1897.....	379,315	144,185	8,873	532,373	520,979	1,613,487
1898.....	387,687	147,981	8,826	544,494	534,207	1,672,306
1899.....	392,317	154,226	9,255	555,798	544,245	1,750,414
1900.....	c 395,688	c 155,668	c 9,392	c 560,748	549,510	2,004,702
1901.....	402,961	158,725	10,169	571,855	562,159	2,176,842
1902.....	409,855	167,287	9,684	d 588,780	573,952	2,301,539

a Not reported.  
 b Obtained from *Annales des travaux publics*, tome XLIV.  
 c Obtained from *Annales des mines de Belgique*, tome VI.  
 d Including 10,126 francs (\$1,954) designated as "other expenses."

The membership of the provident funds has increased from 22,393 in 1845 to 134,701 in 1902. The receipts and expenditures show a corresponding increase. In 1845 the total receipts were 268,605 francs (\$51,841), in 1884 they were 1,857,221 francs (\$358,444), and in 1902 they were 3,696,773 francs (\$713,477). Of these amounts the employers furnished by far the greater part, their share amounting to 80.3 per cent of the total in 1902, while the proportion paid by the employees in that year was 7.9 per cent of the total receipts, State and provincial subsidies and "other" receipts making up the balance.

The expenditures show a similar growth. In 1845 the amount expended was 167,777 francs (\$32,381), in 1884 it was 1,883,806 francs (\$363,575), while in 1902 it was 3,050,676 francs (\$588,780). The amount expended for pensions alone in 1902 was 2,123,599 francs (\$409,855), or 69.6 per cent of the total expenditure, while the amount expended for other forms of relief was 866,772 francs



(\$167,287), or 28.4 per cent of the total expenditure. Under the term liabilities is included the annual pension and other charges which the funds must meet. In 1902 these charges were 2,973,844 francs (\$573,952), as compared with 119,793 francs (\$23,120) in 1845 and 1,784,210 francs (\$344,353) in 1884. The assets of the fund have increased from 693,230 francs (\$133,793) in 1845 to 11,925,072 francs (\$2,301,539) in 1902.

The total relief granted by each of the six provident funds in 1902, classified as to whether the relief was for accident or for invalidity and old age, is shown in the following table. The totals show that 11,162 persons received accident relief and 9,981 received invalidity and old-age relief. The amount paid for accident relief was \$329,508, or \$29.52 per person aided. The amount paid for invalidity and old-age relief was \$247,634, or \$24.81 per person aided. The per cent of total aid granted for accident relief was 57.09 and that granted for invalidity and old age was 42.91.

NUMBER OF PERSONS AIDED AND AMOUNT EXPENDED FOR ACCIDENT AND INVALIDITY RELIEF BY THE SIX MINERS' PROVIDENT FUNDS OF BELGIUM IN 1902.

[Source: Annales des mines de Belgique, tome IX. Conversion of Belgian into United States money was made on the basis of 1 franc=\$0.193. The amount per person aided was computed.]

Name of fund.	Accident relief.			
	Persons aided.		Amount of aid.	
	Number.	Per cent of total employees. (a)	Total.	Per person aided.
Mons.....	3,342	11.7	\$97,449	\$29.16
Charleroi.....	3,804	7.8	112,760	29.64
Centre.....	1,584	8.4	48,243	30.46
Liege.....	1,988	5.7	57,369	28.86
Namur.....	365	11.2	11,949	32.74
Luxemburg.....	79	10.1	1,738	22.00
Total.....	11,162	8.28	\$329,508	29.52

  

Name of fund.	Invalidity and old-age relief.				Per cent of total aid granted for—		Per cent of total aid granted for each purpose of total wages.	
	Persons aided.		Amount of aid.		for—			
	Number.	Per cent of total employees. (a)	Total.	Per person aided.	Accident relief.	Invalidity and old-age relief.	For accident relief.	For invalidity and old-age relief.
Mons.....	2,386	8.3	\$54,695	\$22.92	64.06	35.95	1.76	0.99
Charleroi.....	2,237	4.6	39,024	17.45	74.29	25.71	.96	.33
Centre.....	2,006	10.7	56,220	28.03	46.18	58.82	1.09	1.27
Liege.....	3,308	9.5	97,268	29.40	37.10	62.90	.72	1.21
Namur.....	1	.03	23	23.00	99.81	.19	1.58	.003
Luxemburg.....	43	5.5	404	9.40	81.14	18.86	1.15	.27
Total.....	9,981	7.41	247,634	24.81	57.09	42.91	1.08	.81

a In mines affiliated with the miners' provident funds.

The next table shows the total relief granted by the six funds for each year from 1894 to 1902, the same classification being followed. An important feature brought out by the table is the general relative increase of expenditures for invalidity and old-age relief since 1894. In that year the relative amount was 36.50 per cent of the total relief granted, while in 1902 it had increased to 42.91 per cent. Owing to the lack of sufficient reserves the increasing expenditure for invalidity relief threatens to cause difficulty in the future and at present is the weakest point in the miners' insurance system. The absolute amounts paid out for accident relief were 1,515,298 francs (\$292,452) in 1894 and 1,707,295 francs (\$329,508) in 1902. The amount expended for each person injured was \$27.35 in 1894 and \$29.52 in 1902. The per cent of persons aided of the total number of employees decreased from 9.11 in 1894 to 8.28 in 1902. The total amount expended for invalidity and old-age relief has increased from 870,916 francs (\$168,087) in 1894 to 1,283,075 francs (\$247,634) in 1902. The amount expended on each person aided has remained practically the same, being \$24.61 in 1894 and \$24.81 in 1902. As compared with the total number of employees, the number of persons aided on account of invalidity and old age increased from 5.80 per cent in 1894 to 7.41 per cent in 1902. The amount expended for accident and invalidity relief, when compared with the wages paid the insured persons, shows a decrease in the years for which the statistics are available. The accident relief cost 1.38 per cent of the wages of the insured mine workers in 1894, and had fallen to 1.08 per cent in 1902. The amount expended for invalidity relief has shown some fluctuations, but for all practical purposes may be regarded as having been stationary. In 1894 it formed 0.83 per cent of the wages, while in 1902 it formed 0.81 per cent of the wages.

NUMBER OF PERSONS AIDED AND AMOUNT EXPENDED FOR ACCIDENT AND INVALIDITY RELIEF BY THE SIX MINERS' PROVIDENT FUNDS OF BELGIUM, 1894 TO 1902.

[Source: Annales des mines de Belgique, tome IX. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193. The amount per person aided was computed.]

Year.	Accident relief.			
	Persons aided.		Amount of aid.	
	Number.	Per cent of total employees. (a)	Total.	Per person aided.
1894.....	10,693	9.11	\$292,452	\$27.35
1895.....	10,879	9.13	302,169	27.78
1896.....	11,012	9.17	310,606	28.21
1897.....	11,194	9.27	319,037	28.50
1898.....	11,230	9.11	321,278	28.61
1899.....	11,170	9.07	322,483	28.87
1900.....	11,060	8.29	321,938	29.11
1901.....	11,068	8.26	324,350	29.31
1902.....	11,162	8.28	329,508	29.52

<sup>a</sup> In mines affiliated with miners' provident funds.

NUMBER OF PERSONS AIDED AND AMOUNT EXPENDED FOR ACCIDENT AND INVALIDITY RELIEF BY THE SIX MINERS' PROVIDENT FUNDS OF BELGIUM, 1894 TO 1902—Concluded.

[Source: Annales des mines de Belgique, tome IX. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193. The amount per person aided was computed.]

Year.	Invalidity and old-age relief.				Per cent of total aid granted for—		Per cent of total aid granted for each purpose of total wages.	
	Persons aided.		Amount of aid.		Accident relief.	Invalidity and old-age relief.	For accident relief.	For invalidity and old-age relief.
	Number.	Per cent of total employes. (a)	Total.	Per person aided.				
1894	6,830	5.90	\$168,087	\$24.61	63.50	36.50	1.38	.83
1895	7,389	6.20	182,890	24.75	62.30	37.70	1.40	.85
1896	7,745	6.45	192,963	24.91	61.68	38.32	1.39	.86
1897	8,247	6.82	204,463	24.79	60.94	39.06	1.36	.87
1898	8,719	7.08	214,391	24.59	59.98	40.02	1.26	.84
1899	9,010	7.32	224,060	24.87	59.00	41.00	1.17	.81
1900	9,325	7.00	229,418	24.60	58.39	41.61	.91	.65
1901	9,688	7.23	237,337	24.50	57.75	42.25	1.05	.73
1902	9,981	7.41	247,634	24.81	57.09	42.91	1.08	.81

a In mines affiliated with miners' provident funds.

The expenditures of the special-aid funds located at each establishment are shown by mine districts in the following table for the four years 1894, 1895, 1901, and 1902, which may be regarded as fairly representative of the operations of the funds. The figures for all districts show that all the items of expenditure for the period in question show an increase. The greatest expenditure is for the money relief of sickness, which forms over 50 per cent of the total.

EXPENDITURES OF THE SPECIAL-AID FUNDS FOR COAL MINE EMPLOYEES FOR THE YEARS 1894, 1895, 1901, AND 1902.

[Source: Annales des mines de Belgique, tomes II, VIII, and IX. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193.]

Mine district and year	Money relief.		Medical supplies.		Coal and miscellaneous assistance.		Physician's services.		All expenditures.	
	Total.	Per member.	Total.	Per member.	Total.	Per member.	Total.	Per member.	Total.	Per member.
<b>Mons:</b>										
1894	\$41,169	\$1.51	\$2,411	\$0.09	\$4,249	\$0.16	\$17,263	\$0.64	\$65,062	\$2.40
1895	42,782	1.56	2,171	.08	6,148	.22	17,619	.64	68,720	2.50
1901	42,681	(a)	1,582	(a)	3,127	(a)	19,520	(a)	66,910	2.33
1902	48,894	(a)	1,490	(a)	2,581	(a)	19,326	(a)	72,291	(a)
<b>Charleroi:</b>										
1894	59,976	1.47	19,501	.48	13,853	.34	24,966	.61	118,296	2.90
1895	64,055	1.53	19,237	.46	17,755	.42	26,837	.64	127,884	3.05
1901	72,265	(a)	23,699	(a)	20,823	(a)	34,014	(a)	150,801	3.13
1902	72,376	(a)	23,725	(a)	20,592	(a)	33,566	(a)	150,259	(a)
<b>Centre:</b>										
1894	29,175	1.73	(b)				(b)		29,175	1.73
1895	31,738	1.86	(b)				(b)		31,738	1.86
1901	43,529	(a)	(b)				(b)		43,529	2.34
1902	44,125	(a)	(b)				(b)		44,125	(a)
<b>Liege:</b>										
1894	80,684	2.77	31,912	1.09	6,695	.23	16,753	.57	136,044	4.66
1895	86,589	2.96	34,360	1.17	5,217	.18	19,090	.65	145,256	4.96
1901	102,798	(a)	34,467	(a)	17,142	(a)	23,800	(a)	178,207	5.16
1902	105,506	(a)	40,974	(a)	10,603	(a)	22,986	(a)	180,069	(a)
<b>Namur:</b>										
1894	3,310	1.26	1,170	.45	449	.17	1,698	.65	6,627	2.53
1895	3,069	1.16	1,269	.48	577	.22	1,613	.61	6,528	2.47
1901	4,734	(a)	1,973	(a)	1,029	(a)	1,700	(a)	9,436	2.86
1902	5,288	(a)	1,562	(a)	939	(a)	1,806	(a)	9,575	(a)

a Not reported.

b The medical service for the miners of the Centre district is not provided by the special-aid funds.

EXPENDITURES OF THE SPECIAL-AID FUNDS FOR COAL MINE EMPLOYEES FOR THE YEARS 1894, 1895, 1901, AND 1902—Concluded.

[Source: Annales des mines de Belgique, tomes II, VIII, and IX. Conversion of Belgian into United States money was made on the basis of 1 franc = \$0.193.]

Mine district and year.	Money relief.		Medical supplies.		Coal and miscellaneous assistance.		Physician's services.		All expenditures.	
	Total.	Per member.	Total.	Per member.	Total.	Per member.	Total.	Per member.	Total.	Per member.
Luxemburg:										
1894	\$380	\$1.33	(a)				<sup>b</sup> \$926	\$1.40	\$1,806	\$2.73
1895	798	1.12	(a)				<sup>b</sup> 1,145	1.60	1,943	2.72
1901	1,001	(c)	(a)				<sup>b</sup> 1,069	(c)	2,070	2.41
1902	965	(c)	(a)				<sup>b</sup> 1,139	(c)	2,104	(c)
All districts:										
1894	215,194	(c)	\$54,994	(c)	\$25,246	(c)	61,606	(c)	357,040	(c)
1895	229,031	(c)	57,037	(c)	29,697	(c)	66,304	(c)	382,069	(c)
1901	267,008	(c)	61,721	(c)	42,121	(c)	80,103	(c)	460,953	(c)
1902	277,134	(c)	67,751	(c)	34,715	(c)	78,823	(c)	468,423	(c)

<sup>a</sup> The expenditures for medical supplies are included in the figures for physician's services.  
<sup>b</sup> Including expenditures for medical supplies.  
<sup>c</sup> Not reported.

The next table shows the total receipts and expenditures of the special-aid funds for coal mine employees from 1882 to 1902. The total receipts in 1882 were 1,435,257 francs (\$277,005), composed of 706,046 francs (\$136,267) deducted from the wages of employees and 729,212 francs (\$140,738) contributed by the operators. The total receipts in 1902 were 2,383,838 francs (\$460,081), composed of 264,076 francs (\$50,967) deducted from the wages of the employees and 2,119,763 francs (\$409,114) contributed by the operators. The total expenditures increased from 1,460,050 francs (\$281,790) in 1882 to 2,375,245 francs (\$458,422) in 1902.

RECEIPTS AND EXPENDITURES OF THE SPECIAL-AID FUNDS FOR COAL MINE EMPLOYEES, 1882 TO 1902.

[Source: 1882 to 1892, Caisse de prévoyance en faveur des ouvriers mineurs (Extrait des annales des travaux publics, tome LI); 1893 to 1902, Annales des mines de Belgique, tome IX. Conversion of Belgian into United States money was made on the basis of 1 franc=\$0.193.]

Year.	Receipts.			Expenditures.
	Deductions from wages.	Contributions of employers.	Total.	
1882	\$136,267	\$140,738	\$277,005	\$281,790
1883	68,071	206,006	274,077	277,556
1884	57,717	222,011	279,728	284,509
1885	52,765	228,037	280,802	284,488
1886	52,473	229,246	281,719	283,505
1887	52,896	233,369	286,265	288,787
1888	53,571	236,336	289,907	285,991
1889	54,422	244,524	298,946	293,571
1890	68,508	287,345	355,854	348,272
1891	68,787	301,446	370,233	366,817
1892	61,963	326,861	388,824	392,604
1893	49,688	299,240	348,928	356,213
1894	49,525	299,275	348,800	357,040
1895	49,100	318,734	367,834	382,069
1896	51,930	314,139	366,069	366,416
1897	51,927	308,872	360,799	354,762
1898	58,781	324,546	383,327	375,371
1899	62,350	348,084	410,434	394,728
1900	61,228	408,139	469,367	422,725
1901	51,586	409,969	461,455	450,952
1902	50,967	409,114	460,081	458,422

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MINE WORKERS' UNIONS.

The greater part of the organized labor of Belgium is found in the coal-mining industry. This is due to the fact that the coal miners at the present time are well organized and unions exist in nearly all localities where mining operations are carried on.

With but few exceptions all the mine workers of Belgium are socialists. They have local unions, usually including all the mine workers of a community, affiliated with four district federations and one national federation. The few exceptions are a number of so-called "Christian" mine-workers' unions.

Until recent years the main purpose of organization of the socialist trade unions was political, and as a result the miners manifested an intense interest in their unions at times of political agitation and relapsed into apathy when the excitement had passed away.

In 1889, the trade-union movement in Belgium did not extend beyond the organization of a few unimportant unions in the various coal fields. In December of that year these scattered unions organized a national federation which, in July of the following year, had an affiliated membership of about 8,500. On May 1, 1891, the eve of the strike for universal suffrage, there were at least 70,000 coal mine workers affiliated with this federation, and the greatest enthusiasm for organization was manifested.

The strike, which was general throughout Belgium, proved a failure, and immediately afterward many of the unions began to disband, and this disintegration continued until, for a number of years, trade unionism was practically crushed in Belgium.

In an effort to revive interest the membership dues were reduced, but this only served to diminish the receipts without augmenting the membership. In some localities the defense funds were transformed into savings funds, and the unexpended receipts were distributed each year among the members. This, as well as various other plans which were attempted, failed to arouse interest, and the resources and membership of the miners' unions diminished steadily until 1897. Although the mine workers remained ardent socialists, they seemed to lose all interest in the trade-union movement.

Finally, however, a plan was found by which interest was revived. This plan, which is now generally in operation, consists in increasing the membership dues and creating various permanent benefit funds in addition to those merely for defense, namely, funds for out-of-work relief and for accident, sickness, and old-age insurance. Instead of

distributing the unexpended receipts each year, as had been done in many unions, the receipts are permitted to accumulate from year to year and are paid out upon the death of a member or when he abandons his trade as a mine worker. Deserters from the unions lose all their beneficiary interest in the same. By this means an incentive was found for joining the union and for remaining a member in good standing.

This movement, once started, spread rapidly, the membership increased, and the dues continued to be augmented, the proceeds being used for beneficiary purposes. In organizations where, formerly, it had been impossible to collect 5 or 10 centimes (1 to 2 cents) per month, the payments at present range from 1.10 francs (21.2 cents) to 2.50 francs (48 cents) per month.

The four district federations with which the local unions are affiliated are those of Couchant de Mons (Borinage), Charleroi, Centre, and Liege. Of the 134,889 mine workers employed in 1902, according to the Belgian mine reports, 30,771 were in the Couchant de Mons district; 44,564 in the Charleroi district; 21,474 in the Centre district; 34,446 in the Liege district; and 3,634 in the Namur district. There are no statistics available showing the actual trade-union membership in each of these districts in that year.

In 1890, the mine-workers' unions affiliated with the Centre district federation had an aggregate membership of nearly 10,000, but after the strike in 1891 the federation was almost completely destroyed. It was not until 1899 that the federation was reorganized. From that time on the trade-union membership in the Centre district increased rapidly. In 1901, there were 24 affiliated unions with a total membership of about 7,000. In August, 1902, 30 affiliated unions were reported. The great mass of the mine workers in this district, as in the others, are socialists, but they are said to be more conservative and less susceptible to radical agitation than are those in the other districts. They have gone farther in the extension of trade-union efforts toward mutual aid and other relief systems.

In 1900, this district federation ordered the fusion of all the funds of affiliated unions into a common federal district fund. This was accomplished in the case of most unions, but a few insisted upon maintaining their separate funds, and this was permitted by the federal body.

All the unions of this district have uniform regulations and the contributions per member are the same in all. The contributions in 1901 amounted to 1.10 francs (21.2 cents) per month, of which 0.70 franc (13.5 cents) was for defense, 0.30 franc (5.7 cents) for pensions, and 0.10 franc (2 cents) for propaganda. Since January, 1903, an admission fee of 2 francs (38.6 cents) is required in some of the unions.



In May, 1902, the federation voted to establish a federal pension fund for the Centre district. At that meeting a plan for a compulsory pension fund was proposed, according to which persons affiliated with the federation for at least 5 years, became entitled to pensions if unable to work on account of old age or invalidity. According to the proposed plan these pensions are to be subject to annual revision. The pension rate for each year is to be fixed at a meeting of the federal assembly in January of that year and is to be calculated in accordance with the receipts at that time, a maximum rate of 10 francs (\$1.93) per month being fixed, however. No information has been obtained as to the adoption or rejection of this plan. One of the larger unions having an old-age pension fund began the payment of pensions January 1, 1903, and it is stated that this experiment is being considered by the district federation.

The federation of the Centre district has devoted much of its efforts during the past few years toward the perfection of some plan for the arbitration and conciliation of differences between the mine workers and their employers, this being the main topic of discussion at a number of their tri-monthly meetings. The plan most favored is that which has been in operation for many years at Bascoup and Marie-mont. At a meeting held in May, 1904, a resolution was adopted that "the congress considers that there should be a revision of the law concerning councils of industry and labor or that councils of arbitration and conciliation should be provided for in each coal mine."

At the close of the year 1900 13 unions of the Centre district federation having a common fund had a balance of 12,935.22 francs (\$2,496.50); at the close of 1901, there were 15 such unions having a balance of 32,221.62 francs (\$6,218.77), and at the close of 1902 there were 20 unions having a common fund amounting to 43,017.11 francs (\$8,302.30). In addition to these there were, in 1900, 3 unions having separate funds aggregating 14,312.63 francs (\$2,762.34); in 1901, 3 unions having funds aggregating 20,946.33 francs (\$4,042.64), and in 1902, 2 unions having funds aggregating 16,483.55 francs (\$3,181.33).

The federation of the Liege district had an experience like that of the Centre. In 1899 there were 4,375 affiliated members. In April, 1900, the membership had grown to 6,000; in October, 1900, to 7,397, and in February, 1901, to 7,622 members. It is organized on a plan similar to that of the Centre district, although the federal organization of the unions is not quite as strong. During the past few years efforts have been made to bring about uniform statutes for all the unions in the district and to effect a more strongly centralized form of organization.



In 1902 a constitution was approved by the Liege federation providing for a per capita tax of 0.25 franc (5 cents) per year, of which 0.10 franc (2 cents) is for the support of the national, and 0.15 franc (3 cents) for the district, federation. With regard to strikes, the constitution provides that before they are undertaken the secretary of the local union, after a vote of the members, must notify the district committee of the federation to meet at the place where the strike is to take place in order to investigate the cause of the dispute. If, then, the committee considers that the district federation ought to interfere it calls a meeting of the latter to pass upon it. If the strike is to become general, a poll must be taken of all the members in the district.

In February, 1902, the federation of the Liege district passed a resolution requiring the local unions to maintain, in addition to their defense fund, funds for mutual relief in case of sickness, accidents, and involuntary idleness. This step had been discussed at several preceding meetings. Each union in this district, however, maintains its own defense and relief funds.

In the Charleroi district there are two forms of socialist trade-union organizations, namely, the mine workers' unions and the Knights of Labor (*Chevaliers du Travail*).

The Knights of Labor are organized on a plan similar to the American order of that name. They have the mysterious forms of the American order and maintain strict secrecy with regard to their laws, regulations, and proceedings. The local assemblies have a district or national assembly presided over by a grand master. The Knights of Labor in September, 1902, had 30 local assemblies in the district. In September, 1901, they had a membership of 15,000.

The other miners' unions in the Charleroi district are organized more like the unions in the other mining districts, and have a federation separate and distinct from the Knights of Labor. The unions in this federation have likewise grown rapidly in the past few years, and good progress has been made toward building up a strong centralized body. At the close of the year 1901 the federation had about 7,000 affiliated members belonging to the union.

In March, 1901, the Charleroi federation was reorganized. According to the new constitution, the affairs of the federation are in the hands of an executive committee, the membership of which consists of representatives of the local unions, apportioned according to membership. A permanent secretaryship is provided for, the functions of which are regulated by the congress of the district federation.

The organization of the federal fund is peculiar. While the fund is accumulated for the purpose of defense, it is not a strike benefit fund. It is simply a savings fund which can be drawn upon only when strikes occur or when members leave the union. The money paid in the form of strike relief must be refunded.

The membership dues for all members are fixed at 1 franc (19.3 cents) per month per member, to be paid into a single federal fund. Seventy-five per cent of the receipts are devoted to the defense fund. Strikes are not to be declared until after a referendum, resulting in a two-thirds vote. The defense fund can not be appropriated beyond 80 per cent of the total on hand, and reimbursement must be made at the rate of 1 franc (19.3 cents) per month, beginning with the resumption of work. Local unions may be affiliated with the federation even though they do not turn over their local funds, provided they pay annually their proportion of the running expenses of the federation.

Aside from the defense fund required by the constitution of the Charleroi district federation, many of the unions have separate mutual-aid and old-age retirement funds.

In September, 1901, the Charleroi district federation instituted a federal fund for relief in case of involuntary unemployment. This is supported by the following: Seventy-five per cent of the interest on the invested capital; 10 per cent of the reimbursement made in the case of members over 55 years of age leaving the organization on account of death, invalidity, or a change of occupation; 30 per cent of the reimbursement to members under 55 years of age changing their occupation, and 50 per cent of the reimbursement made to expelled members.

In 1903 a movement was on foot to transform the defense fund of the Charleroi federation into separate funds for mutual aid, pensions, and out-of-work benefits.

During a number of years efforts have been made by some of the labor leaders in the district and by the miners' national federation to bring about a union of the Knights of Labor and the other miners' federation of the Charleroi district. An agreement was finally reached at a joint congress held in May, 1904, but the arrangement between the two bodies will not be known until the assembling of a congress to be held June 25, 1905, to adopt a constitution.

In the Couchant de Mons (Borinage) district the working people are almost all engaged in coal mining and organizations of working people in that district have not been exclusively for mine workers but include working people of all trades. In fact, until recent years they were merely workingmen's socialist clubs, whose basis of organization was political. The trade-union movement has therefore failed to reach the degree of development in this district that it has in the other coal-mining sections of Belgium. In August, 1901, the first important step was taken in the direction of organizing separate mine workers' unions. At a meeting of the socialist federation of Borinage held at that time, a committee was appointed to carry out a plan of creating a federation of the miners' unions of the district,

and of organizing local miners' unions, on the same plan as other trade unions, in communities where they do not exist.

In December, 1902, representatives of the mine workers' unions met for the purpose of organizing a miners' federation. A constitution was drawn up, and in March, 1903, the new federation was definitely formed. It comprises all the mine workers' unions in the Couchant de Mons (Borinage) district. Its political programme is the same as that of the socialist federation out of which it grew. The assembly of the new federation consists of two delegates from each union. The per capita tax for the support of the federation is 20 centimes (3.9 cents) per year. The organization is mainly for the purpose of trade unionism and for socialist propaganda, but toward the close of the year 1903 a project was under discussion for the transformation of the trade union strike funds into funds for mutual aid, pensions, and out-of-work benefits.

As stated in the beginning of this section, the national federation of mine workers of Belgium was founded in December, 1889, and grew rapidly in membership until in 1891. There were then about 70,000 affiliated mine workers. After the strike of that year, and for a number of years, the federation had almost no existence. With the renewal of activity in trade unionism in recent years the national federation was revived. In 1901 it probably had a total affiliated membership of 50,000, or about 37 per cent of the whole number of coal mine employees in Belgium. At a congress held in September, 1901, there were 18 delegates representing 16 unions in the Centre district; 14 delegates representing 11 unions in Liege; 72 delegates representing 25 unions in Charleroi, 17 of which were Knights of Labor assemblies; and 13 delegates representing 10 unions in the Borinage district; a total of 62 unions. In 1902 there were 91, and in 1904, 81 unions represented.

The national federation has regular annual meetings for the discussion of topics and for securing united action in matters of interest to the mine workers. Occasional special meetings are called by the executive committee of the national organization.

Since January, 1901, the national federation has published an official organ which appears monthly. Many of the mine workers' unions make it obligatory for its members to subscribe, and in some cases the cost of subscription is included in the membership dues.

The most important subjects which have occupied the attention of the national congresses during the past four years are—

The reduction of hours of labor;

The prevention of overproduction by the cessation of one day per week, fortnight, or month, when necessary, instead of by the discharge of employees;

The abolition of the contract wage system;

A government system of old-age pensions, etc. ;  
A compulsory eight-hour day for coal mine workers ;  
The workmen's compensation act ;  
Adoption by Government of measures for prevention of anchylos-  
tomyiasis.

Ways and means of effecting better organization among mine workers.

The methods adopted for bringing the measures advocated before the public was by requests and petitions to mine owners and public authorities, by local demonstrations, and, in general, by continual agitation on the part of the individual mine workers.

At a meeting of the national federation held in December, 1903, a motion was unanimously adopted directing the executive committee to study the question of soliciting from the Government a concession for the opening of a coal mine in the newly discovered Campine coal field, with the view of organizing a cooperative mining company with limited capital. The committee was given power to call a special congress for the discussion of this subject if deemed expedient.

The first important step in the direction of greater centralization among all coal mine workers' unions in Belgium was taken at the meeting of the national federation in December, 1903, when the following resolution was passed:

The congress reserves to each federation complete autonomy with regard to the mode of organization in its district; the congress, however, invites the district federations to organize the trade unions on the following basis:

1. Defense fund, 0.70 franc (13.5 cents) per month.
2. Pension fund, 0.30 franc (5.8 cents) per month.
3. Mutual aid fund, 0.50 franc (9.7 cents) per month.
4. Subscription to the "Ouvrier Mineur," 0.10 franc (2 cents) per month.
5. Fund for administration and other expenses, 0.15 franc (3 cents) per month.

Besides the district and national federation, the Belgian mine workers' unions are represented in the annual international miners' congresses.

The organization of the Belgian mine workers has thus successfully passed through all the stages of evolution necessary for transforming the individual action of the mine worker into the collective effort of the class as a whole. This evolution has been remarkably rapid, especially in view of the six or seven years of apathy since the movement began in 1889.

The early form of organization was by pits. While such organizations were numerous, they had no defensive powers. The grouping by pits was followed by organization by mines or concessions.

As all the pits in a certain concession are under the same mine regulations, it was found advantageous to organize on this basis. In a number of localities the trade-union movement has not yet passed this stage of development. In time it was found that greater strength could be developed by organizing into communal unions, and this is the form of local organization most common in Belgium at the present time.

In the meantime the district federations are continuing the development toward a form of organization which seeks to unite all the miners in each district or coal field into one large body, of which the present unions will be simply local branches, and, as shown above, the first step has recently been taken toward the formation of a single national organization.

The Christian miners' unions have made some progress in Belgium, although their membership is insignificant when compared with that of the socialist organizations. Many of these are affiliated with the workingmen's Catholic federation known as "La Ligue Democratique." Some of these unions are for working people only, while others are for employers and employees. In September, 1902, it was reported that there were 10 Christian miners' unions, with a total membership of 1,346, affiliated with the Ligue Democratique.

### LABOR DISPUTES.

Prior to 1867 coal mine strikes rarely became extensive in Belgium. This was due to the fact that up to 1866 the old French law which prohibited laborers from combining for the purpose of stopping or obstructing work remained in force. An act passed May 31, 1866, permits such combination and prohibits only acts of violence, intimidation, etc. Strikes during this early period were more numerous in the coal mining than in any other industry, owing to the frequent fluctuations in the price of coal and the varying demand for the same. These strikes were usually amicably settled.

Early in 1876 an extensive strike occurred because a reduction in wages was contemplated on account of a fall in the price of coal. Troops were sent to Charleroi, but no serious conflict occurred. In 1877 a general strike took place in the Liege district due also to a reduction in wages. The military intervened, and work was resumed without any serious disturbance. Another general coal strike occurred in the spring of 1879, and again in the autumn of the same year. These strikes were all unsuccessful and without important results.

In 1881, and for several succeeding years, strikes known as "potato strikes" took place in Borinage, province of Hainaut, in the autumn

of each year during the potato harvests, when harvest work was more profitable than coal mining. After the harvests the workers returned to the mines. A large strike occurred in the same locality in the spring of 1885 on account of the introduction of new tools and a change in the working arrangements. The strike failed after a short duration.

About the middle of March, 1886, a strike originated in the province of Liege and soon spread to the other coal districts until almost the entire coal region was involved. The object of the strike was an increase of wages. Serious disturbances occurred, and at Liege a clash took place between the constabulary and civil guards and the strikers, resulting in bloodshed and the arrest and imprisonment of 47 persons. In the province of Hainaut the glass workers struck in sympathy with the miners, and bands of coal miners and glass workers marched through the country coercing workers to join the strike, and destroying glass works, dwellings, and other property. Government troops were called out to suppress the riots and guard property. By the end of the month order was restored, although the strike continued at several points.

In November, 1886, a coal mine strike occurred in Amercoeur against the introduction of certain working rules. Although aid was received from all parts of Belgium and from America the strike ended in failure in February, 1887. About the middle of May following, coal mine strikes occurred in the provinces of Hainaut and Liege. These were mainly political, the principal object being to influence legislators in favor of universal suffrage. Bloody conflicts with the police and military took place. Work was resumed early in June.

An important coal mine strike occurred about the close of the year 1888, during which troops were called out, but the details are not known.

The year 1889 was marked by a number of unimportant strikes in the various coal fields of Belgium. These occurred mostly in the spring and summer of that year. In December a strike of considerable importance broke out in the Charleroi district of Hainaut. The demands were for increased wages and a reduction of the working hours of underground workers to 9 hours per day. It was followed by strikes in the other districts of Hainaut and in Namur and Liege. In a number of mines wage rates were agreed upon, but in the district of Charleroi, where the principal demand was for reduced hours of labor, a settlement was not effected until the following year. This was finally accomplished by mediation, a reduction of one hour per day being granted.



Between the years 1869 and 1890, according to Soetbeer, (<sup>a</sup>) there were 47 coal mine strikes in the district of Couchant de Mons (Borinage), 68 in Charleroi, 28 in Centre, and 27 in Liege.

In 1890 the Belgian mine office began the publication of statistics of strikes in coal mines, and the information immediately following is based mainly upon these reports.

There were two general strikes in 1890, namely, one at Charleroi, which began in 1889, and one at Couchant de Mons (Borinage), which began about the end of August. The latter, involving about 22,000 workers, was due to the enforcement of new working rules. It ended after 17 days, when the new rules had been properly explained to the mine workers. Other strikes occurred from time to time in the coal regions during 1890, but they were all of a local character.

While there were several small local coal mine strikes in 1891, there was but one of importance during that year. This strike, which followed the May-day demonstration and extended over all the coal districts, was undertaken in part to secure a revision of the Belgian constitution in favor of universal suffrage, and in part to secure an eight-hour working day. In the district of Couchant de Mons (Borinage) the strike was but slightly felt. In the district of Centre the strike lasted until May 22. In Charleroi and Namur it continued over two months and gradually died out. In Liege the strike was general throughout the district until about May 20 or 25. Upon the recommendation of the council of industry and labor of Seraing, district of Liege, the hours of labor were considerably reduced. Local councils of industry and labor intervened in three local strikes during the year and contributed toward the settlement of the general dispute.

There were no general coal miners' strikes in 1892, although a considerable number of small local strikes occurred in the provinces of Hainaut and Liege. The largest of these, which was against a reduction of wages, involved about 1,000 employees and lasted over two months.

There were two general coal mine strikes in Belgium in 1893, one in April and the other in October. The former was purely political, being undertaken to hasten a favorable vote in Parliament on the extension of the right of suffrage. It was most general in the district of Couchant de Mons (Borinage). The Parliament granted universal suffrage, and the strike ended. The other strike was non-political in character and extended chiefly over the districts of Couchant de Mons (Borinage) and Charleroi. There were also several local strikes. It is estimated that in the province of Hainaut a total of 852,000 working days were lost through coal mine strikes during this year.

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<sup>a</sup> Arbeitseinstellungen in Belgien, Handwörterbuch der Staatswissenschaften I (second edition).



In 1894 there were no strikes of a general character. In a few instances work was suspended in individual mines in the provinces of Hainaut and Liege, but the strikes were small and of brief duration.

Local strikes occurred in 1895 in the provinces of Liege and Hainaut. Those in Liege occurred during March and April, and those in Hainaut during June, July, and August. None were of a general character. In October three local strikes occurred in the districts of Couchant de Mons (Borinage), Centre, and Liege, respectively. Nearly all the strikes were for increased wages. They were of short duration and were not attended by violence.

In 1896 the Belgian labor bureau began the publication of monthly strike statistics in the *Revue du Travail*, issued by that office. These statistics for the years 1896 to 1900 were compiled and summarized in a report<sup>a</sup> published in 1903. The data concerning strikes during those years have therefore been obtained from that report. Of the 34 coal mine strikes that were terminated during 1896, there were but 3 which involved 1,000 or more persons each. One of these occurred in the province of Hainaut and involved 3 mines and 1,000 strikers. It was undertaken to secure a modification of the mine rules, and after continuing from February 1 to February 10 it ended in failure. A strike in Liege involved 3 establishments and 1,224 strikers. It lasted from February 11 to February 19, and was undertaken to secure time instead of piece work. It also resulted in failure. Another strike in the same province and for the same object took place from March 13 to March 24 and resulted in failure. In this strike 1,416 strikers and 3 establishments were involved.

Of the 51 coal mine strikes in Belgium in 1897, all but one were small local disputes. The one large strike, in which 35 mines and 18,946 strikers were involved, occurred in the province of Hainaut and was directed against a change in the mine regulations. It began on June 25 and ended in complete failure on August 5.

During the year 1898 there were but 15 coal mine strikes in Belgium. One of these, in the province of Hainaut, involved 8 mines and 2,517 mine workers. It was the result of a demand for the withdrawal of a new mine regulation, and after continuing from January 3 to January 10 it ended in complete failure. The other 14 strikes were small and unimportant.

The largest coal mine strike of the 5-year period considered in the above-mentioned report occurred in 1899. It involved 163 mines, 42,842 strikers, and 6,906 other employees who were thrown out of work on account of the strike. This was a general strike for increased wages and extended over the entire coal region. It lasted over 6

<sup>a</sup> *Statistique des grèves en Belgique, 1896-1900, Office du Travail, Ministère de l'Industrie et du Travail.*

weeks and resulted in failure. A few other but unimportant strikes occurred during 1899.

Of the 28 coal mine strikes in 1900 none involved as many as 1,000 persons. All but one were confined to single mines.

The three tables which follow were prepared from the statistics found in the above-mentioned report. They relate, respectively, to coal mine strikes ending each year from 1896 to 1900, to their causes, and to the methods of settlement:

STRIKES IN COAL MINES IN BELGIUM AND THEIR RESULTS, 1896 TO 1900.

[Source: Statistique des grèves en Belgique, 1896-1900. The figures relate to strikes ending each year, regardless of the time of beginning.]

Year.	Total coal mine strikes.	Strikes the results of which were—				Total strikers.	Strikers in disputes the results of which were—			
		In favor of employ-ees.	In favor of employ-ers.	Com-promised.	Indefi-nite.		In favor of employ-ees.	In favor of employ-ers.	Com-promised.	Indefi-nite.
1896 .....	34	2	30	2	.....	10,204	194	9,879	131	.....
1897 .....	51	3	39	6	3	27,571	687	24,619	1,205	1,060
1898 .....	15	.....	14	1	.....	5,970	.....	5,925	45	.....
1899 .....	14	.....	13	1	.....	45,657	.....	45,507	150	.....
1900 .....	28	.....	19	8	1	6,851	.....	4,969	1,868	14

CAUSES OF STRIKES IN COAL MINES IN BELGIUM, 1896 TO 1900.

[Source: Statistique des grèves en Belgique, 1896-1900. The figures relate to strikes ending during the period, regardless of the time of beginning.]

Cause or object.	Total.	
	Strikes.	Strikers.
For increase of wages .....	83	59,035
Against reduction of wages .....	2	1,128
For a minimum wage rate .....	1	223
For reduction of hours .....	5	1,373
Relating to working arrangements .....	7	1,419
Against piecework .....	3	2,850
For the abolition or modification of mine rules .....	6	4,857
Against modification of mine rules .....	2	19,041
For abolition or reduction of fines .....	5	1,733
For discharge of superintendents, foremen, or workmen .....	3	269
For reinstatement of discharged employees .....	13	2,973
Other causes .....	12	1,352
Total .....	142	96,253

STRIKES IN COAL MINES IN BELGIUM, ACCORDING TO METHOD OF SETTLEMENT, 1896 TO 1900.

[Source: Statistique des grèves en Belgique, 1896-1900. The figures relate to strikes ending each year, regardless of the time of beginning.]

Year.	Direct negotia-tion between the parties.		Negotiation between one of the parties and a trade organization.		Intervention of the council of industry and labor.		Method not determined.		Total.	
	Strikes.	Strik-ers.	Strikes.	Strik-ers.	Strikes.	Strik-ers.	Strikes.	Strik-ers.	Strikes.	Strik-ers.
1896 .....	32	9,879	1	97	1	228	.....	.....	34	10,204
1897 .....	47	7,782	3	843	.....	.....	1	18,946	51	27,571
1898 .....	15	5,970	.....	.....	.....	.....	.....	.....	15	5,970
1899 .....	13	2,815	.....	.....	.....	.....	1	42,842	14	45,657
1900 .....	28	6,851	.....	.....	.....	.....	.....	.....	28	6,851

During the five-year period covered by the above tables there were 142 coal mine strikes reported in Belgium, involving 96,253 strikers. This number represents 59 per cent of the strikers in all occupations in Belgium during that period. Of the 142 coal mine strikes reported, only 5, involving 881 strikers, resulted in favor of the strikers; 18, involving 3,399 strikers, were compromised; 4, involving 1,074 strikers, were indefinite as to their results; leaving 115, or 81 per cent, of the strikes, involving 90,899, or 94.4 per cent, of the strikers, which resulted in complete failure. Fifty-eight and five-tenths per cent of the strikes, involving 61.3 per cent of the strikers, were for increased wages.

It appears that, with but a few exceptions, all the strikes during this period were settled by direct negotiation between the parties. Four strikes, involving 940 strikers, were settled by negotiations between one of the parties and a trade organization, and one strike, involving 228 strikers, was settled through the intervention of a council of industry and labor. In the case of the two largest strikes of the period, the one in 1897 involving 18,946 and the other in 1899 involving 42,842 strikers, the method of settlement was reported as not having been determined. As these two strikes resulted in complete failure, it may be assumed that their settlement was effected by the submission of the mine workers.

During the year 1901, 44 coal mine strikes were reported, involving 81 establishments. They were mostly undertaken to prevent a reduction of wages, were usually of short duration, and in nearly all cases resulted in failure, only 4 small strikes having been successful.

On September 12 and 13 a strike of coal miners against a reduction of wages began in 5 coal mines at Seraing, involving a maximum of 1,800 coal miners. From the 14th to the 23d of September, 1,800 other employees in 3 other mines in Seraing quit work for the same reason. From September 28 to October 4, in the Liege coal district, 16,000 employees in 42 coal mines struck in sympathy with the Seraing miners. On October 8 the strikers began to return to work, and by the 16th the strike ended in complete failure.

During the year 1902 there were 14 strikes and 1 lockout in the coal mining industry. Of the strikes, 1 ended in success, 1 was compromised, and all the rest were failures. One strike for increased wages involved 17 mines, 1,308 strikers, and 1,925 other employees who were thrown out of work on account of the strike. It proved a failure. All the other strikes in 1902 were small and unimportant. The lockout was against a combination to restrict the output. It was successful.

In 1903 only 3 coal mine strikes were reported in Belgium. They involved a total of 637 strikers and 29 others who were thrown out of employment. One strike was for the discharge of a foreman, 1

for the reinstatement of a discharged employee, and 1 for increased wages. They were all failures.

Boards of conciliation and arbitration exist at the coal mines of Mariemont and Bascoup, but they have not always prevented strikes. The councils of industry and labor, however, which are regulated by law, offer facilities for the parties to come together for mutual explanation. But few instances have been reported where these councils have met for the purpose of settling coal mine strikes.

### LEGISLATION.

The foundation of the present mining law of Belgium is the law of April 21, 1810, enacted by the French and retained by the Belgians, with several subsequent modifications and amendments.

#### PROSPECTING AND MINING GRANTS.

Under this law the right to explore for certain classes of minerals, including coal, requires the consent of the proprietor of the soil, while for the taking of such minerals a grant of concession must be procured from the Government. The owner of land may make explorations thereon without first obtaining leave, but he can not prevent outside parties who comply with the necessary forms from making searches on ungranted lands outside of his inclosures or at a fixed distance from such inclosed places or his place of residence.

Grantees other than the proprietor of the surface must undertake to indemnify such proprietor for all damage done by the working of the mine and by the erection of the necessary buildings thereon. A compensation fixed by the terms of the grant must be paid by the mine owner, as well as an annual rental based on the output of the mine. A tax similarly computed is levied by the State as well.

Discovery gives a prior claim to a grant, and must be considered together with the claims of the surface proprietor in the allowance of a grant.

Not only does the grantee assume obligations toward the owner of the soil, but he is also required to agree to maintain a prescribed status in the working of the mine and to regard the public interest in ways, water courses, and in the products of his mine.

The terms of the grant are determined by the council of mines, whose deliberations are passed upon by the King. This council consists of five members, and is the superior mine office of the Kingdom.

Explorations must extend far enough to prove the existence of a profitable working before a grant will be allowed. Ownership is permanent and transferable, but no concession can be subdivided except by way of a new grant. Several grants may be united, but the obligation remains to maintain the prescribed working of each.

The government does not consider itself authorized to accept a surrender of any concession and release the grantee from his obligations. Every proprietor must have a duly authorized representative in the province in which his mine is situated and the governor must be informed of the address of the same.

#### MAPS.

Applications for concessions must be accompanied by maps of the area asked for, showing the location and boundaries and plans of proposed workings. Within two years at the latest a map of the mine and of sections must be furnished the provincial deputation, and annual corrections must be supplied. In default of these the work may be done by the mine office at the charge of the delinquent operator. Plans and records showing for each month the stage of work in each stratum must also be kept at the mine.

#### OFFICIAL CONTROL AND INSPECTION.

The minister of industry and labor and the permanent provincial deputations<sup>(a)</sup> exercise an administrative oversight over mines. The council of mines appointed by the King constitutes an advisory board on matters of administration. Two division and 6 district directors have charge of the inspecting engineers who inspect the mines as often as their superiors think necessary, giving attention to the preservation of the surface and of the mines, to lighting, ventilation, drainage, modes of getting the coal, the use of explosives, and the means of transporting the workmen. Written reports are made as to these points and as to the conformity of the workings with approved plans and the orders of the mine authorities. Operators must afford proper opportunity for inspection by the inspecting engineers, and especially for the reaching of all points requiring special oversight. The registers, maps, and records of the mine must also be open to the engineers' inspection. A special book is to be kept for the entry of the reports and recommendations of the engineers.

Besides the general inspecting force, delegate inspectors, chosen from among the workmen themselves, are authorized to visit and inspect underground workings with regard to their healthfulness and to the safety of the workmen employed therein, to assist in the investigation of accidents, and to report any infractions of the laws and decrees with the enforcement of which the mine engineers are charged. These delegate inspectors are nominated by secret ballot by the sections of the councils of industry and labor representing the mining

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<sup>a</sup>These deputations consist of six members of the provincial councils, forming a sort of standing committee which acts as a governor's administrative council.

industry<sup>a</sup>) in the locality concerned, at least two names being proposed for each vacancy. From the list thus proposed the minister of industry and labor makes the selection.

Candidates must be citizens, not less than 30 years of age, and of 10 years' experience as workmen or overseers, either within the area to be inspected or in an adjacent area; the said ten years must have been passed in one or more branches of underground labor requiring an apprenticeship, not including subordinate or auxiliary employments. The candidates must be able to read and write and to use the fundamental rules of arithmetic, and must have an elementary knowledge of the reading of maps or plans of mine workings. The age of eligibility and the term of employment may each be reduced five years in cases of applicants holding diplomas from approved industrial schools. Membership in a council of prudhommes or a council of industry and labor or in the national assembly, or in a provincial or communal council, is a bar to appointment. One delegate is selected for each area, the number, extent, and bounds of which are fixed every three years by the King. This number may be not less than 35 nor more than 45. In default of valid nominations, the minister may name a delegate from among the workmen of the area who meet the prescribed conditions. Provision is also made for cases of disability, dismissal, or death. Neither delegates nor immediate members of their families residing with them may engage in any commercial enterprise.

Each delegate is required to make at least 18 visits per month to the mines in his assignment. In the performance of their duties delegates must conform to the instructions furnished from time to time by the mine engineers. On the conclusion of each visit the delegate must enter in a special book provided by the administrative office of the mine the date, length, and course of his tour of inspection, and the essential facts observed; he must also forward the same data to a designated engineer. The manager or director of the mine may enter in the same record book his own observations relative to those of the delegate. This book is to remain at the mine for the use and benefit of the employees. The delegate may require a guide to accompany him through the mine, and can not refuse to be accompanied. He may, however, request the guide to withdraw temporarily at any time for the purpose of allowing free conversation with

<sup>a</sup> Councils of industry exist in all localities where they are thought useful, as determined by the King, and act either voluntarily or on appeal from a communal council or from the local representatives of industry. They consist of employers and workmen, and have for their object the consideration of the common interests of the two classes and the prevention, or, if necessary, the settlement of difficulties arising between employers and workmen. Sections representing each local industry of sufficient importance are formed, comprising equal numbers of employers and employed. Each section meets regularly once a year, and also at the call of the permanent deputation, at the instance of either employers or workmen. See Bulletin of the United States Department of Labor, No. 26, pp. 129 to 135.



the workmen. He must comply with the established rules of the mine relative to good order and the safety of the works. Interfering with or preventing the inspections of the delegate is an offense. An annual compensation, fixed by royal decree, and the cost of travel are allowed the delegates at the cost of the State. These sums are subject to the fixed deductions for provident funds, delegates retaining their rights in such funds as were connected with the last place of their employment.

The mine foremen and overseers in gaseous mines must inspect daily, before the beginning of each shift, and especially after feast days and other suspensions, to see that the air is pure and that the working places are in a safe and proper condition. A careful watch must also be maintained during the shift to insure that the methods of working used and the lighting and ventilation are all in accord with the requirements for safety.

#### WORKING.

Mines are to be worked according to an approved plan. Suggestions may be made by the mine engineers, and all operations are required to be conducted with a view to the needs and safety of the public as well as to the security of the mine and its workmen. Pillars must be left on the boundaries of grants, the removal of which requires a new concession. The proprietor himself, and not a lessee or contractor, must conduct the operations of a mine. If the ownership rests in a company (*société*), its members are jointly and severally responsible for the discharge of the obligations enforceable by law. Compulsory abandonment of workings past repair may be ordered by the mine authorities. Voluntary abandonment may only follow a declaration to the engineers and a report made by them. Restrictions or suspensions of operations must be investigated by the engineers. Orders relative thereto issue through the permanent deputation after advice from the council of mines.

When proximity to collections of water is suspected, bore holes must be driven of a number, length, and direction to be determined by the nature of the conditions. Records must be kept of all old workings, known reservoirs of water, and of all bore holes driven. Workmen engaged in driving bore holes must be provided with means of stopping such holes if necessity arises, and provision must be made for their own protection before they proceed to drain a body of water by such methods.

#### REGULATIONS.

*Escape shafts.*—Two distinct exits must be maintained at each mine, accessible at all times to all persons employed therein. If the authorities so order, one shaft must be provided with ladders, securely fixed and adapted for convenient use. The slope of such ladders



may not exceed eighty degrees. Shafts in which they are installed are required to have their openings outside the principal buildings of the mine. [mine.libtool.com.cn](http://mine.libtool.com.cn)

*Hoists.*—The installation of engines and boilers for use in the interior of mines requires the special approval of an engineer in chief. Cages and buckets used in hoisting workmen must be provided with shields or tops to protect their occupants from falling objects. In traveling in buckets, safety belts must also be used. The number of persons to be carried and the rate of motion must be fixed by order, and not exceeded. Departures, arrivals, and the meeting of cages or buckets in shafts without partitions require slow and careful movements.

Safety blocks must be installed at proper points on the guides to prevent the rising of the cage to the winding drum. Brakes, indicators, and automatic bells must also be furnished, and provision made for the rescue of persons in the bucket or cage in case of any accident to the hoisting machinery. Rules must be adopted for the orderly ascent and descent of workmen, and a system of signals installed for the direction of the engineer. An assistant, who must be capable of taking the place of the engineer and performing his duties in case of any sudden incapacity, must be in attendance while men are being moved. At least once every eight days an inspection must be made of the shafts and of all hoisting machinery used for the workmen, and a record kept thereof. The dates of the installation, repair, and discontinuance of use of each rope must also be recorded.

*Ventilation.*—Mines are classed as gaseous or nongaseous, the latter being again divided into three subclasses—the slightly gaseous, gaseous, and those emitting sudden discharges. Classifications are made by the permanent deputation of the provincial council on the advice of the engineers, the owner being heard. All mines must be maintained in a salubrious condition by sufficient supplies of pure air. The quantity required is a matter determined from local conditions. The extent of the workings may be restricted if necessary to protect the workmen from the injurious effects of an excessive amount of impurities in the air.

Galleries serving as air ways are required to be easily accessible in all their parts, and the current must be effectively and regularly maintained. If a current becomes injuriously charged with gases it must be conducted immediately to a return way without coming in contact with other working places or frequented ways. The return shaft must be separated from all others by native rock. In all gaseous mines, workings must proceed by levels from above downward. Gobbing, used either to support the rock or to divide haulage ways from air ways, must be firm and as nearly air-tight as possible. It should be

advanced to a suitable distance from the working face to direct the current so as to drive off the gas, without, however, producing too swift a movement of the air. The use of doors to direct or divide the currents of air must be as far as possible avoided. The use of multiple doors, suitably spaced, is required, however, where they are frequently opened in the operations of the mine. The stationing of engines or other obstructive machinery in air ways without special permission is forbidden.

Work on a new level and the opening of crosscuttings are to be proceeded with only when the ventilation system is adequately extended to furnish a proper air supply. Except in cases of authorized exceptions and in preparatory work, occasioning the further descent of a tainted current is forbidden. If cuttings are proceeding in directions from which outbursts of gas may be suspected, the driving of bore holes completely through the suspected stratum is required. Ventilation in such cases must be directly from the intake shaft and conveyed directly to the outflow. The use of open fires in or near the buildings about the shafts of gaseous mines is forbidden. Mine foremen and overseers must order the withdrawal of workmen from places where gas appears or where the ventilation is insufficient.

The use in any underground working or gallery of motors driven by the explosion of gaseous mixtures is forbidden. The minister of industry and labor may, however, under conditions fixed by himself, authorize the tentative introduction of such motors into the places named.

Smoking in gaseous mines, and the carrying of pipes, or of matches or materials for making fires, are forbidden.

*Guards and safety appliances.*—The openings of all shafts in active operation must be provided with barriers or trapdoors to prevent the falling in of workmen. The platforms at the various levels must be similarly guarded, and descent into the sump secured against. Principal points of danger require a masonry wall and the locking of the door of ingress when said door is not in use. Shafts temporarily abandoned must be securely floored over or an arch of masonry must be constructed. Permanent abandonment demands advice from the authorities as to the proper means of security. In the more gaseous mines, the hoist shafts must not be covered by a roof, and the frames of the hoisting machinery may not be made of combustible material.

*Lamps and lighting.*—The use of candles or apparatus with open flames is forbidden. At every mine a sufficient number of safety lamps must be kept to permit the safe inspection of suspected places. In every case the safety lamps are required to be furnished by the operator, and be kept in condition for use by an agent appointed by

him who has no financial interest in the furnishing and maintenance of the lamps. The lamps used must be of an approved type, and have locks that are satisfactory to the mine authorities. Lamps must be given to the workmen in good order, lighted and closed, after which the workmen are themselves responsible for their care. The opening of lamps underground, or having any object by which they might be opened, is forbidden. The relighting of extinguished lamps not provided with an internal lighting device may be done only at the surface, unless in the less dangerous classes of mines a special room and attendant are provided. If the lamp has a lighting device, the workman must assure himself that his lamp is uninjured before attempting to relight an extinguished lamp. If gas is present in sufficient amounts to affect the flame, work at that point must be immediately suspended and not resumed until the danger is removed.

*Explosives and blasting.*—No explosive may be taken into a mine or its immediate dependencies except in accordance with an express authorization by the operator, under rules laid down by him. Explosives must be in cartridge form. Leather cases are required for the storage of detonating explosives and solid wooden boxes for primers. Primers and explosives of different classes must be placed in separate receptacles. Storage rooms must be in a designated safe place out of the way of workmen. No dynamite in a frozen or deteriorated condition may be taken into a mine. Only the amount of explosives needed for the day's work may be taken into a working place, and none may be left at the end of a shift without special authorization; nor may explosives given out for a specified use be exchanged or otherwise given to a person charged with other work. The use of explosives in mines of a more gaseous nature is especially restricted in connection with the breaking up of coal and with work in galleries, etc., ventilated by a descending current; also in working places outside the direct system of ventilation, and in any working where it is suspected that the approach to old cuttings or veins is likely to cause the emission of explosive discharges. The use of black powder and fuses likely to scatter flames and sparks is prohibited entirely in cutting or enlarging the ways of the second (gaseous) class of mines.

The placing and tamping of cartridges is to be effected only by the aid of a nonmetallic tamping bar. No material may be used for tamping that could cause sparks or a burst of flame. No means of firing may be used that causes flames, nor may any shot be fired until after the absence of gas and dry dust, either deposited or in suspension, has been determined by a careful examination by a special employee. Blasting must be done when as few workmen as possible are in the vicinity. Explosives of different kinds may not be in use at the same time in a single working place. No shot that has missed fire may be

drawn; in such cases the foreman should be immediately informed and measures taken to prevent danger to workmen of that or the succeeding shift. In mines of the second and third danger classes, the firing of all shots in the same current must be done only by one employee, and the firing of more than one shot at a time is forbidden unless electricity is used.

*Accidents.*—When the safety of works or workmen is threatened from any cause whatever, the proprietor or his representative must immediately notify the engineer of mines. The latter is then to proceed without delay to advise with the director of the works as to preventive measures necessary to be taken. If the proprietor or director refuses to adopt and execute the measures thought needful, a report must be made to the governor of the province. The permanent deputation hears the proprietor or his attorneys duly summoned, and must then make such orders as it sees fit, which shall, if necessary, be submitted to the minister of industry and labor for his approval, after advice from the council of mines. In cases of immediate necessity the engineer must so state in his report, and the permanent deputation may, without a prior hearing of the operator, direct that the orders of the engineer be provisionally executed.

Every accident occurring in a mine in consequence of which one or more persons are killed or seriously injured must be immediately reported to the engineer by the operator. A serious injury is one which might cause death or be prejudicial to the future working capacity of the person injured. Report must similarly be made when the safety of the works or of the surface is endangered. The engineer may, in cases of imminent danger, make requisitions on neighboring mine owners for tools, horses, and workmen, subject to reimbursement from the owner of the works affected. He may also give the necessary orders for rescue and the preservation of the mine. In cases of disagreement as to the work required to be done, the engineer shall prevail. Medicines and supplies for aid to the injured are to be furnished according to instructions of the minister of industry and labor. One or more physicians must also be connected with each mine, according to its importance.

#### EMPLOYMENT.

*Miners.*—A daily register is required to be kept of the persons employed inside any mine. The use of pass books is optional. They may be obtained from the authorities at a fixed price. The only entries allowable are the dates of the beginning and conclusion of employment. Wages are to be paid in legal currency. The employer may, however, furnish lodgings, lands, tools, and supplies, but only at cost.

*Mine bosses.*—In gaseous mines the employment of a mine boss charged with the daily oversight of the lighting and ventilation systems and of the blasting is required. Such a number of foremen and overseers must be employed to assist him as will enable the maintenance of a supervision appropriate to the character of the workings. These employees must be designated by the operator for their respective duties, and are not to be interested in the returns of the undertakings of which they have supervision.

*Women and children.*—The employment of boys under 12 and of girls under 21 years of age in underground workings is forbidden. Women may not be employed at any labor during the 4 weeks following confinement.

Children under 16 may not be employed after 9 p. m. nor before 5 a. m., except that by special order boys above 14 may be employed in mines at night, and those above 12 may be so employed after 4 a. m. The hours of labor of boys in mines, descent and ascent included, may not exceed  $10\frac{1}{2}$  per day, or 10 hours if employed at night. This period must be broken by a rest period of not less than one-eighth of the time passed in the mines. The employment of boys under 16 and of females under 21 is restricted to 6 days per week.

A pass book is to be provided gratis by the communal administration for all boys under 16 and females under 21 years of age, in which the place and date of birth, residence, name, and names of parents or guardian are to be recorded. These items are also to be kept in a register by the employer.

#### SPECIAL RULES, ETC.

No one in a state of intoxication, or who is afflicted with a disease or infirmity which might endanger his life may enter or be admitted into any mine or works appendant. Strangers unacquainted with mining must be accompanied by an experienced workman. Insubordinate or disobedient employees who endanger the safety of person or property are to be prosecuted and punished.

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**CHAPTER III.**

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**COAL MINE LABOR IN FRANCE.**

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## CHAPTER III.

### COAL MINE LABOR IN FRANCE.

#### OUTPUT, VALUE, AND DISTRIBUTION OF PRODUCT.

Coal mining in France is carried on in three principal districts, situated, respectively, in northern, central, and southern France. In northern France the principal coal field is that of Valenciennes, in the Department of Pas-de-Calais. It extends from the Belgian frontier to the neighborhood of Boulogne-sur-Mer and is a continuation of the Belgian coal fields, containing the same varieties of coal as the Hainaut field of Belgium. It is by far the most productive of the French coal fields, 64.5 per cent of the entire output in 1903 coming from this field. The principal coal fields of central France are the St. Étienne and Rive-de-Gier, Le Creuzot and Blanzy, and Commentry and Doyet, situated, respectively, in the Departments of Loire and Rhône, Saône-et-Loire, and Allier. Prior to 1863 the St. Étienne and Rive-de-Gier field had the largest production of any field in France. The coal from these fields is of good quality, and is in great demand by the iron and metal trades. In southern France the principal coal fields are those of Alais, in the Departments of Gard and Ardèche, and Aubin, in the Department of Aveyron. The coal in this section varies greatly in quality.

There is no positive information concerning the time when coal was first produced in France. During the fourteenth and fifteenth centuries coal was imported from Newcastle, England, and from Liege, Belgium, and traditions indicate that coal was being mined during this period in the Loire, Brassac, and Decize coal fields of France. In 1548 the first concession for coal mining of which there is any record was granted by Henry II. In 1667 Louis XIV placed an import tax on coal, which tax was increased in 1692, resulting in increased mining operations in France. In 1698 an edict was issued granting land proprietors the right to mine coal for their own profit on their lands without the permission of the sovereign, and as a result coal mining was actively carried on in France, beginning in the Loire and Brassac fields and gradually extending to the others. In 1744 Louis XV annulled the law of 1698, and required that thereafter concessions for coal mining must be obtained from the sovereign. The first concession for lignite mining was granted in 1788.

Prior to the year 1811 annual statistics of coal products were not officially published in France. Official estimates, however, show that in 1787 the total production of coal and lignite was 215,000 tons; in 1788, 225,000 tons; in 1789, 240,000 tons; and in 1802, 844,180 tons. The following table shows the annual output of bituminous and anthracite coal and of lignite from 1811 to 1903:

PRODUCTION OF BITUMINOUS AND ANTHRACITE COAL AND LIGNITE IN FRANCE,  
1811 TO 1903.

[Source: 1811 to 1872, Résumé des travaux statistiques de l'administration des mines, 1836-1872; 1873 to 1903, Statistique de l'industrie minérale et des appareils à vapeur, 1873-1903. The figures shown for the years prior to 1836 are below the actual quantity produced, because they represent the quantity reported for taxation, which was usually underestimated, hence these figures do not agree with those shown in the table on page 191. The production shown for the years 1836 to 1838 represents the quantity reported for taxation plus an allowance for underestimates in the quantity produced. The difference between the actual and the reported production has gradually disappeared. For the years 1811 to 1872 the quantities were reported in quintals, which have been reduced to metric tons on the basis of 10 quintals=1 metric ton. A metric ton=2,204.6 pounds.]

Year.	Quantity produced (metric tons).				
	Coal.			Lignite.	Total coal and lignite.
	Bituminous.	Anthracite.	Total. (a)		
1811.....	(b)	(b)	(b)	(b)	773,694
1812.....	(b)	(b)	(b)	(b)	835,523
1813.....	(b)	(b)	(b)	(b)	771,779
1814.....	646,534	5,775	652,309	23,438	675,747
1815.....	726,169	5,822	731,991	23,655	755,646
1816.....	776,432	4,795	781,227	25,892	807,119
1817.....	827,643	4,641	832,284	27,756	860,040
1818.....	734,488	5,094	739,582	30,050	769,632
1819.....	773,401	8,159	781,560	44,786	826,346
1820.....	885,258	7,517	892,775	44,646	937,421
1821.....	927,129	5,763	932,892	39,718	972,610
1822.....	965,379	8,345	973,724	49,343	1,023,067
1823.....	965,118	9,454	974,572	49,943	1,024,515
1824.....	1,081,234	13,423	1,094,657	41,657	1,136,314
1825.....	1,194,454	23,729	1,218,183	60,144	1,278,327
1826.....	1,236,510	15,194	1,251,704	69,154	1,320,858
1827.....	1,364,005	25,870	1,390,775	58,719	1,449,494
1828.....	1,424,008	30,098	1,454,706	65,928	1,520,634
1829.....	1,399,123	33,007	1,432,130	60,628	1,492,758
1830.....	1,500,013	31,229	1,531,242	65,328	1,596,570
1831.....	1,424,491	31,098	1,455,589	53,313	1,508,902
1832.....	1,573,234	38,983	1,612,217	70,230	1,682,447
1833.....	1,655,655	45,868	1,701,523	59,161	c 1,763,684
1834.....	1,991,966	54,809	2,046,775	87,374	2,134,149
1835.....	1,986,824	58,490	2,045,304	103,053	2,148,357
1836.....	2,673,835	60,635	2,734,470	107,477	2,841,947
1837.....	2,810,200	69,157	2,879,357	101,378	2,980,735
1838.....	2,944,685	67,469	3,012,164	101,089	3,113,253
1839.....	2,812,257	83,239	2,895,496	99,365	2,994,861
1840.....	d 2,476,333	d 411,907	2,888,240	115,142	3,003,382
1841.....	2,776,873	516,546	3,293,419	116,781	3,410,200
1842.....	2,791,610	601,231	3,392,841	199,243	3,592,084
1843.....	2,984,439	574,416	3,558,855	133,685	3,692,540
1844.....	3,054,738	579,924	3,634,662	148,077	3,782,739
1845.....	3,468,387	578,472	4,046,859	155,233	4,202,092
1846.....	3,520,146	585,836	4,120,982	348,360	4,469,342
1847.....	4,319,245	659,030	4,978,275	174,930	5,153,205
1848.....	3,292,592	542,239	3,834,831	165,602	4,000,433
1849.....	3,291,578	564,720	3,856,298	192,920	4,049,218
1850.....	3,702,498	549,178	4,251,676	181,891	4,433,567
1851.....	3,645,825	655,923	4,301,748	183,286	4,485,034
1852.....	4,020,573	691,534	4,712,107	191,819	4,903,926
1853.....	4,947,692	764,359	5,712,051	225,934	5,937,985
1854.....	5,729,692	868,251	6,597,943	229,064	6,827,007
1855.....	6,375,127	815,562	7,190,689	262,359	7,453,048

a Computed.

b Not separately reported.

c This total and the sum of the items do not agree, but the figures are reproduced as found in the source quoted.

d Prior to 1840 several Departments made no distinction between bituminous and anthracite coal in reporting output and value. Beginning with that year, however, all Departments made that distinction, and this accounts for the apparent decrease in production of bituminous and the increase in the production of anthracite coal reported for 1840 as compared with previous years.

## PRODUCTION OF BITUMINOUS AND ANTHRACITE COAL AND LIGNITE IN FRANCE, 1811 TO 1903—Concluded.

[Source: 1811 to 1872, *Résumé des travaux statistiques de l'administration des mines, 1836-1872*; 1873 to 1903, *Statistique de l'industrie minière et des appareils à vapeur, 1873-1903*. The figures shown for the years prior to 1836 are below the actual quantity produced, because they represent the quantity reported for taxation, which was usually underestimated, hence these figures do not agree with those shown in the table on page 191. The production shown for the years 1836 to 1838 represents the quantity reported for taxation plus an allowance for underestimates in the quantity produced. The difference between the actual and the reported production has gradually disappeared. For the years 1811 to 1872 the quantities were reported in quintals, which have been reduced to metric tons on the basis of 10 quintals=1 metric ton. A metric ton=2,204.6 pounds.]

Year.	Quantity produced (metric tons).				
	Coal.			Lignite.	Total coal and lignite.
	Bituminous.	Anthracite.	Total. <sup>(a)</sup>		
1856.....	6,905,829	773,174	7,679,003	246,698	7,925,701
1857.....	6,914,431	740,511	7,654,942	246,815	7,901,757
1858.....	6,353,069	788,867	7,141,936	210,631	7,352,567
1859.....	6,581,851	688,576	7,270,427	212,145	7,482,572
1860.....	7,398,196	657,584	8,055,780	247,902	8,303,682
1861.....	8,432,129	749,872	9,182,001	241,319	9,423,320
1862.....	9,290,678	763,465	10,054,143	236,202	10,290,345
1863.....	9,630,797	816,315	10,447,112	262,547	10,709,659
1864.....	10,097,960	880,400	10,978,360	264,274	11,242,634
1865.....	10,472,830	880,790	11,353,620	246,785	11,600,405
1866.....	11,094,750	909,200	12,003,950	256,135	12,260,085
1867.....	11,489,508	975,150	12,464,658	274,028	12,738,686
1868.....	12,022,864	952,498	12,975,362	278,514	13,253,876
1869.....	12,201,820	938,663	13,140,483	323,722	13,464,205
1870.....	12,124,921	876,005	13,000,926	329,382	13,330,308
1871.....	12,086,473	824,484	12,910,957	347,964	13,258,921
1872.....	14,349,307	1,009,888	15,359,195	443,319	15,802,514
1873.....	(c)	(c)	16,974,236	505,105	17,479,341
1874.....	(c)	(c)	16,428,026	479,287	16,907,313
1875.....	(c)	(c)	16,504,035	452,205	16,956,240
1876.....	(c)	(c)	16,635,353	465,595	17,101,448
1877.....	(c)	(c)	16,305,827	498,702	16,804,529
1878.....	(c)	(c)	16,440,650	520,266	16,960,916
1879.....	(c)	(c)	16,576,001	534,078	17,110,079
1880.....	(c)	(c)	18,804,767	556,797	19,361,564
1881.....	(c)	(c)	19,211,063	554,020	19,765,983
1882.....	(c)	(c)	20,046,796	556,908	20,603,704
1883.....	19,643,000	1,116,000	20,759,000	574,455	21,333,455
1884.....	18,409,000	1,119,000	19,528,000	496,394	20,024,394
1885.....	17,963,000	1,106,000	19,069,000	441,982	19,510,982
1886.....	18,259,000	1,195,000	19,454,000	455,767	19,909,767
1887.....	19,591,000	1,219,000	20,810,000	477,607	21,287,607
1888.....	20,851,000	1,321,000	22,172,000	430,865	22,602,865
1889.....	22,460,000	1,392,000	23,852,000	451,597	24,303,597
1890.....	24,185,000	1,406,000	25,591,000	491,573	26,082,573
1891.....	24,163,000	1,339,000	25,502,000	523,298	26,025,298
1892.....	24,399,000	1,299,000	25,698,000	481,468	26,179,468
1893.....	23,976,000	1,197,000	25,173,000	478,189	25,651,189
1894.....	25,599,000	1,365,000	26,964,000	452,780	27,416,780
1895.....	26,110,000	1,472,000	27,582,000	437,074	28,019,074
1896.....	27,266,000	1,485,000	28,751,000	439,448	29,190,448
1897.....	28,709,000	1,528,000	30,237,000	460,422	30,697,422
1898.....	30,172,000	1,654,000	31,826,000	529,977	32,355,977
1899.....	30,611,000	1,645,000	32,256,000	606,564	32,862,564
1900.....	30,957,000	1,704,000	32,661,000	682,736	33,343,736
1901.....	30,056,000	1,577,000	31,633,000	691,714	32,324,714
1902.....	27,928,000	1,437,000	29,365,000	632,423	29,997,423
1903.....	32,567,000	1,650,000	34,217,000	688,757	34,905,757

<sup>a</sup> Computed.

<sup>b</sup> Figures published in report for 1859. Reports for subsequent years give the corrected production for 1859 as 7,681,068 metric tons, but as no correction has been made in the items which make up this total the figures are all reproduced as published in 1859.

<sup>c</sup> Not separately reported.

<sup>d</sup> The items are given in round numbers, hence their sum does not equal the total here shown.

Of the above figures those for the years from 1814 to 1835 are slightly below the actual production, because they represent the quantity of coal reported to the Government for the purpose of taxation. Coal consumed at the mines and distributed among the employees was not taxed, and, besides, some leniency was permitted in reporting the

amount for the purpose of taxation. In order to obtain the real production during this period, about one-sixth should be added to the amount shown in the table.

During the period from 1814 to 1903 the production of bituminous and anthracite coal increased from 652,309 tons to 34,217,661 tons, or more than fifty fold. During the same period the lignite production increased from 23,438 to 688,757 tons, or over twenty-eight fold.

The following table shows the production of coal in each of the principal coal fields of France from 1836 to 1903:

PRODUCTION OF COAL IN FRANCE, BY PRINCIPAL COAL FIELDS, 1836 TO 1903.

[Source: 1836 to 1872, Résumé des travaux statistiques de l'administration des mines, 1837-1872; 1873 to 1903, Statistique de l'industrie minière et des appareils à vapeur, 1873-1903. For the years 1811 to 1872 the quantities were reported in quintals, which have been reduced to metric tons on the basis of 10 quintals = 1 metric ton. A metric ton = 2,204.6 pounds.]

Year.	Quantity of coal produced (metric tons).							Total.
	Valencien- nes coal field.	St.Étienne and Rive- de-Gier (Loire) coal field.	Alais coal field.	Le Creuzot and Blanzay coal field.	Aubin coal field.	Commen- try coal field.	Other coal fields. (a)	
1836 . . .	681,284	1,060,900	67,744	180,397	136,938	10,680	292,756	b 2,430,759
1837 . . .	740,028	1,102,498	105,355	224,997	124,350	15,120	437,552	b 2,810,200
1838 . . .	859,257	1,184,354	132,188	208,205	131,855	26,465	402,371	b 2,944,695
1839 . . .	749,706	1,116,942	155,373	219,529	121,012	33,674	499,260	b 2,895,496
1840 . . .	776,297	1,104,895	191,834	195,590	91,604	21,886	506,134	2,888,240
1841 . . .	803,025	1,194,403	283,818	237,245	104,809	35,929	563,890	3,293,419
1842 . . .	907,159	1,290,415	292,139	232,944	125,493	49,391	495,300	3,392,841
1843 . . .	857,783	1,294,460	335,621	225,860	143,092	76,347	625,692	3,558,855
1844 . . .	927,176	1,234,844	369,699	225,000	152,089	77,920	647,934	3,634,662
1845 . . .	945,803	1,405,530	415,867	300,380	165,460	105,654	708,165	4,046,859
1846 . . .	1,039,172	1,521,766	421,377	312,054	180,362	137,830	508,411	4,120,982
1847 . . .	1,245,051	1,712,340	457,579	387,397	211,744	194,703	768,861	4,978,275
1848 . . .	927,310	1,323,030	353,160	284,640	126,640	160,120	659,931	3,834,831
1849 . . .	962,940	1,369,910	261,140	283,540	107,910	158,570	712,890	c 3,856,300
1850 . . .	1,001,680	1,550,170	307,580	349,170	116,810	187,520	738,740	c 4,251,670
1851 . . .	1,030,510	1,504,160	319,410	357,260	143,590	190,600	756,218	4,301,748
1852 . . .	1,072,850	1,631,190	385,160	405,730	171,030	220,970	825,237	4,712,107
1853 . . .	1,377,780	1,915,840	544,020	491,870	237,350	261,320	883,271	5,712,051
1854 . . .	1,523,170	2,208,515	628,760	549,691	308,334	363,386	1,016,087	6,597,943
1855 . . .	1,733,945	2,284,822	750,879	591,129	342,641	448,731	1,038,542	7,190,689
1856 . . .	1,827,357	2,423,606	756,965	591,280	470,033	482,779	1,126,983	7,679,003
1857 . . .	1,959,222	2,242,667	754,460	580,621	463,519	484,562	1,169,301	7,654,942
1858 . . .	2,071,678	1,957,079	764,237	494,991	291,834	412,715	1,148,812	7,141,936
1859 . . .	2,025,913	2,036,277	855,839	464,496	322,891	421,547	1,143,464	d 7,270,427
1860 . . .	2,169,268	2,357,667	869,099	530,953	398,055	538,536	1,191,862	8,055,780
1861 . . .	2,441,765	2,534,116	1,054,663	573,893	503,385	643,515	1,430,664	9,182,001
1862 . . .	2,744,317	2,814,800	1,064,416	599,624	557,066	742,028	1,531,812	10,054,143
1863 . . .	2,954,797	2,813,382	1,186,235	615,210	572,144	717,626	1,587,718	10,447,112
1864 . . .	3,121,738	3,043,053	1,168,362	680,940	501,010	777,917	1,685,340	10,978,360
1865 . . .	3,447,333	3,089,945	1,228,075	705,260	444,854	789,902	1,698,951	11,353,620
1866 . . .	3,832,156	3,094,529	1,232,495	792,368	486,554	810,556	1,755,292	12,003,950
1867 . . .	3,928,743	3,262,928	1,255,387	810,999	491,333	842,998	1,872,270	12,464,658
1868 . . .	4,158,403	3,365,374	1,298,505	806,104	505,664	859,697	1,979,615	12,975,362
1869 . . .	4,327,679	3,071,930	1,341,872	853,270	579,164	881,036	2,086,159	13,140,483
1870 . . .	4,312,720	3,347,342	1,303,707	775,728	552,209	732,880	1,976,340	13,000,926
1871 . . .	4,901,559	3,136,528	1,227,941	759,086	559,526	689,877	1,636,340	12,910,957
1872 . . .	5,837,885	3,581,236	1,470,990	814,287	626,268	905,054	2,124,375	15,359,195
1873 . . .	6,387,443	3,936,161	1,659,782	942,218	687,379	954,101	2,407,162	16,974,236
1874 . . .	6,181,813	3,552,312	1,623,481	967,588	704,230	943,652	2,455,550	16,428,626
1875 . . .	6,536,258	3,282,326	1,559,010	1,040,124	723,913	941,392	2,421,612	16,504,635
1876 . . .	6,618,760	3,514,378	1,559,198	1,021,038	705,818	882,168	2,334,533	16,635,853
1877 . . .	6,634,048	3,297,755	1,644,781	1,000,888	683,185	815,642	2,229,528	16,305,827

<sup>a</sup> Computed.

<sup>b</sup> The figures are below the actual quantity produced, because they represent the production reported for taxation, which was usually understated, hence they do not agree with those shown in the preceding table.

<sup>c</sup> This number differs slightly from that given in the preceding table. The reason for the difference is not apparent.

<sup>d</sup> The actual output for this year probably exceeded this amount, as the total output of coal and lignite was corrected in subsequent reports and the output as corrected was higher than that originally published. See note <sup>b</sup> to the table on page 185.



PRODUCTION OF COAL IN FRANCE, BY PRINCIPAL COAL FIELDS, 1836 TO 1903—  
Concluded.

[Source: 1836 to 1872, *Résumé des travaux statistiques de l'administration des mines, 1837-1872*; 1873 to 1903, *Statistique de l'industrie minière et des appareils à vapeur, 1873-1903*. For the years 1811 to 1872 the quantities were reported in quintals, which have been reduced to metric tons on the basis of 10 quintals = 1 metric ton. A metric ton = 2,204.6 pounds.]

Year.	Quantity of coal produced (metric tons.)							Total.
	Valencien- nes coal field.	St. Étienne and Rive- de-Gier (Loire) coal field.	Alais coal field.	Le Creuzot and Blanzay coal field.	Aubin coal field.	Commen- try coal field.	Other coal fields. <sup>(a)</sup>	
1878....	6,992,122	3,107,986	1,682,325	1,010,955	656,455	757,639	2,233,168	16,440,650
1879....	7,355,269	3,104,757	1,634,742	937,978	658,659	736,682	2,148,814	16,576,901
1880....	8,450,097	3,588,041	1,935,004	1,124,637	663,551	797,610	2,245,224	18,804,767
1881....	8,934,756	3,470,356	1,918,227	1,137,096	721,903	813,701	2,215,624	19,211,963
1882....	9,429,303	3,568,234	1,913,332	1,132,149	780,218	888,010	2,335,350	20,046,796
1883....	9,883,652	3,583,987	1,954,890	1,215,296	810,247	867,873	2,413,474	20,759,429
1884....	9,370,947	3,148,799	1,891,148	1,187,739	764,310	754,522	2,409,655	19,527,120
1885....	9,655,193	2,949,087	1,696,272	1,127,871	743,577	683,897	2,212,651	19,068,548
1886....	10,373,355	2,785,194	1,705,248	1,111,259	641,931	730,443	2,106,497	19,454,127
1887....	11,317,428	2,941,865	1,807,947	1,121,437	743,132	810,797	2,067,376	20,809,982
1888....	12,293,398	3,137,733	1,822,617	1,204,127	793,977	777,254	2,142,923	22,172,029
1889....	13,332,414	3,322,777	1,976,622	1,335,889	834,765	749,915	2,300,130	23,851,912
1890....	14,208,076	3,536,354	2,017,498	1,534,429	915,556	871,236	2,508,396	25,591,545
1891....	13,481,477	3,758,974	2,150,628	1,602,021	987,922	888,781	2,631,792	25,501,595
1892....	14,435,835	3,493,350	2,024,213	1,575,620	906,068	874,177	2,387,450	25,697,233
1893....	13,884,290	3,467,934	1,970,383	1,565,483	886,879	860,571	2,537,052	25,172,792
1894....	15,613,729	3,321,340	2,019,691	1,645,798	947,308	832,943	2,585,315	26,964,125
1895....	16,118,336	3,442,939	1,943,303	1,659,772	921,198	825,385	2,671,896	27,582,819
1896....	17,071,262	3,535,274	1,846,441	1,740,157	984,299	830,216	2,742,813	28,750,452
1897....	18,330,079	3,707,477	1,855,076	1,781,627	1,006,031	834,235	2,822,780	30,337,207
1898....	19,286,138	3,863,529	1,931,300	1,915,009	1,068,533	797,393	2,964,325	31,626,127
1899....	19,859,979	3,810,233	1,963,326	1,647,594	1,073,490	778,417	3,122,799	32,256,148
1900....	20,263,348	3,947,673	1,997,211	1,578,418	1,013,911	720,087	3,200,004	32,721,562
1901....	19,689,245	3,796,256	1,990,322	1,150,657	1,027,115	660,153	3,319,340	31,633,588
1902....	18,262,300	<sup>b</sup> 3,043,100	<sup>b</sup> 1,917,300	<sup>b</sup> 1,039,300	<sup>b</sup> 1,003,900	<sup>b</sup> 597,700	3,038,447	29,365,047
1903....	22,081,500	<sup>b</sup> 3,623,900	<sup>b</sup> 1,920,800	<sup>b</sup> 1,616,700	<sup>b</sup> 1,034,300	<sup>b</sup> 600,100	3,340,361	34,217,661

<sup>a</sup> Computed.

<sup>b</sup> The amount is given in round numbers.

The production by coal fields was not published prior to 1836. Information for lignite production by provinces is published in the French reports quoted, but not in such form as to be available for this compilation.

In the next table is shown the total value and the value per metric ton of the bituminous and anthracite coal and lignite produced in France from 1814 to 1903.

TOTAL VALUE AND VALUE PER METRIC TON OF COAL AND LIGNITE PRODUCED IN FRANCE, 1814 TO 1903.

[Source: 1814 to 1872, *Résumé des travaux statistiques de l'administration des mines, 1836-1872*; 1873 to 1903, *Statistique de l'industrie minière et des appareils à vapeur, 1873-1903*. Conversion of French into United States money was made on the basis of 1 franc = \$0.193. The value per metric ton was computed by dividing the total value, after conversion into United States money, by the total production as shown in the table on pages 184 and 185.]

Year.	Coal.						Lignite.		Total coal and lignite.	
	Bituminous.		Anthracite.		Total.		Total value.	Value per metric ton.	Total value.	Value per metric ton.
	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value.	Value per metric ton.				
1814.	\$1,259,864	\$1.95	\$3,804	\$1.52	\$1,268,668	\$1.94	\$44,204	\$1.89	\$1,312,872	\$1.94
1815.	1,567,274	2.16	9,580	1.65	1,576,854	2.15	56,011	2.37	1,632,865	2.16
1816.	1,556,780	2.01	7,945	1.66	1,564,725	2.00	54,230	2.09	1,618,955	2.01
1817.	1,654,859	2.00	7,618	1.64	1,662,477	2.00	77,487	2.79	1,739,964	2.02
1818.	1,513,620	2.06	10,228	2.01	1,523,848	2.06	70,264	2.34	1,594,112	2.07
1819.	1,600,228	2.08	21,107	2.59	1,630,335	2.09	<sup>a</sup> 95,760	2.14	1,726,095	2.09
1820.	1,785,802	2.02	18,465	2.46	1,804,267	2.02	103,563	2.32	1,907,830	2.04
1821.	1,900,596	2.06	12,018	2.09	1,921,612	2.06	93,338	2.35	2,014,950	2.07
1822.	1,934,664	2.00	18,208	2.18	1,952,872	2.00	102,848	2.08	2,055,120	2.01
1823.	1,953,382	2.02	21,749	2.30	1,975,131	2.03	108,077	2.16	2,083,208	2.03
1824.	2,102,229	1.94	31,274	2.33	2,133,503	1.95	96,003	2.30	2,229,506	1.96
1825.	2,329,021	1.95	47,839	2.02	2,376,860	1.95	120,667	2.01	2,497,527	1.95
1826.	2,512,917	2.03	28,913	1.90	2,541,830	2.03	140,895	2.04	2,682,725	2.03
1827.	2,688,152	1.97	58,797	2.27	2,746,949	1.98	169,910	2.89	2,916,859	2.01
1828.	2,729,664	1.92	72,329	2.40	2,801,993	1.93	129,135	1.96	2,931,028	1.93
1829.	2,604,761	1.86	81,465	2.47	2,686,226	1.88	109,755	1.81	2,795,981	1.87
1830.	2,808,720	1.87	78,268	2.51	2,886,988	1.89	118,697	1.82	3,005,685	1.88
1831.	2,651,110	1.86	80,707	2.60	2,731,817	1.88	95,164	1.79	2,826,981	1.87
1832.	2,896,880	1.84	98,831	2.54	2,995,711	1.86	107,665	1.53	3,103,376	1.84
1833.	3,246,710	1.96	122,015	2.66	3,368,725	1.98	126,222	2.13	3,494,947	1.98
1834.	3,613,666	1.81	148,199	2.70	3,761,865	1.84	150,379	1.72	3,912,244	1.83
1835.	3,827,581	1.93	156,968	2.68	3,984,549	1.95	190,267	1.85	4,174,816	1.94
1836.	4,825,090	1.80	133,894	2.21	4,958,984	1.81	176,181	1.64	5,135,165	1.81
1837.	5,305,160	1.89	175,686	2.54	5,480,846	1.90	182,338	1.80	5,663,184	1.90
1838.	5,612,070	1.91	181,263	2.69	5,793,333	1.92	176,890	1.75	5,970,223	1.92
1839.	5,168,148	1.84	244,579	2.94	5,412,727	1.87	185,354	1.87	5,598,081	1.87
1840.	<sup>b</sup> 5,506,423	1.82	<sup>b</sup> 916,912	2.23	5,423,335	1.88	228,487	1.98	<sup>c</sup> 5,651,803	1.88
1841.	4,907,270	1.77	1,250,447	2.42	6,157,717	1.87	241,978	2.07	6,399,695	1.88
1842.	4,869,818	1.74	1,244,401	2.07	6,114,219	1.80	350,852	1.76	6,465,071	1.80
1843.	5,014,507	1.68	1,234,671	2.15	6,249,178	1.76	252,010	1.89	6,501,188	1.76
1844.	5,419,952	1.77	1,342,490	2.31	6,762,442	1.86	292,024	1.97	7,054,466	1.86
1845.	5,975,474	1.72	1,375,510	2.38	7,350,984	1.82	312,164	2.01	7,663,148	1.82
1846.	6,578,005	1.87	1,408,640	2.36	7,986,645	1.94	504,803	1.45	8,491,448	1.90
1847.	7,096,142	1.85	1,543,792	2.34	8,640,134	1.92	384,507	2.20	8,924,641	1.93
1848.	6,122,988	1.86	1,288,772	2.38	7,411,260	1.93	356,997	2.16	7,768,257	1.94
1849.	6,158,352	1.87	1,283,775	2.27	7,442,127	1.93	423,024	2.19	7,865,151	1.94
1850.	6,744,797	1.82	1,204,262	2.19	7,949,059	1.87	383,504	2.11	8,332,563	1.88
1851.	6,440,681	1.77	1,500,293	2.29	7,940,974	1.85	373,241	2.04	8,314,215	1.85
1852.	7,071,509	1.76	1,567,195	2.27	8,638,704	1.83	384,394	2.00	8,923,098	1.84
1853.	9,328,224	1.89	1,708,589	2.24	11,036,813	1.93	476,403	2.11	11,513,396	1.94
1854.	11,972,723	2.09	1,977,201	2.28	13,949,924	2.11	491,879	2.15	14,441,803	2.12
1855.	14,864,558	2.33	2,083,872	2.56	16,948,430	2.36	554,352	2.11	17,502,782	2.35
1856.	16,809,150	2.43	2,174,081	2.81	18,983,231	2.47	697,641	2.83	19,680,872	2.48
1857.	16,576,971	2.40	2,057,887	2.78	18,634,858	2.43	585,587	2.37	19,220,445	2.43
1858.	15,200,077	2.39	2,040,481	2.59	17,241,158	2.41	431,635	2.05	17,672,793	2.40
1859.	15,919,929	2.42	1,965,472	2.85	17,885,401	2.46	445,577	2.10	18,330,978	2.45
1860.	16,538,020	2.24	1,650,106	2.51	18,188,126	2.26	475,403	1.92	18,663,529	2.25
1861.	18,700,499	2.22	1,819,203	2.43	20,519,702	2.23	495,995	2.06	21,015,697	2.23
1862.	20,576,573	2.21	1,804,633	2.36	22,381,206	2.23	479,777	2.03	22,860,983	2.22
1863.	20,961,021	2.18	1,886,766	2.31	22,847,787	2.19	534,910	2.04	23,382,697	2.18
1864.	21,808,180	2.17	2,002,317	2.27	23,900,497	2.18	562,084	2.13	24,462,581	2.18
1865.	23,212,026	2.22	1,980,431	2.25	25,193,057	2.22	476,421	1.93	25,669,478	2.21

<sup>a</sup> In the source quoted the value given is 296,167 francs, but as the sum of the items that should equal this total is 496,167 francs, it is probable that the former figures are erroneous. The equivalent of the latter amount is used in this table.

<sup>b</sup> Prior to 1840 several Departments made no distinction between bituminous and anthracite coal in reporting output and value. Beginning with that year, however, all Departments made that distinction, and this accounts for the apparent decrease in the value of bituminous and increase in the value of anthracite reported for 1840, as compared with previous years.

<sup>c</sup> This total does not agree with the sum of the items. In the source quoted the amount reported is 29,283,952 francs (\$5,651,803), while the sum of the items as published was 29,284,052 francs (\$5,651,822).

## TOTAL VALUE AND VALUE PER METRIC TON OF COAL AND LIGNITE PRODUCED IN FRANCE, 1814 TO 1903—Concluded.

[Source: 1814 to 1872, *Résumé des travaux statistiques de l'administration des mines, 1836-1872*; 1873 to 1903, *Statistique de l'industrie minière et des appareils à vapeur, 1873-1903*. Conversion of French into United States money was made on the basis of 1 franc = \$0.193. The value per metric ton was computed by dividing the total value, after conversion into United States money, by the total production as shown in the table on pages 184 and 185.]

Year.	Coal.						Lignite.		Total coal and lignite.	
	Bituminous.		Anthracite.		Total.		Total value.	Value per metric ton.	Total value.	Value per metric ton.
	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value.	Value per metric ton.				
1866..	\$25,439,112	\$2.29	\$1,964,259	\$2.16	\$27,403,371	\$2.28	\$494,334	\$1.93	\$27,897,705	\$2.28
1867..	27,292,798	2.58	2,248,029	2.31	29,540,827	2.37	531,064	1.97	30,071,891	2.36
1868..	27,072,398	2.25	2,148,895	2.26	29,221,293	2.25	560,984	2.01	29,782,277	2.25
1869..	27,482,195	2.25	2,080,545	2.22	29,562,740	2.25	639,346	1.97	30,202,086	2.24
1870..	27,494,288	2.27	1,925,019	2.20	29,419,307	2.26	645,803	1.96	30,065,110	2.26
1871..	29,056,148	2.40	1,935,462	2.37	31,011,610	2.40	682,062	1.96	31,693,672	2.39
1872..	37,872,691	2.64	2,357,456	2.33	40,230,147	2.62	832,238	1.88	41,062,385	2.60
1873..	(a)	(a)	(a)	(a)	54,906,308	3.23	1,134,677	2.25	56,040,985	3.21
1874..	(a)	(a)	(a)	(a)	52,798,809	3.21	1,133,748	2.37	53,927,557	3.19
1875..	(a)	(a)	(a)	(a)	51,125,805	3.10	1,023,024	2.26	52,148,829	3.08
1876..	(a)	(a)	(a)	(a)	49,649,641	2.98	957,295	2.06	50,606,936	2.96
1877..	(a)	(a)	(a)	(a)	44,827,223	2.74	966,356	1.94	45,793,579	2.71
1878..	(a)	(a)	(a)	(a)	43,043,318	2.62	1,018,618	1.96	44,061,936	2.60
1879..	(a)	(a)	(a)	(a)	41,679,393	2.51	1,036,461	1.94	42,715,854	2.50
1880..	(a)	(a)	(a)	(a)	46,566,113	2.48	1,044,506	1.88	47,610,619	2.46
1881..	(a)	(a)	(a)	(a)	46,352,224	2.41	1,085,550	1.96	47,437,774	2.40
1882..	(a)	(a)	(a)	(a)	48,097,691	2.40	1,044,452	1.88	49,142,143	2.39
1883..	(a)	(a)	(a)	(a)	50,381,830	2.43	1,100,967	1.92	51,482,797	2.41
1884..	(a)	(a)	(a)	(a)	46,606,468	2.39	1,028,932	2.07	47,635,400	2.38
1885..	(a)	(a)	(a)	(a)	43,300,331	2.27	876,512	1.98	44,176,843	2.26
1886..	(a)	(a)	(a)	(a)	42,135,113	2.17	855,484	1.88	42,990,597	2.16
1887..	(a)	(a)	(a)	(a)	42,842,051	2.06	847,751	1.77	43,689,802	2.05
1888..	(a)	(a)	(a)	(a)	44,221,877	1.99	746,234	1.73	44,968,111	1.99
1889..	(a)	(a)	(a)	(a)	48,065,045	2.02	801,924	1.78	48,866,969	2.01
1890..	(a)	(a)	(a)	(a)	59,217,428	2.31	885,185	1.80	60,102,613	2.30
1891..	(a)	(a)	(a)	(a)	65,624,666	2.57	944,782	1.81	66,569,448	2.56
1892..	(a)	(a)	(a)	(a)	61,797,409	2.40	865,282	1.80	62,662,691	2.39
1893..	(a)	(a)	(a)	(a)	56,071,771	2.23	822,875	1.72	56,894,646	2.22
1894..	(a)	(a)	(a)	(a)	58,621,539	2.17	776,170	1.71	59,397,709	2.17
1895..	(a)	(a)	(a)	(a)	58,797,662	2.13	752,270	1.72	59,549,932	2.13
1896..	(a)	(a)	(a)	(a)	60,328,763	2.10	749,746	1.71	61,078,509	2.09
1897..	(a)	(a)	(a)	(a)	63,709,465	2.10	754,164	1.64	64,463,629	2.09
1898..	(a)	(a)	(a)	(a)	69,191,835	2.17	896,774	1.69	70,088,609	2.17
1899..	(a)	(a)	(a)	(a)	77,598,479	2.41	1,057,815	1.74	78,656,294	2.39
1900..	(a)	(a)	(a)	(a)	94,919,343	2.90	1,435,258	2.10	96,354,601	2.88
1901..	(a)	(a)	(a)	(a)	96,372,720	3.05	1,509,547	2.18	97,882,267	3.03
1902..	(a)	(a)	(a)	(a)	83,023,542	2.83	1,219,829	1.93	84,243,371	2.81
1903..	(a)	(a)	(a)	(a)	93,133,021	2.72	1,275,637	1.85	94,408,658	2.70

a Not separately reported.

The average annual value per metric ton of coal in France during the 90-year period from 1814 to 1903 ranged from a minimum of \$1.76 per metric ton in 1843 to a maximum of \$3.23 in 1873. While the average value fluctuated from year to year, there is a perceptible tendency upward during the period.

The next table shows the average value of French coal and lignite at the mines and of French and foreign coal and lignite at the places of consumption in France, from 1853 to 1903.



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AVERAGE VALUE PER METRIC TON OF FRENCH COAL AND LIGNITE AT THE MINES AND OF FRENCH AND FOREIGN COAL AND LIGNITE AT PLACES OF CONSUMPTION IN FRANCE, 1853 TO 1903.

[Source: 1853 to 1872, *Résumé des travaux statistiques de l'administration des mines, 1853-1872*; 1873 to 1903, *Statistique de l'industrie minière et des appareils à vapeur, 1873-1903*. The figures showing value of coal and lignite at the mines were copied from the preceding table; those showing the value at places of consumption were copied directly from the source quoted and converted from French into United States money on the basis of 1 franc=\$0.193. The figures showing the difference were obtained by computation. A metric ton=2,204.6 pounds.]

Year.	Average value per metric ton.		Difference.	Year.	Average value per metric ton.		Difference.
	French coal and lignite at mines.	French and foreign coal and lignite at places of consumption.			French coal and lignite at mines.	French and foreign coal and lignite at places of consumption.	
1853	\$1.94	\$4.14	\$2.20	1879	\$2.50	\$4.22	\$1.72
1854	2.12	4.60	2.48	1880	2.46	4.20	1.74
1855	2.35	4.64	2.29	1881	2.40	4.17	1.77
1856	2.48	4.90	2.42	1882	2.39	4.14	1.75
1857	2.43	4.89	2.46	1883	2.41	4.06	1.65
1858	2.40	4.68	2.28	1884	2.38	4.05	1.67
1859	2.45	(a)	(a)	1885	2.26	4.03	1.77
1860	2.25	4.43	2.18	1886	2.16	3.82	1.66
1861	2.23	4.39	2.16	1887	2.05	3.79	1.74
1862	2.22	4.27	2.05	1888	1.99	3.69	1.70
1863	2.18	4.22	2.04	1889	2.01	3.93	1.92
1864	2.18	4.20	2.02	1890	2.30	4.35	2.05
1865	2.21	4.43	2.22	1891	2.56	4.17	1.61
1866	2.28	4.53	2.25	1892	2.39	3.93	1.54
1867	2.36	4.64	2.28	1893	2.22	3.87	1.65
1868	2.25	4.54	2.29	1894	2.17	3.81	1.64
1869	2.24	4.45	2.21	1895	2.13	3.79	1.66
1870	2.26	4.46	2.20	1896	2.09	3.75	1.66
1871	2.39	4.59	2.20	1897	2.09	3.61	1.52
1872	2.60	5.52	2.92	1898	2.17	3.76	1.59
1873	3.21	6.14	2.93	1899	2.39	4.42	2.03
1874	3.19	5.47	2.28	1900	2.88	5.13	2.25
1875	3.08	5.13	2.05	1901	3.03	4.94	1.91
1876	2.96	4.79	1.83	1902	2.81	4.58	1.77
1877	2.71	4.41	1.70	1903	2.70	4.45	1.75
1878	2.60	4.28	1.68				

(a) Not reported.

According to statements made in the sources above quoted, the difference between the cost of coal at the mines and the selling price at the places of consumption, as shown in the table above, represents the cost of transportation and general expenses of handling connected therewith, which must be borne by the consumer. During the earlier years this cost of transportation and handling was about equal to the selling price at the mine. In later years, however, the cost of transportation and handling has been proportionately less. The ton rate of transportation per kilometer, however, has probably decreased more than would appear from the above table, because with improved railway facilities and increased industrial activity coal has been carried longer distances during recent years.

Statistics of coal consumption published from 1787 to 1789 show that France at that time consumed about double the quantity of coal that it produced. The imported coal and lignite came from Great Britain, Belgium, and Germany. In 1802, however, a change had taken place; the production had increased nearly threefold and the importation had decreased. This is shown in the following table.

## PRODUCTION, IMPORTATION, EXPORTATION, AND CONSUMPTION OF COAL AND LIGNITE IN FRANCE, 1787 TO 1789, AND IN 1802.

[Source: Résumé des travaux statistiques de l'administration des mines, 1838.]

Year.	Production (metric tons).	Quantity imported (metric tons).				Total exportation (metric tons).	Consumption (metric tons).
		From Belgium.	From Germany.	From Great Britain.	Total.		
1787.....	215,000	50,000	10,000	157,378	217,378	28,787	403,591
1788.....	225,000	51,819	12,000	184,773	248,592	32,000	441,592
1789.....	240,000	50,000	10,000	180,000	240,000	30,000	450,000
1802.....	844,180	88,000	18,000	10,000	116,000	25,000	935,180

Continuous annual statistics of production, importation, and exportation of coal and lignite have been published since 1811. These are shown in the following table:

## COAL AND LIGNITE OUTPUT MARKETED AND QUANTITY IMPORTED, EXPORTED, AND REMAINING FOR HOME CONSUMPTION IN FRANCE, 1811 TO 1903.

[Source: 1811 to 1872, Résumé des travaux statistiques de l'administration des mines, 1870, 1871, 1872; 1873 to 1903, Statistique de l'industrie minérale et des appareils à vapeur, 1873-1903. Algeria and the French colonies are regarded as foreign territory. The quantities of coke and patent fuel have been reduced to their coal equivalents. For the years 1811 to 1872 the quantities were reported in quintals, which have been reduced to metric tons on the basis of 10 quintals=1 metric ton. A metric ton=2,204.6 pounds.]

Year.	Quantity of coal and lignite (metric tons).			
	Marketed from mines. (a)	Exported. (b)	Imported. (b)	Remaining for home consumption. (c)
1811 (d).....	773,694	30,000	120,000	863,694
1812 (d).....	835,523	30,000	124,000	929,523
1813 (d).....	771,779	30,000	117,000	858,779
1814 (d).....	788,372	21,118	165,346	932,600
1815.....	861,587	18,788	249,395	1,112,194
1816.....	941,639	30,304	320,624	1,231,959
1817.....	1,003,380	20,322	238,852	1,221,910
1818.....	897,904	33,594	281,852	1,146,162
1819.....	964,070	27,919	237,666	1,173,818
1820.....	1,093,658	26,456	280,920	1,348,122
1821.....	1,134,711	73,935	321,064	1,381,840
1822.....	1,193,979	6,386	338,069	1,525,262
1823.....	1,185,268	4,831	326,926	1,517,363
1824.....	1,325,699	6,369	462,179	1,781,509
1825.....	1,491,382	5,615	508,619	1,994,386
1826.....	1,441,001	3,918	505,180	2,042,263
1827.....	1,691,077	4,950	542,016	2,228,143
1828.....	1,774,073	5,301	584,048	2,352,820
1829.....	1,741,571	6,119	554,425	2,289,877
1830.....	1,862,665	6,012	637,291	2,493,944
1831.....	1,760,386	7,068	548,409	2,301,727
1832.....	1,862,855	22,485	579,700	2,520,160
1833.....	1,857,631	23,318	702,349	2,736,662
1834.....	1,989,841	22,618	747,184	3,214,406
1835.....	1,966,417	21,300	803,122	3,288,239
1836.....	1,841,947	26,443	999,452	3,814,956
1837.....	1,930,735	33,553	1,144,005	4,091,187
1838.....	1,123,253	35,315	1,227,030	4,304,887
1839.....	1,944,861	32,852	1,218,745	4,180,754
1840.....	1,903,382	37,331	1,230,660	4,256,711
1841.....	1,102,200	49,487	1,619,159	4,979,892
1842.....	1,922,084	57,852	1,669,184	5,203,416
1843.....	1,922,540	61,719	1,662,687	5,293,508
1844.....	1,822,739	51,775	1,755,886	5,486,850

<sup>a</sup> The figures shown in this column represent the production reported for taxation, plus an allowance for underestimates, for the years 1814 to 1838; the total production as reported for the years 1811 to 1813 and 1839 to 1859; the total production, plus the net diminution of stock on hand, or minus the net increase of stock on hand each year, for the years 1860 to 1903.

<sup>b</sup> From 1811 to 1872 the quantities reexported are included in the imports and exports; from 1873 to 1903 they are not included.

<sup>c</sup> Computed.

<sup>d</sup> The figures shown relate only to the territory which remained within the limits of France after the treaty of 1815.

<sup>e</sup> This should be 1,193,579 according to data in other reports, but the figures are reproduced as found in the source quoted.

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COAL AND LIGNITE OUTPUT MARKETED AND QUANTITY IMPORTED, EXPORTED, AND REMAINING FOR HOME CONSUMPTION IN FRANCE, 1811 TO 1903—Concluded.

[Source: 1811 to 1872, *Résumé des travaux statistiques de l'administration des mines, 1870, 1871, 1872; 1873 to 1903, Statistique de l'industrie minière et des appareils à vapeur, 1873-1903.* Algeria and the French colonies are regarded as foreign territory. The quantities of coke and patent fuel have been reduced to their coal equivalents. For the years 1811 to 1872 the quantities were reported in quintals, which have been reduced to metric tons on the basis of 10 quintals = 1 metric ton. A metric ton = 2,204.6 pounds.]

Year.	Quantity of coal and lignite (metric tons).			
	Marketed from mines. (a)	Exported. (b)	Imported. (b)	Remaining for home consumption. (c)
1845	4,202,092	66,218	2,207,195	6,343,069
1846	4,469,342	54,379	2,193,922	6,608,885
1847	5,153,205	53,045	2,548,716	7,648,876
1848	4,000,433	d 48,920	2,143,770	6,095,283
1849	4,049,218	37,690	2,393,950	6,405,478
1850	4,433,567	41,560	2,833,290	7,225,267
1851	4,485,034	34,780	2,926,580	7,376,834
1852	4,903,926	d 41,370	3,095,960	7,958,516
1853	5,937,985	46,110	3,530,530	9,422,405
1854	6,827,007	100,210	4,129,980	10,856,777
1855	7,453,048	d 111,576	4,952,215	12,293,687
1856	7,925,701	d 99,496	5,069,999	12,896,204
1857	7,901,757	d 120,093	5,367,803	13,149,467
1858	7,352,567	d 131,377	5,671,844	12,893,034
1859	e 7,681,068	178,297	5,759,387	13,262,158
1860	8,309,622	199,840	6,160,470	14,270,252
1861	9,395,487	253,010	6,290,290	15,402,787
1862	10,317,387	290,360	6,217,570	16,274,597
1863	10,707,966	315,350	6,120,450	16,513,066
1864	11,201,272	342,860	6,633,050	17,491,462
1865	11,652,755	343,060	7,212,690	18,522,375
1866	12,234,455	406,480	8,229,650	20,057,625
1867	12,533,335	355,610	7,982,610	20,160,335
1868	13,330,826	394,380	7,975,140	20,911,586
1869	13,609,745	381,440	8,304,200	21,432,505
1870	13,179,788	394,910	6,045,160	18,830,038
1871	13,240,135	329,270	5,949,500	18,860,425
1872	16,100,773	576,680	7,709,240	23,233,333
1873	17,368,390	694,670	8,028,666	24,702,380
1874	16,731,110	747,050	7,433,470	23,417,530
1875	17,046,890	671,580	8,282,220	24,637,530
1876	16,978,100	726,700	f 8,220,700	24,472,100
1877	16,877,200	614,300	7,881,600	24,449,100
1878	16,948,200	594,200	f 8,201,300	24,555,300
1879	16,989,300	559,000	8,581,800	25,332,100
1880	19,507,700	603,300	9,941,900	28,846,300
1881	19,824,400	601,000	10,221,500	29,444,900
1882	20,614,200	457,500	10,867,900	31,024,600
1883	21,242,000	509,800	11,707,100	32,439,300
1884	19,763,500	505,100	11,678,000	30,941,400
1885	19,623,800	505,700	10,918,700	30,034,800
1886	19,847,900	609,600	10,390,900	29,619,200
1887	21,220,700	594,800	10,564,800	31,160,700
1888	22,751,900	629,400	10,551,300	32,673,800
1889	24,472,900	943,200	9,981,300	33,511,000
1890	25,991,000	941,400	11,602,900	36,652,500
1891	25,788,400	906,100	11,690,400	36,572,700
1892	25,854,300	895,600	11,557,200	36,515,900
1893	25,876,800	898,400	11,400,700	36,379,100
1894	27,157,300	800,900	11,644,000	38,000,400
1895	28,093,200	963,200	11,509,900	38,640,000
1896	28,305,100	904,200	11,594,200	39,995,100
1897	30,886,600	1,020,900	11,974,800	41,840,500
1898	32,478,700	1,100,900	11,917,500	43,295,300
1899	32,884,000	1,025,600	13,370,000	45,228,400
1900	33,554,000	927,200	16,176,700	48,803,500
1901	32,050,600	718,800	15,441,300	46,773,100
1902	30,521,800	843,400	15,131,900	44,810,300
1903	34,337,500	959,100	14,801,900	48,180,300

a The figures shown in this column represent the production reported for taxation, plus an allowance for underestimates, for the years 1814 to 1838; the total production as reported for the years 1811 to 1813 and 1839 to 1859; the total production, plus the net diminution of the stock on hand, or minus the net increase of stock on hand each year, for the years 1860 to 1903.

b From 1811 to 1872 the quantities reexported are included in the imports and exports; from 1873 to 1903 they are not included.

c Computed.

d These figures do not agree with those shown in the table on page 195, but they are reproduced as found in the source quoted.

e Corrected figures. See note b to table on page 185.

f The quantity is given in round numbers, and therefore does not agree with that in the table on page 194.

The amount of coal and lignite exported from France has always been very small when compared with the total production. The proportion of imported coal to the total quantity consumed in France has varied considerably during the period of 93 years from 1811 to 1903. During the past 30 years the amount of imported coal has been about one-third of the total home consumption.

The coal and lignite imported into France during the years from 1811 to 1903 came chiefly from Great Britain, Belgium, and Germany. This is shown in the following table:

QUANTITY OF COAL AND LIGNITE IMPORTED INTO FRANCE, BY COUNTRIES, 1811 TO 1903.

[Source: 1811 to 1872, Résumé des travaux statistiques de l'administration des mines, 1870, 1871, 1872; 1873 to 1903, Statistique de l'industrie minérale et des appareils à vapeur, 1873-1903. Algeria and the French colonies are regarded as foreign territory. The quantities of coke and patent fuel have been reduced to their coal equivalents. From 1811 to 1872 the quantities reexported are included; from 1873 to 1903 they are excluded. For the years 1811 to 1872 the quantities were reported in quintals, which have been reduced to metric tons on the basis of 10 quintals = 1 metric ton. A metric ton = 2,204.6 pounds.]

Year.	Quantity (metric tons) of coal and lignite imported from—				Total quantity imported (metric tons).
	Great Britain.	Belgium.	Germany. <sup>(a)</sup>	Other countries.	
1811.....		95,000	25,000		120,000
1812.....		98,000	26,000		124,000
1813.....		90,000	27,000		117,000
1814.....	11,392	125,954	28,000		165,346
1815.....	22,432	198,463	28,500		249,395
1816.....	19,060	272,064	29,500		320,624
1817.....	15,776	192,742	30,334		238,852
1818.....	23,809	206,023	49,513	507	281,852
1819.....	23,991	170,945	42,359	371	277,666
1820.....	25,120	227,212	27,814	774	280,920
1821.....	26,515	251,802	42,584	163	321,064
1822.....	31,105	267,778	39,180	6	338,069
1823.....	23,233	264,873	38,705	115	326,926
1824.....	25,453	394,431	42,239	56	462,179
1825.....	26,685	439,248	42,394	292	508,619
1826.....	36,942	410,611	57,455	172	505,180
1827.....	47,761	423,225	70,826	184	542,016
1828.....	35,836	470,870	77,223	119	584,048
1829.....	42,844	435,948	75,612	21	554,425
1830.....	51,129	510,806	75,342	14	637,291
1831.....	35,911	443,549	68,925	24	548,409
1832.....	37,530	489,481	52,619	160	579,790
1833.....	42,641	580,172	79,185	351	702,349
1834.....	48,944	620,176	78,040	24	747,184
1835.....	98,160	615,158	89,783	21	803,122
1836.....	169,509	715,872	113,887	184	999,452
1837.....	222,606	788,414	132,673	312	1,144,005
1838.....	304,684	796,458	125,138	750	1,227,030
1839.....	320,528	740,810	156,914	493	1,218,745
1840.....	380,774	748,600	160,779	507	1,290,660
1841.....	429,950	992,225	196,502	482	1,619,159
1842.....	490,738	977,935	199,696	815	1,669,184
1843.....	455,662	991,861	213,014	2,150	1,662,687
1844.....	427,693	1,115,795	209,037	3,361	1,755,886
1845.....	565,749	1,396,167	240,695	4,584	2,207,195
1846.....	611,301	1,350,207	228,405	4,009	2,193,922
1847.....	586,520	1,686,995	272,324	2,877	2,548,716
1848.....	514,920	1,399,380	227,090	2,380	2,143,770
1849.....	572,140	1,591,320	228,720	1,770	2,393,950
1850.....	602,410	1,953,190	277,280	380	2,833,260
1851.....	602,130	2,025,990	298,200	260	2,926,580
1852.....	652,390	2,119,180	324,260	130	3,096,960
1853.....	666,720	2,431,340	432,290	180	3,530,530
1854.....	708,830	2,764,680	655,950	520	4,129,980
1855.....	881,339	3,214,172	855,003	1,701	4,952,215
1856.....	1,057,490	3,055,086	954,444	2,979	5,069,999
1857.....	1,240,917	3,021,752	1,099,860	5,274	5,367,803

<sup>a</sup> Saarbrück, Prussia, and Rhenish Bavaria from 1811 to 1872.

194 SPECIAL REPORT OF THE COMMISSIONER OF LABOR.

QUANTITY OF COAL AND LIGNITE IMPORTED INTO FRANCE, BY COUNTRIES, 1811 TO 1903—Concluded.

[Source: 1811 to 1872, *Résumé des travaux statistiques de l'administration des mines, 1870, 1871, 1872; 1873 to 1903, Statistique de l'industrie minérale et des appareils à vapeur, 1873-1903.* Algeria and the French colonies are regarded as foreign territory. The quantities of coke and patent fuel have been reduced to their coal equivalents. From 1811 to 1872 the quantities reexported are included; from 1873 to 1903 they are excluded. For the years 1811 to 1872 the quantities were reported in quintals, which have been reduced to metric tons on the basis of 10 quintals = 1 metric ton. A metric ton = 2,204.6 pounds.]

Year.	Quantity (metric tons) of coal and lignite imported from—				Total quantity imported (metric tons).
	Great Britain.	Belgium.	Germany. (a)	Other countries.	
1858.....	1,313,578	3,225,781	1,129,069	3,396	5,671,844
1859.....	1,395,873	3,345,802	1,015,540	2,172	5,759,387
1860.....	1,365,300	3,620,180	1,171,810	3,180	6,160,470
1861.....	1,439,920	3,566,720	1,282,010	2,540	6,290,290
1862.....	1,404,920	3,685,400	1,126,180	970	6,217,570
1863.....	1,296,600	3,715,390	1,107,160	1,400	6,120,450
1864.....	1,326,380	4,017,660	1,287,660	1,350	6,633,050
1865.....	1,492,410	4,372,240	1,347,330	700	7,212,680
1866.....	1,795,330	4,903,040	1,530,500	780	8,229,650
1867.....	1,931,710	4,455,390	1,595,040	570	7,982,610
1868.....	1,755,570	4,598,710	1,619,870	990	7,975,140
1869.....	1,894,870	4,740,050	1,668,250	1,030	8,304,200
1870.....	1,893,320	3,829,920	321,070	1,250	6,045,160
1871.....	1,909,490	3,838,190	201,300	580	5,949,560
1872.....	2,086,430	5,108,410	509,540	4,860	7,709,240
1873.....	2,346,991	4,908,189	769,097	4,383	8,028,660
1874.....	2,239,566	4,368,851	823,509	1,544	7,433,470
1875.....	2,606,434	4,659,402	1,015,156	1,328	8,282,220
1876.....	2,987,111	4,192,846	1,039,462	1,312	8,220,731
1877.....	2,867,025	3,874,622	1,136,683	3,266	7,881,596
1878.....	2,793,991	4,363,853	1,040,712	2,740	8,201,296
1879.....	<sup>b</sup> 3,018,200	4,820,100	1,047,400	1,900	<sup>b</sup> 8,887,600
1880.....	<sup>b</sup> 3,408,700	5,276,700	1,250,300	1,800	<sup>b</sup> 9,946,400
1881.....	<sup>b</sup> 3,572,700	5,396,600	1,255,400	1,300	<sup>b</sup> 10,225,400
1882.....	<sup>b</sup> 3,888,000	5,570,400	1,408,300	5,000	<sup>b</sup> 10,871,700
1883.....	<sup>b</sup> 4,370,600	5,756,300	1,577,400	5,600	<sup>b</sup> 11,709,900
1884.....	<sup>b</sup> 4,262,100	5,733,000	1,678,400	7,600	<sup>b</sup> 11,681,100
1885.....	<sup>b</sup> 4,081,700	5,320,700	1,511,400	5,500	<sup>b</sup> 10,919,300
1886.....	3,921,200	5,086,300	1,367,900	5,500	10,380,900
1887.....	<sup>b</sup> 4,050,000	5,243,700	1,271,800	3,500	<sup>b</sup> 10,569,000
1888.....	<sup>b</sup> 4,111,700	5,103,800	1,336,300	3,600	<sup>b</sup> 10,555,400
1889.....	<sup>b</sup> 3,842,400	5,035,600	1,104,100	2,100	<sup>c</sup> 9,984,000
1890.....	<sup>b</sup> 4,865,700	5,340,600	1,393,800	3,900	<sup>b</sup> 11,604,000
1891.....	<sup>b</sup> 4,865,000	5,279,600	1,544,000	3,900	<sup>b</sup> 11,692,400
1892.....	<sup>b</sup> 4,898,000	4,807,300	1,820,200	32,700	<sup>b</sup> 11,558,200
1893.....	<sup>b</sup> 4,436,000	4,888,600	2,037,100	41,000	<sup>b</sup> 11,402,700
1894.....	<sup>b</sup> 4,847,300	4,556,100	2,230,400	14,200	<sup>b</sup> 11,648,000
1895.....	<sup>b</sup> 4,947,100	4,515,600	2,042,000	8,500	<sup>b</sup> 11,513,100
1896.....	<sup>b</sup> 5,095,300	4,593,100	1,907,100	4,500	<sup>b</sup> 11,600,000
1897.....	<sup>b</sup> 5,499,400	4,402,300	2,076,600	5,000	<sup>b</sup> 11,983,300
1898.....	<sup>b</sup> 5,491,700	4,604,700	1,804,900	21,400	<sup>b</sup> 11,922,700
1899.....	<sup>b</sup> 6,722,300	4,752,600	1,870,600	26,900	<sup>b</sup> 13,372,300
1900.....	<sup>b</sup> 8,377,500	5,691,400	2,020,400	89,600	<sup>b</sup> 16,178,900
1901.....	<sup>b</sup> 7,902,000	5,492,800	1,956,400	92,100	<sup>b</sup> 15,443,300
1902.....	<sup>b</sup> 7,530,500	5,512,100	2,054,900	37,200	<sup>b</sup> 15,134,700
1903.....	7,374,500	5,015,000	2,402,100	9,400	14,801,900

<sup>a</sup> Saarbrück, Prussia, and Rhenish Bavaria from 1811 to 1872.

<sup>b</sup> Including coal and lignite reexported.

<sup>c</sup> The sum of the items does not agree with this total, but the figures are reproduced as found in the source quoted. The quantity of coal and lignite reexported is included.

Until 1892 the imports of coal and lignite from Belgium always exceeded those from Great Britain, but since that year the imports from Great Britain have been greater each year, except 1893.



The next table shows the coal and lignite exports from France for the years from 1836 to 1903, by countries:

QUANTITY OF COAL AND LIGNITE EXPORTED FROM FRANCE, BY COUNTRIES, 1836 TO 1903.

[Source: 1836 to 1872, Résumé des travaux statistiques de l'administration des mines, 1836-1872; 1873 to 1903, Statistique de l'industrie minière et des appareils à vapeur, 1873-1903. Algeria and the French colonies are regarded as foreign territory. The quantities of coke and patent fuel have been reduced to their coal equivalents. From 1811 to 1872 the quantities reexported are included; from 1873 to 1903 they are excluded. For the years 1811 to 1872 the quantities were reported in quintals, which have been reduced to metric tons on the basis of 10 quintals = 1 metric ton. A metric ton = 2,204.6 pounds.]

Year.	Quantity (metric tons) of coal and lignite exported to—					Total quantity exported (metric tons).		
	Belgium.	Switzerland.	Spain.	Italy. (a)	Germany. (b)		Other countries and foreign steamers.	
1836	14,672	2,675		2,849		6,247	26,443	
1837	21,936	3,441	122	6,077	523	1,454	33,553	
1838	20,020	3,838		4,375		7,163	35,396	
1839	14,634	5,153		5,913		7,152	32,852	
1840	21,023	6,671	1,571	3,743	2,000	2,323	37,331	
1841	28,895	5,077	1,926	8,346	1,733	3,490	49,467	
1842	34,248	6,820	3,996	8,844	2,000	1,944	57,852	
1843	31,289	10,371	5,704	7,871	1,429	5,055	61,719	
1844	12,577	11,743	6,241	6,878	2,493	11,843	51,775	
1845	10,030	13,666	8,440	12,547	641	20,884	66,218	
1846	11,886	13,055	5,257	9,382	890	13,909	54,379	
1847	10,397	14,565	3,554	8,062	728	15,719	53,045	
1848	8,245	10,492	491	7,422	445	21,826	48,921	
1849	8,460	10,120	1,380	8,330		9,400	37,690	
1850	6,780	15,640	170	10,440		8,530	41,560	
1851	9,710	12,610	620	8,900		2,940	34,780	
1852	7,600	14,060	1,450	9,460		8,790	41,360	
1853	12,900	13,060	2,490	9,970		7,690	46,110	
1854	51,710	19,780	5,080	10,550	200	12,880	100,210	
1855	66,250	17,460	2,460	14,780	280	10,350	111,580	
1856	50,240	21,280	1,670	20,280		6,050	99,500	
1857	64,080	18,320	1,800	28,020		7,870	120,090	
1858	54,840	41,420	5,520	19,300		10,300	131,380	
1859	59,989	54,410	10,209	31,127	749	21,813	178,297	
1860	39,980	56,140	7,870	32,800	680	62,370	199,840	
1861	53,260	99,540	7,840	33,770	7,260	81,340	283,010	
1862	55,560	67,970	7,900	50,840		870	260,360	
1863	59,110	85,190	10,000	64,210		680	315,350	
1864	54,030	90,660	10,520	76,460		570	342,860	
1866	60,590	79,880	14,230	54,930		510	343,060	
1866	109,850	104,000	12,920	46,090		133,620	406,480	
1867	52,670	108,530	11,860	92,280		450	89,820	355,610
1868	75,730	140,000	4,260	72,070		1,690	100,630	394,380
1869	74,960	134,610	4,060	68,890		1,580	97,340	381,440
1870	82,930	126,870	31,360	93,710		980	59,060	394,910
1871	75,740	63,960	8,220	69,060		90,880	21,410	329,270
1872	115,010	88,060	15,200	172,480		136,340	49,590	576,680
1873	138,340	90,360	8,250	286,840		117,330	53,550	694,670
1874	102,860	104,760	16,400	294,690		113,570	114,770	747,050
1875	100,820	128,290	4,630	249,650		100,500	87,690	671,580
1876	99,800	143,400	3,800	269,400		145,000	65,300	726,700
1877	92,400	111,700	4,100	293,800		78,800	33,500	614,300
1878	97,200	98,300	3,600	250,500		68,700	75,900	594,200
1879	98,200	110,400	10,500	142,500		51,600	126,800	539,000
1880	127,900	125,100	16,300	194,900		44,500	94,600	603,300
1881	151,800	95,000	33,300	189,800		50,200	80,900	601,000
1882	126,100	100,300	31,200	111,400		42,200	46,300	457,500
1883	136,200	107,600	51,300	125,500		50,400	38,800	509,800
1884	94,600	107,300	64,500	128,000		41,300	64,400	500,100
1885	134,900	115,600	50,700	116,400		34,500	53,600	505,700
1886	160,700	130,200	54,900	166,500		36,100	61,200	609,600
1887	206,700	152,200	56,800	99,300		23,400	56,400	594,800
1888	213,000	162,400	62,700	124,400		31,200	35,700	629,400
1889	318,100	209,300	100,400	207,600		53,400	54,400	943,200

<sup>a</sup> The countries included under this head were: Sardinia, 1836, 1839; Sardinia, Tuscany, and the two Sicilies, 1837, 1838, 1846, 1854, 1855, 1858; Sardinia and the two Sicilies, 1840-1844, 1853, 1856, 1857; Sardinia and Tuscany, 1847-1852; Sardinia, the two Sicilies and the Roman States, 1859; Italy and the Roman States, 1860-1869; Italy, 1870-1903.

<sup>b</sup> The countries included under this head were: Germany and Prussia, 1837; the German States, 1840-1844; the German Confederation, 1854, 1856, 1859; Germany, 1845-1848, 1860-1903. It is not known what states were included under the designation "Germany" (Allemagne) prior to 1871.

<sup>c</sup> These figures do not agree with those shown in the table on page 192, but they are reproduced as found in the source quoted.

196 SPECIAL REPORT OF THE COMMISSIONER OF LABOR.

QUANTITY OF COAL AND LIGNITE EXPORTED FROM FRANCE, BY COUNTRIES, 1836 TO 1903—Concluded.

[Source: 1836 to 1872, *Résumé des travaux statistiques de l'administration des mines, 1836-1872*; 1873 to 1903, *Statistique de l'industrie minière et des appareils à vapeur, 1873-1903*. Algeria and the French colonies are regarded as foreign territory. The quantities of coke and patent fuel have been reduced to their coal equivalents. From 1811 to 1872 the quantities reexported are included; from 1873 to 1903 they are excluded. For the years 1811 to 1872 the quantities were reported in quintals, which have been reduced to metric tons on the basis of 10 quintals = 1 metric ton. A metric ton = 2,204.6 pounds.]

Year.	Quantity (metric tons) of coal and lignite exported to—						Total quantity exported (metric tons).
	Belgium.	Switzerland.	Spain.	Italy. <sup>(a)</sup>	Germany. <sup>(b)</sup>	Other countries and foreign steamers.	
1880.....	302,500	251,600	92,000	197,900	37,900	59,500	941,400
1881.....	263,900	275,900	135,100	157,100	28,500	45,600	906,100
1882.....	332,500	237,900	128,500	102,200	35,300	59,200	895,600
1883.....	353,800	239,100	80,600	67,100	45,600	112,200	898,400
1884.....	342,500	225,400	63,200	61,000	43,800	65,000	800,900
1885.....	453,500	245,700	52,700	65,900	36,500	108,900	963,200
1886.....	462,500	234,400	45,800	36,700	22,200	102,600	904,200
1887.....	603,500	237,500	36,200	40,100	10,100	93,500	1,020,900
1888.....	623,100	239,500	55,300	53,400	11,800	117,800	1,100,900
1889.....	650,400	225,700	40,200	28,300	9,100	71,900	1,025,600
1900.....	548,700	233,300	41,400	29,100	7,700	67,000	927,200
1901.....	404,600	175,600	30,600	51,200	2,900	53,900	718,800
1902.....	488,300	180,600	32,600	61,400	6,600	73,900	843,400
1903.....	582,500	210,200	32,500	52,900	3,700	77,300	959,100

<sup>a</sup> The countries included under this head were: Sardinia, 1836, 1839; Sardinia, Tuscany, and the two Sicilies, 1837, 1838, 1845, 1846, 1854, 1855, 1858; Sardinia and the two Sicilies, 1840-1844, 1853, 1856, 1857; Sardinia and Tuscany, 1847-1852; Sardinia, the two Sicilies and the Roman States, 1859; Italy and the Roman States, 1860-1869; Italy, 1870-1903.

<sup>b</sup> The countries included under this head were: Germany and Prussia, 1837; the German States, 1840-1844; the German Confederation, 1854, 1855, 1859; Germany, 1845-1848, 1860-1903. It is not known what states were included under the designation "Germany" (Allemagne) prior to 1871.

For the greater part of the period France exported more coal and lignite to Belgium than to any other country. Switzerland is next in importance as a consumer of French coal and lignite.



## EMPLOYEES.

Official statistics of employment in coal and lignite mines are not obtainable for the years preceding 1834. Since that time, however, a continuous official record has been kept of the number of employees above and below ground.

In the French reports employees in coal and in lignite mines are not separately reported in connection with statistics of production and earnings. They are, however, separately reported for coal and lignite mines for the years 1853 to 1858, 1860 to 1872, and 1879 to 1901 in connection with statistics of accidents. The figures for total employees, given with the accident statistics (see table, p. 211) do not agree with those given with the statistics of production and earnings for any of the years preceding 1876. No explanation is given.

The table which follows shows the number of employees in coal and lignite mines in France from 1834 to 1903, as published in connection with production and wage statistics in the French reports:

## NUMBER OF EMPLOYEES BELOW AND ABOVE GROUND IN COAL AND LIGNITE MINES IN FRANCE, 1834 TO 1903.

[Source: 1834 to 1872, Résumé des travaux statistiques de l'administration des mines, 1835-1872; 1873 to 1903, Statistique de l'industrie minière et des appareils à vapeur, 1873-1903. The figures for the years 1853 to 1875 do not agree with those in the table on page 211. See text statement. The number of employees is exclusive of salaried persons.]

Year.	Employees in coal and lignite mines			Year.	Employees in coal and lignite mines.		
	Below ground.	Above ground.	Total.		Below ground.	Above ground.	Total.
1834	13,808	4,273	18,081	1869	61,469	23,025	84,494
1835	14,477	5,017	a 19,494	1870	59,973	22,700	82,673
1836	15,969	5,924	21,913	1871	60,065	23,564	83,629
1837	16,906	5,932	22,837	1872	66,700	25,199	91,899
1838	19,645	6,571	26,216	1873	76,214	29,299	105,513
1839	20,220	6,746	26,966	1874	75,713	30,576	106,289
1840	20,931	6,823	27,754	1875	77,637	31,075	108,712
1841	22,595	6,725	29,320	1876	79,311	31,491	110,802
1842	22,036	6,732	28,768	1877	79,043	30,364	109,407
1843	21,979	7,549	29,528	1878	75,116	31,299	106,415
1844	22,220	7,324	29,544	1879	72,567	29,905	102,472
1845	23,597	7,171	30,768	1880	76,154	31,082	107,236
1846	24,791	6,961	31,752	1881	76,412	29,998	106,410
1847	26,723	8,068	34,791	1882	77,811	30,458	108,269
1848	24,632	7,334	31,966	1883	80,952	32,061	113,013
1849	24,810	7,542	32,352	1884	78,264	31,162	109,426
1850	25,942	7,431	a 32,923	1885	73,583	28,033	101,616
1851	25,888	7,746	33,634	1886	72,796	29,598	102,394
1852	27,001	8,280	35,281	1887	72,972	30,191	103,163
1853	30,786	10,172	40,958	1888	74,116	30,843	104,959
1854	34,387	12,379	46,766	1889	73,819	32,100	110,919
1855	39,110	15,212	54,322	1890	86,836	34,719	121,555
1856	41,410	17,411	58,821	1891	93,962	37,870	131,832
1857	41,558	17,909	59,467	1892	94,994	38,199	133,193
1858	40,447	15,588	56,035	1893	93,685	c 38,959	c 132,644
1859	(b)	(b)	(b)	1894	96,267	38,190	134,557
1860	41,741	17,499	59,240	1895	97,435	39,891	137,326
1861	46,970	18,649	65,619	1896	99,928	40,246	140,174
1862	49,582	19,800	69,382	1897	101,663	41,708	143,401
1863	52,571	20,796	73,367	1898	105,395	43,231	148,626
1864	54,601	22,651	77,252	1899	110,245	43,680	153,925
1865	55,945	22,005	77,950	1900	116,403	45,675	162,079
1866	56,981	22,928	79,909	1901	117,335	46,461	163,796
1867	59,389	24,103	83,492	1902	118,743	46,067	164,810
1868	60,859	24,050	84,909	1903	120,941	46,272	167,213

a The sum of the items does not agree with this total, but the figures are reproduced as found in the source quoted.

b Not reported.

c This number does not agree with figures shown in the tables on pages 199 and 211. No explanation is given.

During the period from 1834 to 1903 the number of employees increased from 18,081 to 167,213, or over eightfold. During the same period the total production increased over fifteenfold, showing that the productive power per employee has increased considerably during the period. This is shown in the following table, which shows the average annual production of coal and lignite per employee from 1834 to 1903:

AVERAGE ANNUAL PRODUCTION PER EMPLOYEE IN COAL AND LIGNITE MINES IN FRANCE, 1834 TO 1903.

[Source: Computed from the figures for total production given in the table on page 191 for the years 1834 and 1835 and in the table on pages 184 and 185 for the years 1836 to 1903, and the number of employees as given in the table on page 197.]

Year.	Production per employee (metric tons).	Year.	Production per employee (metric tons).	Year.	Production per employee (metric tons).
1834	138	1858	131	1881	186
1835	129	1859	(a) 140	1882	190
1836	130	1860	144	1883	189
1837	131	1861	148	1884	183
1838	119	1862	146	1885	192
1839	111	1863	146	1886	195
1840	108	1864	145	1887	206
1841	116	1865	149	1888	215
1842	125	1866	153	1889	219
1843	125	1867	153	1890	215
1844	128	1868	156	1891	197
1845	137	1869	159	1892	197
1846	141	1870	161	1893	193
1847	148	1871	159	1894	204
1848	125	1872	172	1895	204
1849	125	1873	166	1896	208
1850	135	1874	159	1897	215
1851	133	1875	156	1898	218
1852	139	1876	154	1899	213
1853	145	1877	154	1900	206
1854	146	1878	159	1901	197
1855	137	1879	167	1902	182
1856	135	1880	181	1903	209
1857	133				

<sup>a</sup> No computation could be made, because the number of employees was not reported.

The next table shows the number of employees below and above ground in coal and in lignite mines, respectively, for the years 1853 to 1858, 1860 to 1872, and 1879 to 1901, as published in connection with statistics of accidents.

NUMBER OF EMPLOYEES BELOW AND ABOVE GROUND IN COAL AND LIGNITE MINES IN FRANCE, 1853 TO 1901, AS PUBLISHED IN CONNECTION WITH FRENCH ACCIDENT TABLES.

[www.libtool.com.cn](http://www.libtool.com.cn)

[Source: 1853 to 1858 and 1860 to 1872, Résumé des travaux statistiques de l'administration des mines, 1853-1872; 1879 to 1901, Statistique de l'industrie minière et des appareils à vapeur, 1879-1901. Statistics for the year 1859 and the years 1873 to 1878 could not be obtained. The figures for the years 1853 to 1872 do not agree with those in the table on page 197. See text statement.]

Year.	Employees in coal mines.			Employees in lignite mines.		
	Below ground.	Above ground.	Total.	Below ground.	Above ground.	Total.
1853.....	28,946	10,188	39,134	1,746	232	1,978
1854.....	(a)	(a)	45,529	(a)	(a)	2,304
1855.....	(a)	(a)	52,540	(a)	(a)	2,045
1856.....	(a)	(a)	58,240	(a)	(a)	1,776
1857.....	40,288	17,359	57,647	1,977	301	2,278
1858.....	(a)	(a)	52,833	(a)	(a)	2,078
1860.....	(a)	(a)	58,975	(a)	(a)	1,846
1861.....	(a)	(a)	63,905	(a)	(a)	1,825
1862.....	(a)	(a)	67,667	(a)	(a)	1,772
1863.....	50,919	20,392	71,311	1,866	441	2,307
1864.....	(a)	(a)	73,992	(a)	(a)	2,674
1865.....	54,376	21,658	76,034	2,023	678	2,701
1866.....	55,802	23,189	78,991	1,925	611	2,536
1867.....	58,013	24,340	82,353	1,834	434	2,268
1868.....	59,336	24,796	84,132	1,887	448	2,335
1869.....	59,863	23,302	83,165	2,158	533	2,691
1870.....	58,166	22,526	80,692	2,085	580	2,665
1871.....	57,832	23,795	81,627	2,293	768	3,061
1872.....	63,863	25,594	89,457	2,651	889	3,540
1879.....	70,193	28,962	99,155	2,374	943	3,317
1880.....	73,692	30,229	103,921	2,462	853	3,315
1881.....	73,990	29,012	103,002	2,422	986	3,408
1882.....	75,444	29,551	104,995	2,367	907	3,274
1883.....	78,459	31,115	109,574	2,493	936	3,429
1884.....	76,001	30,322	106,323	2,263	840	3,103
1885.....	71,367	27,233	98,600	2,216	800	3,016
1886.....	70,674	28,712	99,386	2,112	856	2,968
1887.....	70,628	29,369	99,997	2,344	822	3,166
1888.....	71,956	30,114	102,070	2,160	729	2,889
1889.....	76,593	31,348	107,941	2,226	752	2,978
1890.....	84,633	33,869	118,502	2,303	850	3,053
1891.....	91,653	37,003	128,656	2,309	867	3,176
1892.....	92,734	37,382	130,116	2,260	817	3,077
1893.....	91,500	<sup>b</sup> 38,139	<sup>c</sup> 129,639	2,185	<sup>b</sup> 790	<sup>c</sup> 2,975
1894.....	94,227	37,360	131,587	2,140	830	2,970
1895.....	95,309	39,068	134,377	2,126	823	2,949
1896.....	97,800	39,493	137,293	2,128	773	2,901
1897.....	99,666	40,932	140,598	2,027	776	2,803
1898.....	103,373	42,446	145,819	2,022	786	2,807
1899.....	107,932	42,821	150,753	2,313	859	3,172
1900.....	113,872	44,708	158,580	2,531	968	3,499
1901.....	114,559	45,398	159,957	2,776	1,063	3,839

<sup>a</sup> Not reported.

<sup>b</sup> The sum of the figures for surface employees in coal and in lignite mines does not agree with the number shown in the table on page 197.

<sup>c</sup> The sum of the totals for coal and lignite mine employees does not agree with the totals shown in the tables on pages 197 and 203.

The sex and age of employees were not published prior to 1883. From that time until 1893 but two age groups were given, namely, adults and persons under 16 years of age. Since 1893 a new grouping has been made by which persons 16 or under 18 years of age are separately shown. The following table shows the number of employees below and above ground from 1883 to 1903 by sex and age groups:

NUMBER OF EMPLOYEES BELOW AND ABOVE GROUND IN COAL AND LIGNITE MINES IN FRANCE, BY SEX AND AGE GROUPS, 1883 TO 1903.

[Source: Statistique de l'industrie minérale et des appareils à vapeur, 1883-1903.]

Year.	Employees below ground.			Employees above ground.				All employees.			
	Males.			Adults.		Males and females 16 or under 18 years of age.	Males and females 16 or under 18 years of age.	Adults.		Males and females 16 or under 18 years of age.	Males and females under 16 years of age.
	Adults.	16 or under 18 years of age.	Under 16 years of age.	Males.	Fe-males.			Males.	Fe-males.		
1883....	a 75,581	(b)	5,371	c 25,546	d 3,869	(b)	2,636	c 101,127	d 3,869	(b)	8,007
1884....	a 73,789	(b)	4,475	c 24,664	d 3,581	(b)	2,917	c 98,453	d 3,581	(b)	7,392
1885....	a 69,640	(b)	4,043	c 22,048	d 3,183	(b)	2,802	c 91,588	d 3,183	(b)	6,845
1886....	a 68,248	(b)	4,538	c 23,046	d 3,258	(b)	3,264	c 91,294	d 3,258	(b)	7,802
1887....	a 68,610	(b)	4,462	c 23,763	d 3,185	(b)	3,243	c 92,273	d 3,185	(b)	7,705
1888....	a 69,791	(b)	4,325	c 24,115	d 3,336	(b)	3,392	c 93,906	d 3,336	(b)	7,717
1889....	a 73,937	(b)	4,882	c 25,077	d 3,342	(b)	3,681	c 99,014	d 3,342	(b)	8,563
1890....	a 81,001	(b)	5,235	c 26,497	d 3,798	(b)	4,424	c 108,098	d 3,798	(b)	9,659
1891....	a 88,631	(b)	5,331	c 29,011	d 3,989	(b)	4,870	c 117,642	d 3,989	(b)	10,201
1892....	a 89,916	(b)	5,078	c 29,229	d 3,807	(b)	5,163	c 119,145	d 3,807	(b)	10,241
1893....	83,766	5,507	4,412	27,882	4,181	2,823	4,073	111,648	4,181	8,530	8,485
1894....	86,374	5,476	4,517	27,616	3,658	2,491	4,425	113,990	3,658	7,967	8,942
1895....	87,051	5,667	4,717	28,522	4,993	2,316	4,060	115,573	4,993	7,963	8,777
1896....	89,362	5,691	4,875	28,666	5,189	2,264	4,127	118,028	5,189	7,955	9,002
1897....	90,430	6,215	5,048	29,659	4,949	2,535	4,565	120,089	4,949	8,750	9,613
1898....	93,394	6,555	5,446	30,487	5,489	2,680	4,075	123,881	5,489	9,135	10,121
1899....	97,967	6,656	5,622	30,735	5,571	2,669	4,705	128,702	5,571	9,325	10,327
1900....	103,205	7,173	6,025	32,539	5,719	2,978	4,440	135,744	5,719	10,161	10,465
1901....	103,876	7,208	6,251	33,602	5,781	2,787	4,291	137,478	5,781	9,995	10,542
1902....	105,002	7,015	6,126	34,098	4,686	2,680	4,603	139,700	4,686	9,695	10,529
1903....	107,016	7,161	6,764	34,993	5,652	2,120	3,507	142,009	5,652	9,281	10,271

a Including persons 16 or under 18 years of age.

b Included in adults.

c Including males 16 or under 18 years of age.

d Including females 16 or under 18 years of age.

In France no women are employed below ground. For reasons given in the notes to the preceding table the figures showing the number of male and female adult mine workers separately for the years 1883 to 1892 are not comparable with those for the years 1893 to 1903. During the latter period the number of female adult surface workers increased much more in proportion than the number of males, but the number of children and of young persons (16 to 18 years of age) shows an actual decrease. In underground work, while there is an actual increase in the number of persons included in each of the age groups, the proportionate increase in the number of children and of young persons is considerably greater than that of adults. Of the total number of coal and lignite miners in France in 1903, 84.9 per cent were male adults, 3.4 per cent were female adults, 5.6 per cent were young persons 16 or under 18 years of age, and 6.1 per cent were children under 16 years of age.

## WAGES.

[www.libtool.com.cn](http://www.libtool.com.cn)  
In the coal mines of France the miners proper generally work by the piece, sometimes individually, but usually in gangs. The conditions of labor are such and the difficulties of supervision are so great that they are very rarely paid by the day. The piece price is generally fixed by agreement and is based either upon the square meter of surface mined or upon the carload wheeled to the nearest inclined plane. Piece rates are also agreed upon sometimes for timberwork and filling in. The work of each gang is generally paid for in a lump sum out of which the day laborers, where there are any, are paid, and the balance is divided among the miners associated in the gang.

Aside from the miners and helpers associated in the gangs and the timbermen, all mine workers both below and above ground are generally paid by the day. Wages are as a rule higher in coal mines than in metalliferous mines.

The mines in France are generally operated only on week days. The length of the shift varies from 8 to 11 hours, the average for underground workers being from 8 to 9 hours and for surface workers from 10 to 11 hours. Underground workers generally work in two shifts, a day and a night shift. The work of mining is carried on during the day shift, the night shift being devoted to filling in and cleaning up, making repairs, etc.

During the years 1891 to 1893 the French labor bureau conducted an inquiry into the wages and hours of labor in all leading industries in France. The report<sup>a</sup> of this investigation furnishes the only official information published in France concerning the wages and hours of labor of mine workers by individual occupations. As far as this inquiry related to the coal and lignite mining industries it covered 61 mines employing 80,650 mine workers. The wages as published in the original report, however, are shown separately for each mine, no summary having been made of the data in any such form as would enable this Bureau to reproduce them. The following table is not a summary of the detailed data published—that is, it does not show the average wages as computed from the detailed figures. It is intended merely to give an idea of the customary wages paid at the time of the inquiry as observed by the French labor bureau.

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<sup>a</sup>Salaires et durée du travail dans l'industrie française, Office du Travail, Ministère du Commerce, de l'Industrie, des Postes et des Télégraphes. 4 volumes.

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CONVENTIONAL DAILY EARNINGS OF MINERS AND QUARRY MEN IN FRANCE AS OBSERVED BY THE BUREAU OF LABOR STATISTICS IN THE YEAR 1903.

Source: [www.bls.gov](http://www.bls.gov) [Historical data] industry: France year: 1903. Conversion of French into United States money was made in the ratio of 1 franc = \$0.20.

Occupation and Department.	Time of year worked.	Conventional wages for 11 hours' work.		
		Minimum.	Maximum.	Average.
<i>Mining groups</i>				
<i>Soft and flinted coal</i>	Year	\$1.11	\$1.48	\$1.29
<i>Other departments</i>	Year	.95	1.15	.99
<i>All departments</i>	Year			1.13
<i>Time: max.</i>	Time and year	.95	1.15	1.10
<i>Mining groups</i>				
<i>Soft and flinted coal</i>	Time	.71	1.01	.86
<i>Other departments</i>	Time	.53	.95	.71
<i>All departments</i>	Time			.83
<i>Quarrying (open pits) at coal</i>	Time	1.07	1.35	1.14
<i>Hard coal</i>	Time	.68	.91	.72
<i>Quarrying</i>	Time	.68	1.08	.79
<i>Quarries</i>				
<i>Soft and flinted coal</i>	Time	.68	.97	.71
<i>Quarrying</i>	Time	.71	1.04	.97
<i>All departments</i>	Time	.53	.66	.58
<i>All departments</i>	Time			.71
<i>Quarries</i>	Time	.53	.77	.66
<i>Railway yards</i>	Time	.68	.97	.86
<i>Quarries, open pits</i>	Time	.68	.77	.88

The only statistics concerning the daily or yearly earnings of mine workers in France as a whole for a long series of years are such as may be obtained by dividing the total wages paid each year as published in the French reports by the total number of employees to get the average earnings per year, and then dividing the average yearly earnings by the average days worked during the year to obtain the average earnings per day. Such a computation has been made for the table which follows, after the amounts showing total wages in francs had been converted into United States money. The table shows the total number of employees, average days worked per employee, total wages paid, and the average annual and daily earnings per employee from 1843 to 1903.



NUMBER OF EMPLOYEES, DAYS WORKED PER EMPLOYEE, TOTAL WAGES PAID, AND AVERAGE EARNINGS PER YEAR AND PER DAY IN COAL AND LIGNITE MINES IN FRANCE, 1843 TO 1903.

[Source: 1843 to 1872, Résumé des travaux statistiques de l'administration des mines, 1843-1872; 1873 to 1903, Statistique de l'industrie minière et des appareils à vapeur, 1873-1903. The average earnings per day and per year were computed after the values had been converted from French into United States money on the basis of 1 franc=\$0.193.]

Year.	Persons employed. (a)	Days worked per employee.	Wages paid.		
			Total.	Per employee.	
				Per day.	Per year.
1843.....	29,528	264	\$3,144,531	\$0.40	\$106.49
1844.....	29,554	275	3,027,211	.37	102.43
1845.....	30,768	(b)	(b)	(b)	(b)
1846.....	31,752	(b)	(b)	(b)	(b)
1847.....	34,791	288	3,991,998	.40	114.74
1848.....	31,966	265	3,490,839	.41	109.20
1849.....	32,352	247	3,332,512	.42	103.01
1850.....	32,923	249	3,376,086	.41	102.54
1851.....	33,634	269	3,614,333	.40	107.46
1852.....	35,381	275	3,835,815	.39	106.41
1853.....	40,958	274	4,756,890	.42	116.14
1854.....	46,766	297	6,198,793	.45	132.55
1855.....	54,322	281	6,915,545	.45	127.31
1856.....	58,821	275	7,823,589	.48	133.01
1857.....	59,467	282	8,040,181	.48	135.20
1858.....	56,035	274	7,540,085	.49	134.56
1859.....	(b)	(b)	(b)	(b)	(b)
1860.....	59,240	285	8,168,229	.48	137.88
1861.....	65,619	280	9,095,089	.50	138.60
1862.....	69,382	291	9,806,032	.49	141.33
1863.....	73,357	283	10,799,082	.52	147.21
1864.....	77,342	289	11,197,048	.50	144.77
1865.....	77,950	283	11,481,877	.52	147.30
1866.....	79,909	287	12,196,003	.53	152.62
1867.....	83,492	286	13,328,218	.56	159.63
1868.....	84,909	282	13,649,875	.57	160.76
1869.....	84,494	282	13,718,234	.58	162.36
1870.....	82,673	288	13,949,001	.59	168.72
1871.....	83,640	286	14,219,264	.59	169.99
1872.....	91,899	293	17,391,873	.65	189.25
1873.....	105,513	296	20,755,532	.67	196.71
1874.....	106,289	295	21,576,764	.69	203.00
1875.....	108,712	295	21,520,325	.67	197.96
1876.....	110,802	(b)	21,822,181	(b)	196.95
1877.....	108,907	(b)	20,485,858	(b)	188.10
1878.....	106,415	(b)	20,030,593	(b)	188.23
1879.....	102,472	(b)	19,514,342	(b)	190.44
1880.....	107,236	(b)	21,526,293	(b)	200.74
1881.....	106,410	(b)	21,673,626	(b)	203.68
1882.....	108,269	296	22,970,046	.72	212.16
1883.....	113,003	293	24,544,036	.74	217.20
1884.....	109,426	280	22,650,037	.74	206.99
1885.....	101,616	280	20,432,671	.72	201.06
1886.....	102,354	283	20,721,076	.72	202.45
1887.....	103,163	287	21,254,689	.72	206.03
1888.....	104,969	292	21,971,305	.72	209.33
1889.....	110,919	290	24,005,301	.75	216.42
1890.....	121,555	290	28,309,568	.80	232.90
1891.....	131,832	288	30,589,159	.81	232.03
1892.....	133,193	288	31,395,976	.82	235.72
1893.....	c 132,644	277	29,350,788	.80	221.27
1894.....	134,557	285	30,682,022	.80	228.02
1895.....	137,326	283	30,781,897	.79	224.15
1896.....	140,174	287	31,869,989	.79	227.36
1897.....	143,401	288	33,041,303	.80	230.41
1898.....	148,626	290	35,209,945	.82	236.90
1899.....	153,925	288	37,447,086	.84	243.28
1900.....	162,079	286	41,664,381	.90	257.06
1901.....	163,796	290	44,145,579	.93	269.52
1902.....	164,810	271	39,487,501	.88	239.59
1903.....	167,213	296	43,441,988	.88	259.80

a Not including salaried officials.

b Not reported.

c This number does not agree with the figures shown in the tables on pages 199 and 211. No explanation is given.

This table shows an increase from \$106.49 in 1843 to \$259.80 in 1903, or 143.9 per cent in the annual earnings per employee. The average daily earnings were \$0.40 in 1843 and \$0.88 in 1903.



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Since 1882 the average earnings and production per employee, and since 1892 the average days worked, have been separately shown in the French reports for underground and surface workers in each of the principal coal and lignite fields and for the whole of France. These statistics, as well as the labor cost per metric ton, are shown in the following table:

AVERAGE DAYS EMPLOYED, EARNINGS AND PRODUCTION PER EMPLOYEE BELOW AND ABOVE GROUND (EXCLUSIVE OF SALARIED OFFICIALS), AND AVERAGE LABOR COST PER TON OF COAL AND LIGNITE PRODUCED IN EACH PRINCIPAL COAL AND LIGNITE FIELD AND IN FRANCE AS A WHOLE, 1882 TO 1903.

[Source: Statistique de l'industrie minérale et des appareils à vapeur, 1882-1903. The daily wages per employee for the years 1892 to 1903 have been computed in each case from the figures in the preceding columns, and for France as a whole the yearly product per employee has been computed from figures given on pages 185 and 197. In all other cases the figures have been accepted as found in the source quoted. Conversion of French into United States money was made on the basis of 1 franc=\$0.193. A metric ton=2,204.6 pounds.]

VALENCIENNES.

Year.	Average days employed during year.		Average yearly wages per employee.		Average daily wages per employee.		Average yearly product per employee (metric tons).		Labor cost per metric ton produced.
	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Below and above ground.	
1882....	(a)	(a)	(a)	(a)	\$0.76	\$0.44	264	206	\$1.01
1883....	(a)	(a)	(a)	(a)	.79	.56	269	211	1.05
1884....	(a)	(a)	\$217.51	\$151.31	.76	.58	255	200	1.02
1885....	(a)	(a)	211.72	158.07	.76	.55	276	217	.90
1886....	(a)	(a)	213.84	178.72	.74	.57	293	230	.92
1887....	(a)	(a)	218.09	177.17	.74	.57	316	244	.86
1888....	(a)	(a)	220.79	178.53	.75	.58	332	254	.83
1889....	(a)	(a)	234.50	184.12	.79	.59	338	260	.85
1890....	(a)	(a)	265.95	194.54	.91	.62	325	252	.99
1891....	(a)	(a)	256.88	194.35	.93	.63	288	223	1.09
1892....	285	310	268.46	197.63	.94	.64	296	229	1.10
1893....	264	287	238.74	181.42	.90	.63	287	220	1.02
1894....	270	305	249.74	188.95	.90	.62	304	238	.99
1895....	279	308	244.92	189.14	.88	.61	307	238	.97
1896....	283	307	249.16	189.14	.88	.62	314	242	.97
1897....	284	300	254.18	186.63	.90	.62	322	247	.97
1898....	286	300	264.99	186.67	.93	.66	324	250	1.10
1899....	284	301	277.53	207.28	.98	.69	319	247	1.06
1900....	286	306	297.03	221.37	1.04	.72	308	240	1.17
1901....	290	311	315.56	236.43	1.09	.76	297	229	1.30
1902....	281	293	263.64	209.02	1.01	.71	269	207	1.21
1903....	296	312	291.82	220.41	.99	.71	312	240	1.15

ST.-ÉTIENNE.

1882....	(a)	(a)	(a)	(a)	\$0.89	\$0.61	297	206	\$1.18
1883....	(a)	(a)	(a)	(a)	.90	.63	283	194	1.18
1884....	(a)	(a)	\$242.02	\$180.26	.86	.63	287	198	1.13
1885....	(a)	(a)	239.13	177.95	.87	.65	301	212	1.04
1886....	(a)	(a)	238.93	150.35	.88	.60	296	197	1.06
1887....	(a)	(a)	253.80	152.86	.89	.60	326	216	1.02
1888....	(a)	(a)	272.90	159.61	.91	.55	350	229	1.02
1889....	(a)	(a)	257.46	169.45	.99	.77	335	227	1.01
1890....	(a)	(a)	268.66	192.23	.95	.67	318	225	1.12
1891....	(a)	(a)	271.94	194.35	.91	.63	298	201	1.23
1892....	300	298	275.60	187.79	.92	.63	303	198	1.24
1893....	296	286	274.25	178.53	.93	.62	306	199	1.21
1894....	296	294	273.48	187.02	.92	.64	308	200	1.21
1895....	292	284	269.81	179.10	.92	.63	314	202	1.18
1896....	309	306	283.52	193.77	.92	.63	318	207	1.22
1897....	304	292	281.01	187.40	.92	.64	324	210	1.18
1898....	306	291	286.22	192.04	.94	.66	325	212	1.19
1899....	302	293	286.61	192.42	.95	.66	314	206	1.23
1900....	302	289	304.55	211.14	1.01	.73	300	199	1.37
1901....	320	317	324.63	231.02	1.01	.73	290	192	1.52
1902....	267	277	265.95	204.39	1.00	.74	239	157	1.56
1903....	303	311	293.55	219.63	.97	.71	281	187	1.44

a Not reported.

AVERAGE DAYS EMPLOYED, EARNINGS AND PRODUCTION PER EMPLOYEE BELOW AND ABOVE GROUND (EXCLUSIVE OF SALARIED OFFICIALS), AND AVERAGE LABOR COST PER TON OF COAL AND LIGNITE PRODUCED IN EACH PRINCIPAL COAL AND LIGNITE FIELD AND IN FRANCE AS A WHOLE, 1882 TO 1903—Continued.

[Source: Statistique de l'industrie minière et des appareils à vapeur, 1882-1903. The daily wages per employee for the years 1892 to 1903 have been computed in each case from the figures in the preceding columns, and for France as a whole the yearly product per employee has been computed from figures given on pages 185 and 197. In all other cases the figures have been accepted as found in the source quoted. Conversion of French into United States money was made on the basis of 1 franc=\$0.193. A metric ton=2,204.6 pounds.]

## ALAIS.

Year.	Average days employed during year.		Average yearly wages per employee.		Average daily wages per employee.		Average yearly product per employee (metric tons).		Labor cost per metric ton produced.
	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Below and above ground.	
1882....	(a)	(a)	(a)	(a)	\$0.91	\$0.61	255	170	\$1.40
1883....	(a)	(a)	(a)	(a)	.92	.64	243	161	1.52
1884....	(a)	(a)	\$264.02	\$187.40	.89	.62	245	155	1.52
1885....	(a)	(a)	242.41	174.28	.84	.57	245	160	1.36
1886....	(a)	(a)	245.88	168.10	.85	.55	250	162	1.35
1887....	(a)	(a)	247.04	177.37	.86	.57	256	167	1.34
1888....	(a)	(a)	257.46	181.61	.88	.58	256	170	1.37
1889....	(a)	(a)	255.73	191.26	.88	.61	258	170	1.37
1890....	(a)	(a)	256.69	198.21	.90	.61	252	170	1.40
1891....	(a)	(a)	272.32	194.16	.93	.58	250	170	1.46
1892....	293	325	268.85	186.91	.92	.58	238	160	1.52
1893....	279	315	254.57	183.35	.91	.58	234	159	1.46
1894....	285	327	257.85	191.46	.90	.59	238	163	1.46
1895....	290	318	252.64	184.70	.90	.58	235	159	1.45
1896....	270	315	243.18	185.28	.90	.59	229	156	1.43
1897....	294	302	262.09	179.49	.89	.59	265	175	1.34
1898....	289	308	255.15	178.91	.88	.58	256	172	1.34
1899....	274	322	243.37	192.81	.89	.60	235	163	1.40
1900....	267	270	249.94	167.72	.94	.62	236	158	1.41
1901....	271	300	259.01	196.67	.96	.66	226	155	1.45
1902....	277	300	260.74	195.12	.94	.65	228	155	1.55
1903....	283	286	264.41	185.86	.93	.65	234	155	1.53

## LE CREUZOT AND BLANZY.

1882....	(a)	(a)	(a)	(a)	\$0.86	\$0.53	272	190	\$1.19
1883....	(a)	(a)	(a)	(a)	.82	.54	284	192	1.17
1884....	(a)	(a)	\$240.29	\$162.89	.79	.54	280	191	1.13
1885....	(a)	(a)	229.09	159.03	.80	.55	272	186	1.11
1886....	(a)	(a)	247.81	195.70	.81	.64	299	176	1.29
1887....	(a)	(a)	247.04	195.28	.82	.65	303	180	1.26
1888....	(a)	(a)	251.87	202.46	.83	.67	324	189	1.22
1889....	(a)	(a)	249.16	210.95	.82	.70	332	195	1.20
1890....	(a)	(a)	263.45	206.90	.87	.69	348	190	1.22
1891....	(a)	(a)	252.83	211.14	.87	.69	311	183	1.29
1892....	287	307	249.55	210.95	.87	.69	290	174	1.35
1893....	270	284	249.36	201.88	.92	.69	295	174	1.32
1894....	275	309	258.43	220.41	.94	.71	309	185	1.31
1895....	276	287	259.39	204.19	.94	.71	310	181	1.31
1896....	294	289	249.16	206.70	.85	.72	312	180	1.28
1897....	292	301	251.87	208.25	.86	b .69	316	190	1.30
1898....	307	304	264.60	199.37	.86	.66	337	187	1.26
1899....	279	282	243.37	187.40	.87	.66	277	155	1.41
1900....	289	276	266.92	191.07	.92	.69	261	151	1.56
1901....	243	204	227.93	148.10	.94	.72	234	135	1.43
1902....	280	303	256.30	224.27	.92	.74	286	180	1.25
1903....	289	309	270.59	227.74	.94	.74	309	198	1.30

<sup>a</sup> Not reported.

<sup>b</sup> A note in the source quoted states that the decrease in wages is due to the omission from the computation, for the first time, of all salaried officials. This omission should probably apply also to the yearly wages per employee, but it is not so indicated in the source. It appears from the note that in the figures for the preceding years wages of salaried officials were included in this coal field.

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AVERAGE DAYS EMPLOYED, EARNINGS AND PRODUCTION PER EMPLOYEE BELOW AND ABOVE GROUND (EXCLUSIVE OF SALARIED OFFICIALS), AND AVERAGE LABOR COST PER TON OF COAL AND LIGNITE PRODUCED IN EACH PRINCIPAL COAL AND LIGNITE FIELD AND IN FRANCE AS A WHOLE, 1882 TO 1903—Continued.

[Source: Statistique de l'industrie minérale et des appareils à vapeur, 1882-1903. The daily wages per employee for the years 1892 to 1903 have been computed in each case from the figures in the preceding columns, and for France as a whole the yearly product per employee has been computed from figures given on pages 185 and 197. In all other cases the figures have been accepted as found in the source quoted. Conversion of French into United States money was made on the basis of 1 franc=\$0.193. A metric ton = 2,204.6 pounds.]

AUBIN AND CARMAUX.

Year.	Average days employed during year.		Average yearly wages per employee.		Average daily wages per employee.		Average yearly product per employee (metric tons).		Labor cost per metric ton produced.
	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Below and above ground.	
1882.....	(a)	(a)	(a)	(a)	\$0.80	\$0.57	332	199	\$1.06
1883.....	(a)	(a)	(a)	(a)	.83	.57	298	183	1.13
1884.....	(a)	(a)	\$240.86	\$165.21	.82	.60	309	189	1.12
1885.....	(a)	(a)	240.48	163.66	.82	.57	297	190	1.12
1886.....	(a)	(a)	208.83	160.96	.82	.57	260	171	1.13
1887.....	(a)	(a)	225.04	137.80	.82	.56	302	191	1.01
1888.....	(a)	(a)	238.93	128.35	.82	.55	326	209	.95
1889.....	(a)	(a)	228.51	146.10	.81	.54	293	189	1.04
1890.....	(a)	(a)	245.69	122.75	.83	.53	292	186	1.08
1891.....	(a)	(a)	248.58	131.43	.82	.54	279	184	1.13
1892.....	267	223	229.48	144.94	.86	.65	234	155	1.30
1893.....	298	264	261.32	149.58	.88	.57	268	164	1.33
1894.....	292	273	253.80	158.45	.87	.58	277	172	1.27
1895.....	288	270	246.85	156.91	.86	.58	274	173	1.24
1896.....	277	250	233.34	144.94	.84	.58	268	174	1.17
1897.....	269	273	226.00	158.26	.84	.58	271	181	1.13
1898.....	282	263	233.53	150.03	.83	.57	279	183	1.12
1899.....	301	259	249.74	149.96	.83	.58	287	186	1.14
1900.....	278	241	243.57	151.51	.88	.63	259	163	1.29
1901.....	291	281	265.95	184.70	.91	.66	273	171	1.38
1902.....	261	263	232.57	168.68	.89	.64	238	154	1.37
1903.....	285	283	259.01	184.12	.91	.65	274	179	1.30

COMMENTRY.

1882.....	(a)	(a)	(a)	(a)	\$0.74	\$0.39	292	197	\$0.89
1883.....	(a)	(a)	(a)	(a)	.74	.40	303	203	.91
1884.....	(a)	(a)	\$214.81	\$113.29	.76	.41	302	201	.90
1885.....	(a)	(a)	206.70	115.22	.78	.42	280	187	.94
1886.....	(a)	(a)	200.33	111.36	.77	.43	276	185	.93
1887.....	(a)	(a)	212.49	118.50	.78	.41	286	198	.93
1888.....	(a)	(a)	208.25	126.80	.75	.45	278	195	.94
1889.....	(a)	(a)	209.60	149.58	.74	.52	304	204	.93
1890.....	(a)	(a)	212.11	174.05	.76	.57	315	216	.91
1891.....	(a)	(a)	212.60	143.01	.76	.50	296	197	.96
1892.....	280	289	213.65	154.79	.76	.54	289	202	.97
1893.....	280	291	201.11	166.56	.72	.57	280	192	.97
1894.....	296	294	213.65	161.16	.72	.55	276	187	1.05
1895.....	299	297	217.13	161.54	.73	.54	282	190	1.05
1896.....	303	307	236.04	188.56	.78	.61	282	190	1.16
1897.....	306	300	238.55	181.61	.78	.61	294	197	1.12
1898.....	307	298	237.39	183.16	.77	.61	286	192	1.14
1899.....	309	297	240.29	185.28	.78	.62	285	193	1.15
1900.....	305	300	251.48	199.37	.82	.66	274	186	1.26
1901.....	300	308	255.73	210.18	.85	.68	253	175	1.38
1902.....	289	303	244.92	205.74	.85	.68	234	162	1.44
1903.....	298	307	253.60	206.70	.85	.67	240	168	1.43

\* Not reported.

AVERAGE DAYS EMPLOYED EARNINGS AND PRODUCTION PER EMPLOYEE BELOW AND ABOVE GROUND (EXCLUSIVE OF SALARIED OFFICIALS), AND AVERAGE LABOR COST PER TON OF COAL AND LIGNITE PRODUCED IN EACH PRINCIPAL COAL AND LIGNITE FIELD AND IN FRANCE AS A WHOLE, 1882 TO 1903—Concluded.

[Source: Statistique de l'industrie minière et des appareils à vapeur, 1882-1903. The daily wages per employee for the years 1892 to 1903 have been computed in each case from the figures in the preceding columns, and for France as a whole the yearly product per employee has been computed from figures given on pages 185 and 197. In all other cases the figures have been accepted as found in the source quoted. Conversion of French into United States money was made on the basis of 1 franc=\$0.193. A metric ton = 2,204.6 pounds.]

## LIGNITES DU FUVEAU (PROVENCE).

Year.	Average days employed during year.		Average yearly wages per employee.		Average daily wages per employee.		Average yearly product per employee (metric tons).		Labor cost per metric ton produced.
	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Above ground.	Below ground.	Below and above ground.	
1882.....	(a)	(a)	(a)	(a)	\$0.78	\$0.63	260	183	\$1.10
1883.....	(a)	(a)	(a)	(a)	.84	.66	250	178	1.20
1884.....	(a)	(a)	\$216.93	\$192.42	.84	.65	231	167	1.26
1885.....	(a)	(a)	196.09	188.75	.86	.64	213	155	1.25
1886.....	(a)	(a)	199.76	177.75	.83	.64	234	164	1.18
1887.....	(a)	(a)	196.67	196.09	.83	.65	217	160	1.23
1888.....	(a)	(a)	206.90	197.05	b .65	.69	211	156	1.31
1889.....	(a)	(a)	205.16	187.02	.85	.64	212	155	1.29
1890.....	(a)	(a)	203.23	178.33	.85	.65	234	166	1.18
1891.....	(a)	(a)	206.70	191.84	.85	.67	246	178	1.14
1892.....	237	269	215.00	168.10	.91	.62	233	168	1.20
1893.....	233	257	214.04	152.86	.92	.59	235	171	1.15
1894.....	236	259	217.13	158.07	.92	.61	226	161	1.24
1895.....	222	250	195.70	148.22	.88	.59	214	153	1.19
1896.....	220	257	191.84	157.10	.87	.61	212	156	1.17
1897.....	240	278	208.25	165.02	.87	.59	238	173	1.14
1898.....	252	279	211.91	183.16	.84	.66	280	200	1.02
1899.....	257	285	222.34	197.25	.87	.69	300	214	1.00
1900.....	266	284	239.51	182.58	.90	.64	301	221	1.01
1901.....	263	272	235.46	187.60	.90	.69	280	199	1.11
1902.....	242	278	213.27	193.19	.88	.69	251	185	1.13
1903.....	259	283	235.46	176.40	.91	.62	296	216	1.02

## FRANCE.

1882.....	(a)	(a)	(a)	(a)	\$0.80	\$0.52	265	190	\$1.12
1883.....	(a)	(a)	(a)	(a)	.81	.57	264	189	1.15
1884.....	(a)	(a)	\$226.58	\$157.87	.80	.58	256	183	1.13
1885.....	(a)	(a)	217.13	159.03	.78	.55	265	192	1.05
1886.....	(a)	(a)	218.09	164.05	.78	.57	274	195	1.04
1887.....	(a)	(a)	223.49	163.86	.78	.56	292	206	1.00
1888.....	(a)	(a)	227.35	165.98	.78	.57	305	215	.97
1889.....	(a)	(a)	233.53	174.67	.81	.60	308	219	.99
1890.....	(a)	(a)	253.60	180.65	.88	.61	300	215	1.08
1891.....	(a)	(a)	251.87	182.96	.89	.61	277	197	1.18
1892.....	284	299	256.50	184.12	.90	.62	276	197	1.20
1893.....	272	287	240.67	174.47	.88	.61	274	193	1.14
1894.....	280	298	246.65	181.23	.88	.61	285	204	1.12
1895.....	279	294	242.79	178.14	.87	.61	288	204	1.10
1896.....	284	296	245.88	181.61	.87	.61	292	208	1.09
1897.....	286	293	250.90	180.46	.88	.62	303	215	1.07
1898.....	290	292	259.01	183.16	.89	.63	307	218	1.09
1899.....	286	292	264.80	188.95	.93	.65	298	213	1.14
1900.....	285	290	280.62	197.25	.98	.68	287	206	1.25
1901.....	288	294	293.55	208.63	1.02	.71	275	197	1.37
1902.....	266	287	255.92	197.44	.96	.69	253	182	1.33
1903.....	293	302	280.43	204.58	.96	.68	289	209	1.17

<sup>a</sup> Not reported.

<sup>b</sup> This amount appears to be too low. It is given, however, as found in the source quoted.

The earnings shown above are the amounts paid in money, and do not include supplies or other allowances that have been furnished in kind. It will be observed that the average earnings vary considerably in the several fields, owing to the different conditions under which the mine labor is carried on, the earnings being influenced by the methods of operation, the hardness and richness of the veins worked, the strength of the superincumbent strata, the distance from the pit to the place of work, the methods of underground transportation, and, furthermore, by local conditions, such as the condition of the labor market, the cost of living, etc. It may be mentioned in this connection that the French mine office in publishing the wage data summarized above does not guarantee their accuracy, stating that they are simply reproduced as furnished by the operators.

### ACCIDENTS.

Statistics of accidents in coal and lignite mines have been officially published in France since the year 1853. The method of presentation during the period from 1853 to 1903 has not, however, been uniform, hence it has been impossible to reproduce in every case a continuous series of figures. Thus, the number of employees killed and the number injured above and below ground is shown collectively for the earlier years of the period. During the years 1873 to 1878 the accident returns for coal and for lignite mines are not separately shown, and there is, therefore, a gap in the tables for each of these industries.

The published returns concerning mine accidents show the number of persons killed and the number injured. While the number killed has probably been accurately ascertained, the number injured, according to a statement in a recent French report, was not so carefully reported until the rigid enforcement of the law of April 9, 1898, concerning accidents to employees. The accidents reported for the years 1853 to 1900 include fatal accidents, accidents which resulted in injuries causing the total or partial disability of one or more persons for at least twenty days, and all fire-damp explosions causing injuries of any kind to employees. The accidents reported for the years 1901 to 1903 include all accidents causing injuries of any kind to employees. The number of persons injured, but not fatally, includes all persons injured in fire-damp explosions and all persons receiving nonfatal injuries causing total or partial disability for at least twenty days from 1853 to 1901, and for more than four days in 1902 and 1903. For these reasons the figures are not comparable throughout the whole period.

The two tables which follow show, for coal and for lignite mines separately, the number of employees, the number of accidents, and the number of employees killed and the number injured below and above ground during the years 1853 to 1858, 1860 to 1872, and 1879 to 1901:

EMPLOYEES, NUMBER OF ACCIDENTS, AND NUMBER OF EMPLOYEES KILLED AND NUMBER INJURED BELOW AND ABOVE GROUND IN COAL MINES IN FRANCE, 1853 TO 1901.

[Source: 1853 to 1858 and 1860 to 1872, Résumé des travaux statistiques de l'administration des mines, 1853-1872; 1879 to 1901, Statistique de l'industrie minière et des appareils à vapeur, 1879-1901. Statistics for the year 1859 and the years 1873 to 1878 could not be obtained. Figures were not published separately for coal and for lignite mines after the year 1901.]

Year.	Number of employees.			Number of accidents.	Employees killed.			Employees injured, but not fatally (a)		
	Below ground.	Above ground.	Total.		Below ground.	Above ground.	Total.	Below ground.	Above ground.	Total.
1853....	28,946	10,188	39,134	899	(b)	(b)	155	(b)	(b)	837
1854....	(b)	(b)	45,529	921	(b)	(b)	201	(b)	(b)	823
1855....	(b)	(b)	52,540	1,023	(b)	(b)	205	(b)	(b)	1,103
1856....	(b)	(b)	58,240	1,178	(b)	(b)	204	(b)	(b)	1,075
1857....	40,288	17,359	57,647	1,083	(b)	(b)	177	(b)	(b)	990
1858....	(b)	(b)	52,833	927	(b)	(b)	157	(b)	(b)	852
1860....	(b)	(b)	58,975	1,056	(b)	(b)	164	(b)	(b)	987
1861....	(b)	(b)	63,905	1,112	(b)	(b)	279	(b)	(b)	1,054
1862....	(b)	(b)	67,667	1,056	(b)	(b)	155	(b)	(b)	1,014
1863....	50,919	20,392	71,311	1,163	(b)	(b)	192	(b)	(b)	1,085
1864....	(b)	(b)	73,992	1,165	(b)	(b)	184	(b)	(b)	1,061
1865....	54,376	21,658	76,034	1,155	(b)	(b)	244	(b)	(b)	1,034
1866....	55,802	23,189	78,991	1,206	(b)	(b)	211	(b)	(b)	1,084
1867....	58,013	24,340	82,353	1,155	(b)	(b)	297	(b)	(b)	1,069
1868....	59,336	24,796	84,132	1,252	(b)	(b)	221	(b)	(b)	1,116
1869....	59,863	23,302	83,165	1,319	(b)	(b)	277	(b)	(b)	1,166
1870....	58,166	22,526	80,692	1,381	(b)	(b)	235	(b)	(b)	1,237
1871....	57,832	23,795	81,627	1,277	(b)	(b)	258	(b)	(b)	1,141
1872....	63,863	25,594	89,457	1,649	(b)	(b)	215	(b)	(b)	1,555
1879....	70,193	28,962	99,155	1,063	156	6	162	564	37	1,001
1880....	73,692	30,229	103,921	1,148	177	8	185	1,014	43	1,057
1881....	73,990	29,012	103,002	1,333	162	12	174	1,185	53	1,238
1882....	75,444	29,551	104,995	1,440	143	10	153	1,285	47	1,332
1883....	78,459	31,115	109,574	997	155	15	170	873	51	924
1884....	76,001	30,322	106,323	989	146	23	169	805	82	887
1885....	71,367	27,233	98,600	818	154	15	169	687	50	737
1886....	70,674	28,712	99,386	669	114	17	131	549	48	597
1887....	70,628	29,369	99,997	652	157	13	170	530	75	605
1888....	71,956	30,114	102,070	606	166	18	184	460	55	515
1889....	76,593	31,348	107,941	666	320	11	331	523	69	592
1890....	84,633	33,869	118,502	816	288	20	308	670	78	748
1891....	91,653	37,003	128,656	801	189	29	218	637	72	709
1892....	92,734	37,382	130,116	877	111	15	126	717	93	810
1893....	91,500	38,139	129,639	863	96	19	115	681	93	774
1894....	94,227	37,360	131,587	932	92	21	113	728	130	858
1895....	95,309	39,068	134,377	986	135	24	159	728	168	896
1896....	97,800	39,493	137,293	949	159	20	179	647	175	822
1897....	99,666	40,932	140,598	1,198	134	17	151	885	208	1,093
1898....	103,373	42,446	145,819	1,158	131	26	157	835	205	1,040
1899....	107,932	42,821	150,753	1,403	179	29	208	1,004	254	1,258
1900....	113,872	44,708	158,580	1,403	183	41	224	1,038	244	1,282
1901....	114,559	45,398	159,957	c 25,357	164	34	198	2,929	602	3,531

a Includes persons permanently incapacitated and those whose injuries caused a loss of 20 days or more.

b Not separately reported.

c All accidents irrespective of time lost by persons injured.



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EMPLOYEES, NUMBER OF ACCIDENTS, AND NUMBER OF EMPLOYEES KILLED AND NUMBER INJURED BELOW AND ABOVE GROUND IN LIGNITE MINES IN FRANCE, 1853 TO 1901.

[Source: 1853 to 1858 and 1860 to 1872, Résumé des travaux statistiques de l'administration des mines, 1853-1872; 1879 to 1901, Statistique de l'industrie minière et des appareils à vapeur, 1879-1901. Statistics for the year 1859 and the years 1873 to 1878 could not be obtained. Figures were not published separately for coal and for lignite mines after the year 1901.]

Year.	Number of employees.			Number of accidents.	Employees killed.			Employees injured, but not fatally. (a)		
	Below ground.	Above ground.	Total.		Below ground.	Above ground.	Total.	Below ground.	Above ground.	Total.
1853	1,746	232	1,978	4	(b)	(b)	4	(b)	(b)	1
1854	(b)	(b)	2,304	5	(b)	(b)	2	(b)	(b)	3
1855	(b)	(b)	2,045	6	(b)	(b)	3	(b)	(b)	3
1856	(b)	(b)	1,776	3	(b)	(b)	.....	(b)	(b)	4
1857	1,977	301	2,278	6	(b)	(b)	4	(b)	(b)	2
1858	(b)	(b)	2,078	7	(b)	(b)	2	(b)	(b)	5
1860	(b)	(b)	1,846	15	(b)	(b)	2	(b)	(b)	23
1861	(b)	(b)	1,825	31	(b)	(b)	5	(b)	(b)	28
1862	(b)	(b)	1,772	3	(b)	(b)	2	(b)	(b)	1
1863	1,866	441	2,307	5	(b)	(b)	2	(b)	(b)	2
1864	(b)	(b)	2,674	13	(b)	(b)	4	(b)	(b)	11
1865	2,023	678	2,701	10	(b)	(b)	2	(b)	(b)	5
1866	1,925	611	2,536	12	(b)	(b)	8	(b)	(b)	12
1867	1,834	434	2,268	16	(b)	(b)	3	(b)	(b)	9
1868	1,887	448	2,335	7	(b)	(b)	.....	(b)	(b)	7
1869	2,158	533	2,691	7	(b)	(b)	3	(b)	(b)	2
1870	2,065	520	2,685	6	(b)	(b)	4	(b)	(b)	2
1871	2,283	768	3,051	7	(b)	(b)	2	(b)	(b)	5
1872	2,651	889	3,540	3	(b)	(b)	1	(b)	(b)	2
1873	2,374	943	3,317	10	2	.....	2	8	.....	8
1880	2,462	853	3,315	10	1	.....	3	9	.....	9
1881	2,422	986	3,408	6	3	.....	1	5	.....	7
1882	2,367	907	3,274	5	1	.....	.....	.....	2	4
1883	2,493	936	3,429	13	2	.....	2	11	.....	11
1884	2,263	840	3,103	10	2	.....	2	6	.....	8
1885	2,216	800	3,016	11	2	.....	2	8	.....	9
1886	2,112	856	2,968	6	1	.....	2	4	.....	4
1887	2,344	822	3,166	11	8	.....	1	7	.....	7
1888	2,160	729	2,889	10	2	.....	2	13	.....	13
1889	2,226	752	2,978	10	2	.....	1	8	.....	8
1890	2,203	850	3,053	14	4	.....	.....	9	.....	10
1891	2,309	867	3,176	11	2	.....	.....	9	.....	9
1892	2,280	817	3,077	17	1	.....	.....	16	.....	16
1893	2,185	790	2,975	11	9	.....	.....	11	.....	11
1894	2,140	830	2,970	8	1	.....	.....	8	.....	8
1895	2,126	823	2,949	5	2	.....	3	5	.....	5
1896	2,128	753	2,881	13	3	.....	.....	8	.....	11
1897	2,027	776	2,803	9	2	.....	.....	6	.....	7
1898	2,022	785	2,807	13	2	.....	.....	11	.....	12
1899	2,313	859	3,172	12	.....	.....	.....	11	.....	13
1900	2,531	968	3,499	12	6	.....	.....	7	.....	9
1901	2,776	1,063	3,839	c 451	.....	.....	.....	85	.....	96

a Includes persons permanently incapacitated and those whose injuries caused a loss of 20 days or more.  
 b Not separately reported.  
 c All accidents irrespective of time lost by persons injured.

The next table shows, for coal and lignite mines combined, the number of employees, number of accidents, and number of employees killed and number injured below and above ground during the years 1853 to 1858 and 1860 to 1903.



## EMPLOYEES, NUMBER OF ACCIDENTS, AND NUMBER OF EMPLOYEES KILLED AND NUMBER INJURED BELOW AND ABOVE GROUND IN COAL AND IN LIGNITE MINES IN FRANCE, 1853 TO 1903.

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[Source: 1853 to 1858 and 1860 to 1872, Résumé des travaux statistiques de l'administration des mines, 1853-1872; 1873 to 1903, Statistique de l'industrie minière et des appareils à vapeur, 1873-1903. Statistics for the year 1859 could not be obtained. The number of employees for the years 1853 to 1875 does not agree with the number given on pages 197 and 203. No explanation is given.]

Year.	Number of employees.			Number of accidents.	Employees killed.			Employees injured, but not fatally. (a)		
	Below ground.	Above ground.	Total.		Below ground.	Above ground.	Total.	Below ground.	Above ground.	Total.
1853	30,692	10,420	41,112	903	(b)	(b)	159	(b)	(b)	838
1854	(b)	(b)	47,553	926	(b)	(b)	203	(b)	(b)	826
1855	(b)	(b)	54,585	1,029	(b)	(b)	208	(b)	(b)	1,106
1856	(b)	(b)	60,016	1,181	(b)	(b)	204	(b)	(b)	1,079
1857	42,265	17,960	59,225	1,089	(b)	(b)	181	(b)	(b)	992
1858	(b)	(b)	54,911	934	(b)	(b)	159	(b)	(b)	857
1860	(b)	(b)	60,321	1,071	(b)	(b)	186	(b)	(b)	1,000
1861	(b)	(b)	65,730	1,143	(b)	(b)	284	(b)	(b)	1,082
1862	(b)	(b)	69,439	1,059	(b)	(b)	157	(b)	(b)	1,015
1863	52,785	20,533	73,318	1,168	(b)	(b)	186	(b)	(b)	1,072
1864	(b)	(b)	76,666	1,178	(b)	(b)	186	(b)	(b)	1,039
1865	56,399	22,336	78,735	1,165	(b)	(b)	252	(b)	(b)	1,098
1866	57,727	23,800	81,527	1,218	(b)	(b)	214	(b)	(b)	1,077
1867	59,847	24,774	84,621	1,171	(b)	(b)	306	(b)	(b)	1,122
1868	61,223	25,244	86,467	1,259	(b)	(b)	221	(b)	(b)	1,168
1869	62,021	23,835	85,856	1,324	(b)	(b)	280	(b)	(b)	1,229
1870	60,251	23,108	83,357	1,387	(b)	(b)	239	(b)	(b)	1,246
1871	60,125	24,563	84,688	1,284	(b)	(b)	260	(b)	(b)	1,557
1872	66,514	26,483	92,997	1,652	(b)	(b)	216	(b)	(b)	1,691
1873	76,660	30,384	107,044	1,801	(b)	(b)	238	(b)	(b)	1,911
1874	75,836	31,483	107,319	2,041	(b)	(b)	218	(b)	(b)	1,931
1875	77,657	31,264	108,921	2,108	(b)	(b)	224	(b)	(b)	1,127
1876	79,311	31,491	110,802	1,278	(b)	(b)	405	(b)	(b)	1,085
1877	78,043	30,864	108,907	1,215	(b)	(b)	235	(b)	(b)	1,080
1878	75,116	31,299	106,415	1,159	142	11	153	1,029	31	1,009
1879	72,567	29,905	102,472	1,073	158	6	164	972	37	1,066
1880	76,154	31,082	107,236	1,158	180	8	188	1,023	43	1,245
1881	76,412	29,998	106,410	1,339	163	12	175	1,190	55	1,338
1882	77,811	30,458	108,269	1,445	144	10	154	1,288	48	935
1883	80,952	32,051	113,003	1,010	157	15	172	884	51	895
1884	78,264	31,162	109,426	999	148	23	171	811	84	746
1885	73,583	28,033	101,616	829	156	15	171	695	51	601
1886	72,786	29,568	102,354	675	115	18	133	553	48	612
1887	72,972	30,191	103,163	663	165	13	178	537	75	528
1888	74,116	30,843	104,959	616	168	18	186	473	55	600
1889	78,819	32,100	110,919	676	322	12	334	531	69	758
1890	86,836	34,719	121,555	830	292	20	312	679	79	718
1891	93,962	37,670	131,632	812	191	29	220	646	72	826
1892	94,994	38,199	133,193	894	112	15	127	733	93	785
1893	93,685	38,929	132,614	874	105	19	124	692	93	866
1894	96,367	38,190	134,557	940	93	21	114	736	130	901
1895	97,435	39,891	137,326	991	137	27	164	733	168	833
1896	99,928	40,246	140,174	962	162	20	182	655	178	1,100
1897	101,693	41,708	143,401	1,207	136	17	153	891	209	1,052
1898	105,395	43,231	148,626	1,171	133	26	159	846	206	1,271
1899	110,245	43,660	153,925	1,415	179	29	208	1,015	246	1,291
1900	116,403	45,676	162,079	1,415	189	41	230	1,045	246	3,627
1901	117,335	46,461	163,796	d 25,806	164	34	198	3,014	613	e 21,992
1902	118,743	46,067	164,810	d 22,755	151	29	180	e 18,660	e 3,332	e 22,785
1903	120,941	46,272	167,213	d 23,512	144	26	170	e 19,718	e 3,067	

<sup>a</sup> Includes only persons reported as permanently incapacitated and those whose injuries caused a loss of 20 days or more.

<sup>b</sup> Not separately reported.

<sup>c</sup> This number does not agree with the figures shown in the tables on pages 197 and 203. No explanation is given.

<sup>d</sup> All accidents irrespective of time lost by persons injured.

<sup>e</sup> Includes only persons reported as permanently incapacitated and those whose injuries caused a loss of more than 4 days.

It will be observed that, for reasons given, the statistics are not complete in each case for the entire series of years.

An examination of the tables shows that while the number of deaths from accidents varied considerably from year to year, a comparison of the number of deaths during the past decade with those for earlier periods shows some improvement. The number of non-fatal injuries from accidents, however, shows an enormous increase in recent years. This increase may be due in part to the receipt by the French mine office of more accurate returns, but the main cause of the increase in the number reported is the requirement of returns for all accidents, and the inclusion of persons incapacitated for more than 4 days, instead of only those suffering a loss of 20 days or more.

The next table shows the number of persons killed per 1,000 employed below and above ground in coal and in lignite mines:

DEATH RATE PER 1,000 EMPLOYEES ON ACCOUNT OF ACCIDENTS BELOW AND ABOVE GROUND IN COAL AND IN LIGNITE MINES IN FRANCE, 1878 TO 1903.

[Source: Computed from figures given in preceding table.]

Year.	Death rate per 1,000 employees.								
	Coal mines.			Lignite mines.			Coal and lignite mines.		
	Below ground.	Above ground.	Below and above ground.	Below ground.	Above ground.	Below and above ground.	Below ground.	Above ground.	Below and above ground.
1878....	(a)	(a)	(a)	(a)	(a)	(a)	1.89	0.35	1.44
1879....	2.22	0.21	1.63	0.84	(a)	0.60	2.18	.20	1.60
1880....	2.40	.26	1.78	1.22	(a)	.90	2.36	.26	1.75
1881....	2.19	.41	1.69	.41	(a)	.29	2.13	.40	1.64
1882....	1.90	.34	1.46	.42	(a)	.31	1.85	.33	1.42
1883....	1.98	.48	1.55	.80	(a)	.58	1.94	.47	1.52
1884....	1.92	.78	1.59	.88	(a)	.64	1.89	.74	1.56
1885....	2.16	.55	1.71	.90	(a)	.66	2.12	.54	1.68
1886....	1.61	.59	1.32	.47	1.17	.67	1.58	.61	1.30
1887....	2.22	.44	1.70	3.41	(a)	2.53	2.26	.43	1.73
1888....	2.31	.60	1.80	.93	(a)	.69	2.27	.58	1.77
1889....	4.18	.35	3.07	.90	1.33	1.01	4.09	.37	3.01
1890....	3.40	.59	2.60	1.82	(a)	1.31	3.36	.58	2.57
1891....	2.06	.78	1.69	.87	(a)	.63	2.03	.77	1.67
1892....	1.20	.40	.97	.44	(a)	.32	1.18	.39	.95
1893....	1.05	.60	.89	4.12	(a)	3.03	1.12	.49	.94
1894....	.98	.56	.86	.47	(a)	.34	.97	.55	.85
1895....	1.42	.61	1.18	.94	3.65	1.70	1.41	.68	1.19
1896....	1.63	.51	1.30	1.41	(a)	1.04	1.62	.50	1.30
1897....	1.34	.42	1.07	.99	(a)	.71	1.34	.41	1.07
1898....	1.27	.61	1.08	.99	(a)	.71	1.26	.60	1.07
1899....	1.66	.68	1.38	(a)	(a)	(a)	1.62	.66	1.35
1900....	1.61	.92	1.41	2.37	(a)	1.71	1.62	.90	1.42
1901....	1.43	.75	1.24	(a)	(a)	(a)	1.40	.73	1.21
1902....	(a)	(a)	(a)	(a)	(a)	(a)	1.27	.63	1.09
1903....	(a)	(a)	(a)	(a)	(a)	(a)	1.19	.56	1.02

<sup>a</sup>Accidents in coal and in lignite mines were not separately reported.

While the death rate below ground in the coal-mining industries shows a well-marked decline during the period, the death rate above ground shows an increase. The death rate in lignite mines appears to show no tendency either way.

In the next table a comparison is made between the persons killed and the death rate per 1,000 employees from accidents in coal, lignite, and other mines, and in all mines in France for the years 1853 to 1858 and 1860 to 1903:

TOTAL EMPLOYEES, EMPLOYEES KILLED, AND DEATH RATE PER 1,000 EMPLOYEES FROM ACCIDENTS IN COAL, LIGNITE, AND OTHER MINES IN FRANCE, 1853 TO 1903.

[Source: 1853 to 1858 and 1860 to 1872, *Résumé des travaux statistiques de l'administration des mines, 1853-1872*; 1873 to 1903, *Statistique de l'industrie minière et des appareils à vapeur, 1873-1903*. Statistics for the year 1859 could not be obtained. Death rates were computed.]

Year.	Total employees, employees killed, and death rate per 1,000.											
	Coal mines.			Lignite mines.			Other mines.			All mines.		
	Total employees.	Em- ployees killed.	Death rate per 1,000.	Total em- ploy- ees.	Em- ployees killed.	Death rate per 1,000.	Total em- ploy- ees.	Em- ployees killed.	Death rate per 1,000.	Total em- ploy- ees.	Em- ployees killed.	Death rate per 1,000.
1853...	39,134	155	3.96	1,978	4	2.02	6,699	10	1.51	47,721	169	3.54
1854...	45,529	201	4.41	2,304	2	.87	7,503	9	1.20	55,336	212	3.83
1855...	52,540	305	3.90	2,045	3	1.47	7,576	25	3.30	62,161	233	3.75
1856...	58,240	304	3.50	1,776	.....	.....	7,769	.....	.....	67,776	215	3.17
1857...	57,847	177	3.07	2,278	4	1.76	9,931	15	1.51	69,856	196	2.81
1858...	52,853	157	2.97	2,078	2	.86	9,425	20	2.12	64,336	179	2.78
1860...	58,975	164	2.78	1,846	2	1.08	9,566	15	1.57	70,387	181	2.57
1861...	63,905	279	4.37	1,825	5	2.74	10,730	11	1.03	76,450	295	3.86
1862...	67,667	155	2.29	1,772	2	1.13	11,003	23	2.09	80,442	180	2.24
1863...	71,311	192	2.69	2,307	4	1.73	12,123	23	1.90	85,741	219	2.55
1864...	73,992	184	2.49	2,674	2	.75	11,331	22	1.94	87,997	208	2.36
1865...	76,034	244	3.21	2,701	8	2.96	12,490	24	1.92	91,225	276	3.03
1866...	78,991	211	2.67	2,536	3	1.18	12,086	20	1.65	93,613	234	2.50
1867...	82,353	297	3.61	2,298	9	3.97	11,321	22	1.94	95,942	328	3.42
1868...	84,132	221	2.63	2,335	.....	.....	11,230	13	1.16	97,687	234	2.40
1869...	83,165	277	3.33	2,691	3	1.11	11,132	19	1.71	96,988	290	3.08
1870...	80,692	235	2.91	2,665	4	1.50	10,447	16	1.53	93,804	255	2.72
1871...	81,627	258	3.16	3,061	2	.65	8,467	18	2.13	93,155	278	2.98
1872...	89,457	215	2.40	3,540	1	.28	10,083	17	1.59	103,680	233	2.25
1873...	a107,044	a238	a2.22	(b)	(b)	(b)	11,369	27	2.37	118,413	265	2.24
1874...	a107,319	a218	a2.03	(b)	(b)	(b)	11,120	15	1.35	118,439	233	1.97
1875...	a108,921	a224	a2.06	(b)	(b)	(b)	10,812	19	1.76	119,733	243	2.03
1876...	a110,802	a405	a3.66	(b)	(b)	(b)	10,826	25	2.31	121,628	430	3.54
1877...	a108,907	a235	a2.16	(b)	(b)	(b)	11,602	12	1.03	120,500	247	2.05
1878...	a106,415	a153	a1.44	(b)	(b)	(b)	11,194	20	1.79	117,609	173	1.47
1879...	99,155	162	1.63	3,317	2	.60	10,044	13	1.29	112,516	177	1.57
1880...	103,921	185	1.78	3,315	3	.90	11,705	22	1.88	118,941	210	1.77
1881...	103,002	174	1.69	3,408	1	.29	12,428	21	1.69	118,838	196	1.65
1882...	104,995	153	1.46	3,274	1	.31	12,187	14	1.15	120,456	168	1.39
1883...	109,574	170	1.55	3,429	2	.58	11,324	16	1.41	124,327	188	1.51
1884...	106,323	169	1.59	3,103	2	.64	10,059	11	1.09	119,485	182	1.52
1885...	98,600	169	1.71	3,016	2	.66	8,794	14	1.59	110,410	185	1.68
1886...	99,386	131	1.32	2,968	2	.67	9,028	17	1.88	111,382	150	1.35
1887...	99,997	170	1.70	3,166	8	2.53	9,121	10	1.10	112,284	188	1.67
1888...	102,070	184	1.80	2,889	2	.69	9,542	18	1.80	114,501	204	1.78
1889...	107,941	331	3.07	2,978	3	1.01	11,147	16	1.44	122,066	350	2.87
1890...	118,502	308	2.60	3,053	4	1.31	12,505	16	1.28	134,060	328	2.45
1891...	128,656	218	1.69	3,176	2	.63	13,641	14	1.03	145,473	234	1.61
1892...	130,116	126	.97	3,077	1	.32	13,452	19	1.41	146,645	146	1.00
1893...	129,639	115	.89	2,975	9	3.03	12,435	16	1.29	145,049	140	.97
1894...	131,587	113	.86	2,970	1	.34	12,350	10	.80	146,907	124	.84
1895...	134,377	159	1.18	2,949	5	1.70	11,326	15	1.32	148,652	179	1.20
1896...	137,293	179	1.30	2,881	3	1.04	11,951	20	1.67	152,125	202	1.33
1897...	140,598	151	1.07	2,803	2	.71	13,103	27	2.06	156,504	180	1.15
1898...	145,819	157	1.08	2,807	2	.71	13,475	37	2.75	162,101	196	1.21
1899...	150,753	208	1.38	3,172	.....	.....	15,763	28	1.78	169,688	236	1.39
1900...	158,580	224	1.41	3,499	.....	.....	16,815	30	1.78	178,894	260	1.45
1901...	159,957	198	1.24	3,839	.....	.....	16,296	29	1.78	180,092	227	1.26
1902...	a164,810	a180	a1.09	(b)	(b)	(b)	15,848	17	1.07	180,658	197	1.09
1903...	a167,213	a170	a1.02	(b)	(b)	(b)	16,517	45	2.72	183,730	215	1.17

a Including lignite mines.

b Included in coal mines.

Owing to the comparatively small number of employees in the lignite mines of France, the number killed and injured is not shown by causes for that industry in the present compilation, although the statistics are given in the original report. The following tables show the number of employees killed and the number injured, below ground, in coal mines in France, by principal causes:

EMPLOYEES KILLED BELOW GROUND IN COAL MINES IN FRANCE, BY PRINCIPAL CAUSES, 1853 TO 1903.

[Source: 1853 to 1858 and 1860 to 1872, Résumé des travaux statistiques de l'administration des mines, 1853-1872; 1879 to 1903, Statistique de l'industrie minière et des appareils à vapeur, 1879-1903. Statistics for the year 1859 and the years 1873 to 1878 could not be obtained.]

Year.	Total employees below ground.	Employees killed below ground.							Total. (e)
		By falls of roof or ground.	By explosion of fire-damp.	By blasting.	By shaft accidents.	By breaking of cables, chains, and machinery.	On underground rail-ways.	By all other causes. (e)	
1853....	28,946	60	32	6	33	9	(b)	15	155
1854....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	201
1855....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	205
1856....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	204
1857....	40,288	76	20	6	39	18	(b)	18	177
1858....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	157
1860....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	164
1861....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	279
1862....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	155
1863....	50,919	72	42	2	28	25	(b)	23	192
1864....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	184
1865....	54,376	89	46	4	38	33	(b)	34	244
1866....	55,802	88	20	3	45	34	(b)	21	211
1867....	58,013	78	131	9	25	23	(b)	33	d 297
1868....	59,336	83	46	8	37	17	(b)	30	221
1869....	59,863	92	57	6	29	35	(b)	58	277
1870....	58,166	93	36	6	33	34	(b)	33	235
1871....	57,832	78	92	7	35	14	(b)	32	258
1872....	63,863	67	57	5	34	27	(b)	25	215
1879....	70,193	64	16	4	23	5	(b)	44	156
1880....	73,692	73	15	4	31	7	(b)	47	177
1881....	73,990	77	23	-----	29	8	(b)	25	162
1882....	75,444	68	12	3	13	4	(b)	42	d 143
1883....	78,459	62	38	2	13	16	(b)	24	155
1884....	76,001	51	22	9	26	10	17	11	146
1885....	71,367	50	42	5	21	5	13	18	154
1886....	70,674	38	24	-----	15	6	9	22	114
1887....	70,628	45	84	2	6	1	10	9	157
1888....	71,956	55	56	2	24	4	10	15	166
1889....	76,593	43	225	3	19	4	13	13	320
1890....	84,633	59	117	6	14	1	28	63	288
1891....	91,653	58	65	4	22	1	24	15	189
1892....	92,734	56	-----	9	21	3	13	9	111
1893....	91,500	44	-----	1	26	1	17	7	96
1894....	94,227	51	-----	1	16	3	13	8	92
1895....	95,309	53	5	5	13	1	17	41	135
1896....	97,800	65	3	4	20	-----	29	38	159
1897....	99,666	49	6	7	22	1	28	21	134
1898....	103,373	70	-----	9	19	2	23	8	131
1899....	107,932	76	1	7	35	17	37	6	179
1900....	113,872	59	8	7	27	1	27	54	183
1901....	114,559	76	14	8	24	11	22	9	164
1902....	118,743	e 73	e 9	e 7	e 14	e 5	e 29	e 14	e 151
1903....	120,941	e 73	e 2	e 1	e 37	e 3	e 22	e 6	e 144

a For the years 1853 to 1858 and 1860 to 1872 accidents on the surface are included.

b Not separately reported.

c Not reported.

d The sum of the items does not agree with this total, but the figures are reproduced as found in the source quoted.

e The figures are for "Employees killed below ground in both coal and lignite mines in France."

## EMPLOYEES INJURED, BUT NOT FATALLY, BELOW GROUND IN COAL MINES IN FRANCE, BY PRINCIPAL CAUSES, 1853 TO 1903.

[Source: 1853 to 1858 and 1860 to 1872, Résumé des travaux statistiques de l'administration des mines, 1853-1872; 1879 to 1903, Statistique de l'industrie minière et des appareils à vapeur, 1879-1903. Statistics for the year 1859 and the years 1873 to 1878 could not be obtained. Nonfatal accidents include accidents causing permanent injuries or incapacitating persons for more than twenty days.]

Year.	Total employees below ground.	Employees injured, but not fatally, below ground.							Total. (a)
		By falls of roof or ground.	By explosion of fire-damp.	By blasting.	By shaft accidents.	By breaking of cables, chains, and machinery.	On underground railways.	By all other causes. (e)	
1853....	28,946	414	51	73	90	201	(b)	8	837
1854....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	823
1855....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	1,103
1856....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	1,075
1857....	40,288	510	42	94	93	247	(b)	4	990
1858....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	852
1860....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	987
1861....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	1,054
1862....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	1,014
1863....	50,919	475	43	50	66	134	(b)	317	1,085
1864....	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	1,061
1865....	54,376	487	52	46	67	104	(b)	278	1,034
1866....	55,802	475	35	56	77	102	(b)	339	1,084
1867....	58,013	425	64	43	91	125	(b)	321	1,069
1868....	59,336	531	47	40	82	104	(b)	312	1,116
1869....	59,863	513	32	57	67	148	(b)	349	1,166
1870....	58,166	553	49	45	79	126	(b)	385	1,237
1871....	57,832	498	32	59	104	85	(b)	363	1,141
1872....	63,863	624	19	30	89	151	(b)	642	1,555
1879....	70,193	484	23	27	38	60	(b)	332	964
1880....	73,692	512	25	44	55	44	(b)	334	1,014
1881....	73,990	544	30	36	28	19	(b)	528	1,185
1882....	75,444	581	20	17	24	27	(b)	615	1,284
1883....	78,459	361	35	31	14	20	(b)	412	873
1884....	76,001	386	23	26	17	3	206	144	806
1885....	71,367	306	20	18	19	6	199	117	687
1886....	70,674	265	13	21	13	5	125	107	549
1887....	70,628	238	27	26	15	4	133	87	530
1888....	71,956	192	22	15	21	8	121	81	460
1889....	76,593	243	12	21	13	1	151	82	523
1890....	84,633	261	47	27	13	7	186	129	670
1891....	91,653	229	20	33	3	5	193	129	637
1892....	92,734	257	4	60	35	12	225	124	717
1893....	91,500	263	1	23	37	3	201	153	681
1894....	94,227	287	8	41	29	4	230	129	728
1895....	95,309	272	9	38	18	6	240	145	728
1896....	97,800	230	4	21	25	5	231	131	647
1897....	99,666	322	9	45	20	2	315	172	885
1898....	103,373	302	18	21	24	1	284	185	835
1899....	107,932	354	7	29	41	1	359	213	1,004
1900....	113,872	347	12	31	29	2	334	283	1,038
1901....	114,559	864	14	29	47	19	927	999	2,929
1902....	118,743	d 5,627	d 9	d 49	d 164	d 30	d 5,171	d 7,610	d 18,660
1903....	120,941	d 6,811	d 12	d 66	d 251	d 26	d 5,667	d 6,885	d 19,718

a For the years 1853 to 1858 and 1860 to 1872 accidents on the surface are included.

b Not separately reported.

c Not reported.

d The figures are for employees injured, but not fatally, below ground in both coal and lignite mines in France; and the number of persons injured by accidents includes those permanently incapacitated and those who by reason of accidents were incapacitated for a period of more than four days.

Slightly more than one-half of all the accidental deaths in coal mines in 1903 were due to falls of ground or roofs. Deaths from accidents in shafts and in connection with underground railways were next in importance. Deaths caused by explosions of fire damp were comparatively few during the last 12 years of the period, during 4 of which no deaths from this cause were reported. During the remaining 8 years there was a total of but 48 deaths from fire-damp explosions. Prior to the year 1892, however, this was one of the most frequent causes of deaths in coal mines.



The nonfatal accidents were mostly due to falls of ground or roofs and in connection with underground railways.

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#### MINERS' RELIEF FUNDS.

The insurance of mine employees in France can most readily be studied by considering the two laws which regulate the subject. The first law refers to insurance against sickness, invalidity, and old age; the second refers to insurance against accidents. In France, as in Germany, Austria, and Belgium, the miners had at an early date made voluntary efforts to provide relief for themselves in the frequently occurring cases of inability to perform mining labor by organizing societies for mutual aid. It is asserted that these mutual-aid societies have reached a higher state of development in France than in any other country. At first the general form of these societies was that of pit clubs, or relief assessment clubs, similar to those found in the other countries of Europe, but since 1852 the French organizations have taken a more definite form and their development can be easily studied. The law passed in the year 1852 provided that mutual-aid societies should be of two classes, "authorized," and "approved" societies (*sociétés autorisées et sociétés approuvées*). The authorized societies were organizations which had complied with the provisions of the penal code referring to the registry of associations. The approved societies, however, are under closer control, this control being required by the law of 1852, the decree of 1856, the law of 1868, and the decree of 1890, relating to either old-age pensions or life insurance under government guaranty. The societies designated as approved are subject to certain requirements as to organization and management, in return for which they receive certain advantages.

The purpose of the mutual-aid societies is to make provision against sickness, including medical service, a sick benefit, an invalidity pension, and a funeral benefit, while in some cases a pension for widows and children is provided for. The principal feature of the work of the mutual-aid societies, however, is the insurance of their members against sickness, though since 1894 added importance has been given to the invalidity and old-age insurance.

The importance which is attached to the insurance of mine workers in France may be inferred from the law of June 29, 1894, which makes it compulsory for all mine operators to insure their employees against sickness, invalidity, and old age. In a country where the voluntary insurance of workingmen has reached its highest development it is of especial interest to find that, with the exception of seamen, the employees of the mining industry are the only workingmen who have been selected for compulsory insurance against sickness and invalidity.

The defects of the voluntary system of insurance were due to the existence of many financially weak organizations, and to the lack of any system by which miners could change their employers without losing the right to pensions to which they were entitled from their previous service. It will be noted that the latter difficulty exists in the miners' provident funds in England, in Belgium, and, in a measure, in Germany. The reasons which led the government to adopt the compulsory system were: First, that the benefits of the insurance should be extended to all miners; second, that the insurance should be founded on a perfectly secure basis and administered in accordance with approved actuarial principles; third, that the system should be uniform in order that the miner might be free to move from place to place; fourth, that payments already made to existing funds should be equitably liquidated.

Because of the importance of the law of 1894, it is reproduced practically entire:

ACT OF JUNE 29, 1894, AS AMENDED JULY 16, 1896.

SECTION I.

ARTICLE 1. Within six months from the promulgation of this law mining establishments and the workers and salaried employees in these mines shall be subject to the obligations and enjoy the privileges set forth in Sections II and III, relating to the organization and operation of retirement funds (*caisses de retraites*) and relief funds (*caisses de secours*). Salaried employees and workmen whose earnings or salaries are above the sum of 2,400 francs [\$463.20] shall not be entitled to greater benefits than are allowed for that sum.

SECTION II.—*Retirement funds.*

ART. 2. For the purpose of creating an old age retirement fund, each operator shall pay, each month, either to the National Fund for Old-Age Pensions (*Caisse Nationale des Retraites pour la Vieillesse*) or to such fund as may be established under article 4, a sum equal to 4 per cent of the earnings of the workers and salaried employees in his establishment, one-half of which shall be deducted from the earnings or salaries of the employees and one-half of which shall be paid by the operator himself. These assessments may be increased by the agreement of the interested parties. The payments made by the workers or salaried employees shall be entered in their individual account books. These sums shall constitute an alienated fund (*capital aliéné*). Nevertheless, if the holder of an account book so requests, the assessment on his earnings shall form a reserve fund (*capital réservé*). The operator may pay a sum larger than one-half of the total assessment or all of it.

ART. 3. The pensions shall be acquired and disbursed as provided by the law of July 20, 1886, relating to the National Fund for Old-Age Pensions. The age of retirement is fixed at 55 years, but may be deferred on request of the person having the right to be retired; but the payment of dues shall cease to be obligatory at that age.

ART. 4. The operators of mines may obtain authority to establish independent pension funds (*caisses syndicales ou patronales de retraites*) for the workers and salaried employees at work in their mines. This authority shall be given by a decree in the manner in which rules of public administration are given. The decree shall fix the limits of the district and the manner of operation and disbursement of the fund. It shall also prescribe the measures to be taken to assure the transmission, either to some other independent pension fund (*caisse syndicale ou patronale*) or to the National Fund for Old-Age Pensions, of the sums received for on the individual account books.

The sums paid by the operators into the independent pension funds (*caisses syndicales ou patronales*) must be invested in Government bonds, securities of the treasury, or guaranteed by it, or Department or commune bonds, as may be selected. The securities shall be registered. The operations of independent pension funds shall be submitted for examination to the "inspection des finances" and the "receveur particulier" of the arrondissement in which the society is located.



ART. 5. If special agreements exist between the operators and the workers and salaried employees for the purpose of securing to the latter, their widows, or their children, either supplementary annuities, temporary pensions, or indemnities determined in advance, the guaranty fund accruing under said agreements must be deposited with the *caisse des dépôts et consignations* [an office of the Government having charge of special funds] or with the funds provided for in article 4. The operators shall forward each year, through the office of the prefect, to the minister of public works, in form determined by him, a report of the operations under the provisions of the preceding paragraph.

### SECTION III.—*Mutual aid societies.*

ART. 6. The funds of each society shall be obtained from the following sources: (1) An assessment not exceeding 2 per cent, to be fixed by the council of administration of the society, on the earnings of each worker or salaried employee; (2) each operator shall pay into the fund a sum equal to one-half of that paid by the workers and salaried employees; (3) appropriations by the Government; (4) gifts and legacies; (5) fines collected for infractions of the by-laws and those inflicted on members for infractions of the mining rules and regulations of the establishment.

ART. 7. The constitutions of the mutual aid societies shall fix: (1) The nature and the amount of relief to be accorded to members who from sickness or infirmity are prevented from working; (2) in case of the death of a member, the nature and amount of relief to be allowed the family or heirs of the deceased. The constitution may authorize the granting of relief in money, as well as medical attendance and medicines to the wives, children, and parents of members. The constitution may also provide a daily benefit for the wives and children of members called to service in the army, as well as exceptional and renewable allowances to widows and orphans of members of the society.

ART. 8. In case a member shall be prevented from working on account of sickness for a period exceeding 4 days, with consequent loss of pay, the mutual aid society shall pay at the end of each 6 months, to the account of any sick member belonging to a retirement fund, a sum not less than 5 per cent of the sick benefits provided in the constitution. This obligation ceases when the payment of the sick benefits stops.

ART. 9. Should the interested parties not agree as to the territorial limits of each society, then the council of state (*Conseil d'État*) shall determine by decree such boundaries. One mine may be divided into several districts, and one society may embrace adjacent mines, whether operated by one or more firms. Upon application of the interested parties and when so authorized by the minister of public works, the employees of industries connected with the mines may be added to the miners' mutual aid societies.

ART. 10. The society shall be administered by a council consisting of not less than 9 members, of whom one-third shall be designated by the operator and two-thirds shall be elected by the members. At the same time and in like manner 3 alternates shall be named, who shall fill the places of absentees or vacancies in the council.

If at the time of the election the operator shall renounce, in whole or in part, the privilege reserved to him in the preceding paragraph, the members of the society shall proceed to elect members for such places as are not filled by the operator. No decision of the council shall be valid unless two-thirds of the members shall cast votes; nevertheless, at a second meeting, called in the usual manner, decisions shall be made by a majority vote, whatever may be the number of votes cast. The council shall elect from its members a president, a secretary, and a treasurer.

ART. 11. All French miners and salaried employees, under ground or above ground, possessing political rights, whose names shall appear on the last pay roll, shall have the qualifications necessary for electors. Those who are able to read and write and have not been convicted, under the present law or the law of April 21, 1810, and the decree of January 3, 1813, or articles 414 and 415 of the penal code, and have attained the age of 25 years and worked 5 years in the mine with which the mutual aid society is connected are eligible to the administrative council: *Provided, however*, That in mines opened during the preceding 5 years the time of work in the mine shall be reduced to the period the mine has been operated.

The electors shall be convened for the first time by an order of the prefect, which order shall fix the date of election and the hours during which the polls shall remain open. The election shall be held in the office of the mayor of the commune designated in the order of the prefect, selected from those communes belonging to the territory embraced in the boundaries of the district. The mayor shall preside over the election. The order calling an election shall be published and posted in the communes of the district at least 15 days before the election. Notice shall be given to the operator.

Within a week from receiving the order the operator shall post a list of the electors in the district in the usual place for posting notices to employees. The operator shall send a duplicate of the poll list to the mayor whose duty it is to preside at the election. Any operator

who shall refuse or neglect to conform to the preceding provision shall be subject to the penalties prescribed by articles 93 and following of the law of April 21, 1810. Moreover, the prefect may prepare and post the poll list at the expense of the operator, which expense shall be recoverable in the same manner as public taxes. Subsequent elections shall always be held at the mayor's office, and for this purpose the mayor shall place one of the rooms of his office at the disposal of the society. The rules may provide for subdividing the district into electoral districts and fix the number of administrators to be elected from each, but in no case shall this number be less than 2. If the election, either for the entire district or for one of the subdistricts, is held before different mayors, the justice of the peace having the authority under article 13 of deciding contests shall collect the returns and announce the results of the election.

ART. 12. The election shall always be held on Sunday. No one is elected unless he receives an absolute majority of the votes cast and the number of votes received by him is equal to one-fourth of the total number of electors. In case a second election is called, it shall be held on the following Sunday, and a relative majority of votes cast shall elect. If two or more candidates shall receive the same number of votes, the oldest candidate shall be declared elected. The members of the first council shall be elected for three years, and one-third shall be elected each year. Vacancies caused by death, resignations, or forfeiture of eligibility of members shall be filled within 6 months. The new members shall be elected to fill the unexpired terms of the members whose places they are elected to fill.

ART. 13. Contests arising in the preparation of the poll lists and on the validity of process of election shall be carried within 15 days before the justice of the peace of the commune in which the elections were held. The proceedings shall be introduced by a simple declaration before the clerk of said court. The justice of the peace shall decide within 15 days the questions at issue, without cost, informally, and by simple notice of 3 days to all interested parties. The decision of the justice of the peace shall be final, unless an appeal is taken to the court of cassation. The appeal must be taken within 10 days from the notification of the decision, in the form of a simple request deposited with the clerk of the justice of the peace; a notice must be sent to the defendants within the 10 days following. It must be decided summarily and without penalty. The arguments and briefs furnished by the parties must be forwarded by the clerk of the justice's court to the clerk of the court of cassation. All documents shall be exempt from stamp duty and from recorder's fees.

ART. 14. The constitution shall be prepared by the first council and submitted through the office of the prefect to the minister of public works for his approval. After his approval it shall be forwarded to the operator. The decision of the minister may be referred to the council of state in case of dispute. The appeal is exempt from stamp duty and recorder's fees and may be made without the assistance of an attorney of the court. All modifications of the constitution shall have the approval of the minister. It shall be the duty of the operator to permanently post a copy of the constitution in the usual place for posting notices to the workers. He shall present to each new worker or salaried employee, at the time of his employment, a copy of the constitution and take a receipt for the same.

ART. 15. Unless it be otherwise ordered by the prefect of the Department the societies shall transmit their books, records of proceedings, and accounts of whatever nature to the prefect of the department and to the inspectors of mines (*ingénieurs des mines*). Each society at the end of each year shall forward through the office of the prefect to the ministers of public works and of the interior, in such forms as are specified by them, its financial statements and the report of sickness and death of members during the year.

ART. 16. The administrative council shall fix at the end of each year, from the amount of surplus funds, the amount which shall be retained in the treasury and that which shall be deposited in the *caisse des dépôts et consignations*. This deposit must be made by the administrative council within 1 month, and in case of noncompliance with this provision the said council, as a body, shall be responsible, without releasing it from the application of article 408 of the penal code. The total reserve fund shall not exceed twice the amount of the receipts for the year.

ART. 17. In case of failure to execute the constitution or of a violation of the provisions of this law, the minister of public works, after advice from the general council of mines, may dissolve the administrative council without prejudice to the civil or penal responsibility incurred by the administrators. Within 2 months at the latest the electors shall be convened for the purpose of electing a new council. During the interval the society shall be managed by a deputy of the prefect.

ART. 18. Mutual aid societies existing at the present time, the constitutions of which have been regularly approved by administrative authority, in so far as pertains to this section, shall preserve their organization and their mode of operation, except where, on the advice of the general council of mines, the minister of public works shall consider their reorganization necessary. These shall, in addition, participate in the receipts provided for by article 6 preceding.

ART. 19. The constitution may provide that the relief shall be conducted through an insurance company.

ART. 20. All societies regularly constituted under the provisions of this law shall enjoy the privileges and shall be subject to the provisions of the laws concerning mutual aid societies.

SECTION IV.—*Temporary provisions and rules.*

ART. 21. The pensions already granted, under whatever title, and which are a charge on the operator shall be continued as formerly, according to the particular rules of the establishment.

ART. 22. All pensions in course of acquisition, and which are a charge on the operator shall be calculated by the application of the rules and customs in virtue of which these pensions were formerly accorded. If the pension secured from payments made in the execution of article 2 falls below the amount calculated for the pensions just mentioned, the necessary balance shall be a charge on the operator.

ART. 23. From and after the date on which this act takes effect, the provident societies heretofore organized by the workers and salaried employees for the purpose of granting relief and to provide temporary benefits, old-age, invalidity, or accident pensions, shall be operated exclusively for the execution of contracts previously entered into as regards both the pensions already acquired, under whatever title, and the old age pensions in course of acquisition. Nevertheless, during the first month the societies shall grant relief and provide for the needs of the sick under treatment.

ART. 24. Within 6 months the interested parties shall determine the methods of procedure in the before-mentioned contracts and the necessary measures to adopt to secure funds for their discharge. In default of an agreement between the operators on the one part and a majority of the workers or salaried employees on the other part, the two parties may decide that the settlement of the measures to be taken and of the payments to be made shall be confided to a board of arbitration, to be formed as provided in article 26 following. If the operators and a majority of the workers and salaried employees can not agree, in the 6 months as above provided, upon the methods to adopt or to refer the matter to a board of arbitration, the courts shall name, at the request of the most active party, a receiver (*liquidateur*), whose duty shall be to close the affairs of the society to the best interest of the parties. The report of the receiver shall be submitted to the court for confirmation.

ART. 25. Every worker or salaried employee, for whose benefit an old age or invalidity pension is now accruing, shall be exempt from the assessment on wages or salary as prescribed in article 2, if he shall declare before the mayor of the commune in which he resides that he intends to renounce all benefits of said article. The mayor shall give a receipt for this declaration. During the term covered by this renunciation the operator shall be equally exempted from the assessment, which under the provisions of said article would be incumbent on him.

ART. 26. The board of arbitration mentioned in article 24 shall be composed of seven permanent members, appointed as follows: Two by the general council of mines; two by the superior commission of the National Fund for Old-Age Pensions; two by the court of appeal of Paris from the counsellors of the court; one by the auditor's office from the counsellors of that office. The board of arbitration shall elect its president and secretary; it shall hold its sessions at the office of the minister of public works, and shall serve without compensation. In case a matter shall be referred to it for settlement, the number of its members shall be increased to nine by the addition of two members, one to be selected by the operators and the other by a majority of the workers and salaried employees. The procedure shall be without cost of any nature: all papers, documents, and instruments in writing of whatever nature, shall be exempt from stamp duty and recorder's fees.

ART. 27. All differences which shall arise in the execution of this law and which shall be carried to the civil courts shall be peremptorily decided in a summary proceeding. The interested parties shall have the assistance of attorneys without expense (*assistance judiciaire*). All papers, documents, and instruments in writing produced by either party shall be exempt from stamp duty and from recorder's fees.

Parties to the controversy acting under a collective name shall have a legal representative (*mandataire*), elected by a majority vote, without prejudice to the right of each one of them to individual intervention.

ART. 28. The capital forming the basis of pensions which have to be paid either by the operators or the mutual-aid funds, may be deposited by them, either in a lump sum or as annuity payments, in the National Fund for Old-Age Pensions, which will credit the pensions in the individual account book of each person to be pensioned and make the payments at the proper age.

[Articles 29 and 30 contain administrative provisions of minor importance. Article 31 permits the Government to extend the provisions of this law to quarries.]

Articles 84 to 98 of the financial law of March 31, 1903, provide for the State subsidy to the insurance of mining employees. Article 84 states that each year the sum of 1,000,000 francs (\$193,000) is to be appropriated to be expended: (1) One-third for the increase of such old-age or invalidity pensions over 50 francs (\$9.65) as have been acquired or are in process of liquidation on January 1, 1903, in favor of miners of French nationality, under the provisions of Section IV of the law of June 29, 1894; (2) two-thirds for allowances to all mining employees of French nationality who are at least 55 years of age on January 1, 1903, and who are credited with 30 years of work for wages in French mines.

Article 85 states that these increases may not raise the increased pension above the sum of 360 francs (\$69.48), including all income of both the pensioner and consort (husband or wife) except wages in money or in kind.

Article 86 provides that the allowance specified under section 2 of article 84 is limited to 240 francs (\$46.32), including all other income of both the pensioner and the consort, excepting wages in money or in kind, and excepting pensions acquired exclusively under Section II of the law of June 29, 1894, or pensions of not more than 50 francs (\$9.65) liquidated on January 1, 1903, under Section IV of the aforesaid law.

Outside of the last-mentioned case, allowances under this section of the present law may not be combined with pensions acquired or to be acquired under Section IV of the law of June 29, 1894. The council of ministers may raise the amount of 240 francs (\$46.32) specified in this article to 360 francs (\$69.48).

Article 87 provides that the annual law on finances shall specify the rate by which the tax on mines shall be increased in order to cover the share of the operators for the expenditures on allowances granted in article 86. This share is one-half of the expenditures and one-half of the cost of administration of the present law.

Article 94 provides that when the amount stated in article 84 is not sufficient to increase the pensions specified to 360 francs (\$69.48), each increase shall be reduced proportionately until the total is brought within the amount appropriated.

The other parts of the law provide for a commission of officials to administer the law and give a set of general regulations defining the powers of this commission and the methods of procedure.

The provisions of the law of 1894 on miners' insurance are briefly summed up in the following paragraphs.

The insurance of mining employees against sickness and against old age and invalidity is made compulsory. The two forms of insurance must be kept entirely distinct.

The sick insurance.—Each operator must create for his establishment a mutual-aid society, to be supported by (a) a deduction from wages, the amount to be fixed by the society, but not to exceed 2 per cent of the wages, or 48 francs (\$9.26) per year; (b) a contribution by the operator of half the amount paid by the employees; (c) the State subsidy; (d) gifts, legacies, etc.; (e) the fines collected for infractions of the laws of the society and mining rules and regulations. Each society fixes the amount of the sick relief to be granted, the kind of relief, and the funeral benefits. The constitution of the society may also authorize the granting of relief in cash, physician's services, and medical supplies to the families of the members. The sick insurance fund of the society must make payments to the old-age insurance fund for those members who have been sick for more than 4 days, these payments to be not less than 5 per cent of the sick benefit paid. The administration of the societies is vested in the hands of a committee of miners and representatives of the employers.

The old-age and invalidity insurance.—This part of the miners' insurance is supported by the payment of a sum equal to 4 per cent of the wages, one-half to be deducted from the wages of the miners and one-half to be paid by the operator. If both parties so desire, this amount may be increased. The operator may pay the whole of this amount to the National Fund for Old-Age Pensions, or he may establish a special fund, in which case the latter must receive the approval of the Government regarding the constitution of the fund, the investment of the resources, etc. The pensions granted must be calculated from actuarial tables supplied by the Government. Pensions may begin at any time after 55 years of age, or earlier in case of invalidity.

This system is stated to have been adopted, with but few changes, from that in use by the Coal Mining Company of Anzin, and therefore had the advantage of having been in successful operation from 1887 to 1894 by a corporation employing about 12,000 persons during that time. (See Bulletin of Department of Labor, No. 3, page 242).

The accident insurance.—The two forms of workingmen's insurance just described are entirely distinct from the accident insurance; the former are supported partly by the workmen and partly by the employers, while the latter is supported entirely by the employers. The accident insurance also has a separate organization and is provided for under a law applying to the principal industries.

In France, as in other leading European countries, the principle of trade risk in accidents has been recognized, and applies to coal mining as well as to a large number of other industries. In accordance with this principle the law of April 9, 1898, as amended by the law of March 31, 1905, provides that any employee who, while in the performance of his work; is injured by an accident causing him to be



incapacitated for work more than 4 days, or the heirs of a workingman killed by an accident, shall have the right to an indemnity, according to the following scale of benefits, to be paid by the employer:

(1) In case of permanent total incapacity to work, a yearly pension equal to two-thirds of his annual wages.

(2) In case of a partial but permanent disability, a pension equal to one-half the amount of the loss in wage-earning capacity caused by the accident.

(3) In case of temporary incapacity, a daily benefit equal to one-half of the daily wage received at the time of the accident, this benefit to be paid for each day in the year, including Sundays, holidays, and days of unemployment. If the wages received by the injured person were variable, then the benefit must be equal to one-half of the average wage received on the days worked during the month preceding the accident. The payment of the benefit begins on the fifth day after the accident, but if the incapacity lasts more than ten days, the payment must be dated from the first day after the accident. The benefit is payable at the customary time and place of making payments in the establishment, though the interval between payments may not exceed sixteen days.

(4) In case the accident results in death, the following pensions are paid:

(a) To the consort (i. e., husband or wife) a pension equal to 20 per cent of the annual wages of the deceased, provided the marriage was contracted before the accident. In case of remarriage he or she receives a lump sum equal to three yearly pension payments in final liquidation of all claims. (b) To children left with one parent and under 16 years of age, a pension, until that age is reached, equal to 15 per cent of the victim's annual earnings, if there is but one child; pensions aggregating 25 per cent if there are two children, 35 per cent if there are three, and 40 per cent if there are four or more. If the children are left without father and mother the pension is raised to 20 per cent of the deceased's wages for each child, the total, however, not to exceed 60 per cent, a proportional reduction being made, if necessary, to bring the total within this amount. (c) If the victim leaves neither consort nor children, the ascendants who were dependent upon the deceased for support receive a life pension equal to 10 per cent of the latter's former wages, while related children dependent upon him for support also receive a pension of 10 per cent of his wages until they reach the age of 16; the total pensions of this class in no case to exceed 30 per cent of the wages of the deceased member.

Workingmen of foreign nationality, and in most cases, their heirs, receiving pensions under this act, upon leaving France, receive as a

final settlement a sum equal to three times the annual pension allowed. The foreign heirs of workmen of foreign nationality, if living outside of France at the time of the accident, are not entitled to any compensation; but this provision may be modified by treaty in the case of countries offering equivalent advantages to French citizens.

In the case of workmen earning over 2,400 francs (\$463.20) the schedule of benefits applies to that sum only, the rate of benefits for the excess of that sum being one-fourth of the regular rate.

If it is shown that the accident was due to an inexcusable fault on the part of the victim, the pension rate may be diminished according to the circumstances of each case. If, on the other hand, the accident resulted from the inexcusable fault or negligence of the employer or his direct representative, the indemnity may be increased, not to exceed, however, the loss of wage-earning capacity suffered by the injured workman or the total amount of his annual wages.

The victim is entitled to no compensation whatever if it can be shown that the accident was intentional.

The wages which serve as a basis for fixing the pensions are those actually received, either in money or in kind during the twelve months preceding the accident. If the victim has worked less than twelve months in the establishment, the rate is based upon the wages earned during the time employed plus the average wages received by workmen of the same category during the remainder of the twelve-month period. If employment is irregular, the estimate of the worker's earnings must include not only the wages of the time of operation of the establishment, but also his earnings for the rest of the year. If, through no fault of his own, the worker has been unemployed for an exceptionally long time, the estimate of his earnings must include the average wages corresponding to this period of unemployment. Except in cases of temporary disability, the wages which serve as a basis for fixing the compensations allowed to victims of accidents who are under 16 years of age must not be below those of the lowest paid full workers of the same category in the establishment.

After the amount of a pension has been fixed the beneficiary has the right to demand that a sum not exceeding one-fourth of the amount necessary to constitute the capital for the payment of the same, calculated according to tables prepared by the National Fund for Old-Age Pensions, shall be paid to him in cash. He may also demand that this capital, or the sum remaining after the one-fourth deduction has been made as above, shall be converted into an annuity, revertible to his wife at his death, the annuity for the wife not to exceed one-half that paid during his life. In this case the pension



is reduced in such a measure, however, that no increased charges are thereby placed upon the employer.

The ~~entire burden of the~~ payment of these benefits is placed upon the employers of the injured workmen. In addition, they are required to defray all medical, pharmaceutical, and funeral expenses, the last-named item not to exceed 100 francs (\$19.30) in any one case. The injured worker has the right to choose his physician and his pharmacist, but the charges for their services may not exceed the rates published in the schedule issued by decree of the minister of commerce. The employer must also pay for hospital treatment, but the charges may not exceed a specified rate.

Mine operators may relieve themselves of the burden of paying indemnities and furnishing medical and pharmaceutical aid in cases of temporary disabilities due to accidents by paying an annual subsidy to the miners' relief funds constituted by virtue of the law of June 29, 1894. The amount and conditions of this subsidy must be acceptable to the society and approved by the minister of public works. If the employer wishes to relieve himself of the periodical payment of pensions due on account of death or permanent disability, he can do so by paying into the National Fund for Old-Age Pensions a sum sufficient, according to actuarial calculations, to provide for the payment of the prescribed pensions, and this institution will thenceforth assume this burden.

The parties may, by mutual agreement, at any time after the fixing of the amount of the indemnity, decide to suspend or replace the same by some other form of compensation, provided that a pension may not be replaced by a payment whose amount is less than 100 francs (\$19.30).

While employers are not compelled to contract accident insurance with companies organized for that purpose for the benefit of their employees, the following provision is made for securing the payments to the beneficiaries under the law:

For the payment of medical and funeral expenses and the benefits allowed in cases of temporary incapacity, the victims of accidents have a lien on the property of the employers.

For pensions in cases of permanent disability or death, the State undertakes to guarantee these payments. The law provides that if the employer, or the company through which he has contracted insurance, fails to pay the pensions due, such pensions will be paid by the National Fund for Old-Age Pensions. For this purpose there is being accumulated in this institution a guarantee fund supported by a special tax upon the employers, which in the case of mine operators amounts to 5 centimes (1 cent) per hectare (2.47 acres) of mine area conceded to them for exploitation. In all cases where this

institution has to assume the payment of a pension it has the right and is required to proceed against the defaulting employer or insurance organization by an action at law to recover the amount so paid.

When an employer retires from business he is required to pay to the National Fund for Old-Age Pensions a sum sufficient to cover the payment of the pensions for which he is liable unless he can furnish a guaranty of its payment.

The duty of reporting accidents rests upon the employer. He or his representative is required, under penalty of a fine, to report within 48 hours to the mayor of the commune in which the accident occurred all accidents causing inability to work. If the workman has not resumed his labor within 4 days after the day of the accident, the employer or his representative must deposit with the mayor a physician's certificate showing the condition of the victim and the probable result of the accident. If the return shows that death or permanent incapacity has resulted or is likely to result, the mayor must immediately communicate with the justice of the peace of the canton, which official must then begin an investigation covering, among other things, the cause, nature, and extent of the injury and the daily and annual wages which the sufferer or deceased has received.

All controversies relative to the funeral and medical expenses and the daily benefits to be granted in the case of temporary or permanent incapacity are settled finally by the justice of the peace of the canton in which the accident occurred. In regard to the life and other pensions, the president of the civil tribunal of the arrondissement must, within 5 days after the receipt of the documents in the case, call before him the victim or his heirs and the employer, who may be represented. If an agreement concerning the amount of the indemnity can be reached, the amount is then definitely settled and an order is issued to that effect. If such accord can not be reached immediately, a proceeding similar to a regular action at law must be had, and a temporary indemnity is fixed by the tribunal, which indemnity will continue until the matter is finally adjudicated.

The operations of the insurance systems just described are fully set forth in the statistical tables reproduced in the following pages, compiled from the official reports of the French Government.

The number of miners' relief funds in existence at the end of 1896, the first year of operation of the law of June 29, 1894, was 190; in 1903 this had increased to 202. The total number of members was 154,696 in 1896, and 188,972 in 1903. Over nine-tenths of the membership consists of persons employed in coal and lignite mining.

## MEMBERSHIP OF MINERS' RELIEF FUNDS IN FRANCE, 1896 TO 1903.

[Source: Statistique de l'industrie minérale et des appareils à vapeur, 1896-1903.]

Year.	Miners' relief funds.	Membership.			Members employed in—	
		Wage-workers.	Salaried employ-ees.	Total.	Coal and lignite mines.	Other mines.
1896.....	190	(a)	(a)	154,696	144,206	10,490
1897.....	190	(a)	(a)	158,770	147,947	10,823
1898.....	191	153,572	5,862	164,434	153,068	11,366
1899.....	191	164,710	5,964	170,674	159,322	11,352
1900.....	197	172,487	6,389	178,876	166,176	12,700
1901.....	203	179,073	6,721	185,794	172,976	12,818
1902.....	203	179,822	6,919	186,741	173,757	12,984
1903.....	202	182,313	6,659	188,972	175,512	13,460

a Not separately reported.

The number of persons reported sick in 1896 was 103,981, or 67.22 per cent of the total membership; in 1903 the number was 123,067, or 65.12 per cent of the total membership. In 1900 the number was as high as 78.88 per cent of the total membership. The average number of days of sickness per sick person was 14.85 in 1896 and 16.54 in 1903; the average number of days of sickness for each member of the societies was 9.98 in 1896 and 10.77 in 1903. The average number of days of sickness for which relief was granted was but slightly less than the number of days reported, being 14.12 days per sick person in 1896 and 15.56 in 1903. The number of deaths from all causes in 1896 was 1,392, or 9 per 1,000 members; in 1903 it was 1,674, or 8.86 per 1,000 members. The number of deaths caused by accident in 1896 was 184, or 1.19 per 1,000 members; in 1903 it was 193, or 1.02 per 1,000 members. From other causes, the number of deaths in 1896 was 1,208, or 7.81 per 1,000 members, and in 1903 it was 1,481, or 7.84 per 1,000 members.

The following table shows the number of persons reported sick, the total days of sickness, the days for which sick relief was given, the cases of death from accidents and from other causes, etc., from 1896 to 1903:

## SICKNESS AND DEATH AMONG MEMBERS OF THE MINERS' RELIEF FUNDS IN FRANCE, 1896 TO 1903.

[Source: Statistique de l'industrie minérale et des appareils à vapeur, 1896-1903.]

Year.	Cases of sickness.						Cases of death.							
	Persons reported sick.		Days of sickness.			Days of sickness during which relief was given.			From accidents.		From other causes.		From all causes.	
	Num-ber.	Per cent of total mem-ber-ship.	Total.	Average per sick per-son.	Average per mem-ber.	Total.	Average per sick per-son.	Average per mem-ber.	Num-ber.	Per 1,000 mem-bers. (a)	Num-ber.	Per 1,000 mem-bers. (a)	Num-ber. (a)	Per 1,000 mem-bers. (a)
1896..	103,981	67.22	1,543,874	14.85	9.98	1,468,048	14.12	9.49	184	1.19	1,208	7.81	1,392	9.00
1897..	113,721	71.63	1,631,221	14.34	10.27	1,547,770	13.61	9.75	189	1.19	1,176	7.41	1,365	8.60
1898..	122,049	73.22	1,749,220	14.33	10.64	1,646,380	13.49	10.01	187	1.14	1,339	8.14	1,526	9.28
1899..	128,592	75.34	1,817,927	14.14	10.65	1,705,837	13.27	9.99	219	1.28	1,462	8.57	1,681	9.85
1900..	141,090	78.88	2,042,776	14.48	11.42	1,925,307	13.65	10.76	221	1.24	1,558	8.71	1,779	9.95
1901..	120,107	64.65	2,059,614	17.15	11.09	1,936,606	16.12	10.42	188	1.01	1,576	8.48	1,764	9.49
1902..	118,082	63.23	2,147,590	18.19	11.50	2,026,827	17.16	10.85	188	1.01	1,470	7.87	1,658	8.88
1903..	123,067	65.12	2,035,627	16.54	10.77	1,915,479	15.56	10.14	193	1.02	1,481	7.84	1,674	8.86

a Computed.

The following table shows in detail the cases of sickness and the days of sickness classified as "Males below ground," "Males above ground," and "Females." The main points of interest are connected with the columns showing the number of days of sickness for the different classes of employees. In 1896 the average number of days of sickness per member for males below ground was 9.87; for males above ground it was 7.58. In the same year the average number of days of sickness per sick person was 13.84 for males below ground and 18.30 for males above ground. A similar showing is made for each year of the period. There is therefore more sickness among the underground employees, but the cases of sickness among those employed above ground are of longer duration. The high rate of sickness among the female employees is to be expected on account of the nature of mine labor and the weaker physique of women.

CASES OF SICKNESS OF MALE UNDERGROUND AND SURFACE WORKERS AND OF FEMALE EMPLOYEES WHO WERE MEMBERS OF THE MINERS' RELIEF FUNDS IN FRANCE, 1896 TO 1903.

[Source: Statistique de l'industrie minérale et des appareils à vapeur, 1896-1903. The returns reported in detail for the years 1896 to 1899, inclusive, and for 1903, are incomplete, and hence do not agree with the figures in the preceding tables.]

Year.	Membership.			Number of sick persons reported.		
	Males below ground.	Males above ground.	Females.	Males below ground.	Males above ground.	Females.
1896.....	63,916	26,598	4,205	45,579	11,018	3,047
1897.....	75,528	31,230	5,006	58,087	14,158	3,453
1898.....	85,832	35,113	5,796	64,645	18,095	3,955
1899.....	97,929	37,385	5,952	74,314	18,531	4,276
1900.....	125,432	46,604	6,840	105,701	29,524	5,865
1901.....	129,842	48,976	6,976	91,550	24,365	4,192
1902.....	130,388	49,540	6,813	90,709	23,558	3,815
1903.....	132,382	49,681	6,909	95,064	20,466	4,121

  

Year.	Days of sickness.								
	Males below ground.			Males above ground.			Females.		
	Days.	Average per member. <sup>(a)</sup>	Average per sick person. <sup>(a)</sup>	Days.	Average per member. <sup>(a)</sup>	Average per sick person. <sup>(a)</sup>	Days.	Average per member. <sup>(a)</sup>	Average per sick person. <sup>(a)</sup>
1896.....	630,607	9.87	13.84	201,588	7.58	18.30	52,647	12.52	17.28
1897.....	796,810	10.55	13.72	257,193	8.24	18.17	60,292	12.04	17.46
1898.....	952,321	11.10	14.73	303,436	8.64	16.23	74,887	12.92	18.93
1899.....	1,115,069	11.39	15.00	312,268	8.35	16.85	83,148	13.97	19.45
1900.....	1,494,180	11.91	14.14	441,116	9.47	14.94	107,480	15.71	18.33
1901.....	1,532,766	11.80	16.74	434,039	8.86	17.81	92,809	13.30	22.14
1902.....	1,604,428	12.31	17.69	451,688	9.12	19.17	91,474	13.43	23.98
1903.....	1,514,382	11.44	15.93	436,599	8.79	21.33	84,646	12.25	20.54

<sup>a</sup> Computed.

The following table shows that in 117 societies reporting in 1896 there were 795 deaths of members, or 8.51 per 1,000 members, and that the relief granted averaged 32.44 francs (\$6.26) per case. In 1902 there were 160 societies reporting, in which 1,451 deaths occurred,

being 8.12 deaths per 1,000 members. The average relief granted was 36.85 francs (\$7.11) per case. The table shows this matter in detail for two classes of societies, one granting relief to members only, and one granting relief not only to members, but also to their wives, children, and parents.

DEATHS FOR WHICH RELIEF WAS GRANTED AND THE AVERAGE RELIEF GRANTED BY THE MINERS' RELIEF FUNDS IN FRANCE, 1896 TO 1902.

[Source: Statistique de l'industrie minière et des appareils à vapeur, 1896-1902. The report for 1903 does not contain these statistics. Conversion of French into United States money was made on the basis of 1 franc=\$0.193.]

Year.	Granting relief to members only.					Granting relief to members, their wives, children, and parents.							
	Societies reporting.	Members.	Cases of death.			Societies reporting.	Members.	Cases of death of members.			Cases of death of wives.		
			Number.	Per 1,000 members.	Average relief granted.			Number.	Per 1,000 members.	Average relief granted.	Number.	Per 1,000 members.	Average relief granted.
1896..	b 92	b 64,808	552	8.52	\$6.10	c 25	28,587	243	8.50	\$6.61	152	5.32	\$4.60
1897..	99	63,451	533	8.40	6.55	d 50	66,173	473	7.15	5.48	345	5.21	4.62
1898..	90	65,959	615	9.32	8.48	60	88,639	688	7.76	5.79	452	5.10	4.45
1899..	97	73,911	714	9.66	7.80	62	92,994	734	7.89	6.37	499	5.33	5.17
1900..	98	77,634	785	10.11	7.62	53	93,126	757	8.13	5.80	586	6.29	4.83
1901..	104	81,644	754	9.24	8.22	61	99,329	761	7.66	6.16	551	5.55	5.27
1902..	97	82,639	721	8.72	8.17	63	96,098	730	7.60	6.07	515	5.36	5.53

Year.	Granting relief to members, their wives, children, and parents.						Cases of death of members.						Average.		
	Cases of death of children.			Cases of death of parents.			Total cases of death.			Societies reporting.	Members.	Deaths.			
	Number.	Per 1,000 members.	Average relief granted.	Number.	Per 1,000 members.	Average relief granted.	Number.	Per 1,000 members.	Average relief granted.			Number.		Per 1,000 members.	Average relief granted.
1896..	662	23.86	\$2.19	67	2.34	\$4.98	1,144	40.02	\$3.61	117	93,395	795	8.51	\$6.26	\$4.42
1897..	1,624	24.54	2.22	187	2.83	4.26	2,629	39.73	3.27	149	129,624	1,006	7.76	6.10	3.84
1898..	2,672	30.14	2.01	287	3.24	4.31	4,959	46.24	3.07	150	154,597	1,303	8.43	7.06	3.78
1899..	2,817	30.29	2.11	256	2.75	5.26	4,303	46.27	3.38	159	166,905	1,448	8.68	7.08	4.01
1900..	2,727	29.28	2.20	311	3.34	4.49	4,391	47.04	3.34	151	170,760	1,542	9.03	6.73	3.99
1901..	2,830	28.49	2.22	333	3.35	5.26	4,475	45.05	3.49	165	180,973	1,515	8.37	7.19	4.18
1902..	2,703	28.13	2.21	338	3.52	5.17	4,286	44.60	3.50	160	178,737	1,451	8.12	7.11	4.17

a Computed.

b These figures do not agree with those found in the table on page 232. No explanation is given.

c The financial reports of 33 societies paying benefits of this class were not sufficiently detailed to permit of further classification. The whole number of societies, viz, 58, does not agree with the number found on page 232. No explanation is given.

d The financial reports of 5 societies paying benefits of this class were not sufficiently detailed to permit of further classification.

The financial condition of the miners' relief funds is shown in condensed form in the following table. The items of receipts and expenditures both show increases, with an excess of receipts over expenditures for all the years except 1902, when there was a deficit. The receipts in 1896 were \$941,148; in 1903 they were \$1,353,853. The expenditures increased from \$839,558 in 1896 to \$1,245,798 in 1903. The table shows that for each year a small number of societies have had a deficit.

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RECEIPTS AND EXPENDITURES, AMOUNT OF RESERVE, NUMBER OF MINERS' RELIEF FUNDS HAVING NEITHER ASSETS NOR LIABILITIES, AND NUMBER HAVING A DEFICIT AT THE CLOSE OF EACH YEAR, IN FRANCE, 1896 TO 1903.

[Source: Statistique de l'industrie minérale et des appareils à vapeur, 1896-1903. Conversion of French into United States money was made on the basis of 1 franc=\$0.193.]

Year.	Receipts.	Expenditures.	Excess of receipts over expenditures.	Amount of reserve at the close of year. (a)	Funds having neither assets nor liabilities.		Funds having a deficit.		
					Number.	Members.	Number.	Members.	Amount of deficit.
1896...	\$941,148	\$839,558	\$101,590	\$256,957	4	942	2	172	\$48
1897...	993,338	902,715	90,623	339,142	.....	.....	2	6,564	1,361
1898...	1,053,088	979,932	73,136	401,383	.....	.....	4	6,151	1,047
1899...	1,122,627	1,046,163	76,464	457,104	.....	.....	1	1,888	685
1900...	1,238,678	1,161,051	77,627	569,622	.....	.....	2	1,377	347
1901...	1,289,451	1,240,792	48,659	581,119	2	2,035	5	5,488	4,552
1902...	1,219,215	1,288,437	69,222	411,675	.....	.....	4	2,500	828
1903...	1,353,853	1,245,798	108,055	572,781	.....	.....	2	2,610	378

<sup>a</sup> The amount of the reserve at the close of any year does not equal the excess of receipts over expenditures for that year plus the reserve on hand at the close of the preceding year. No explanation is given.

<sup>b</sup> Deficit.

The following table shows the receipts of the societies according to source. In 1896 the employees contributed \$569,496, the operators \$285,376; in 1903 the employees contributed \$807,158, the operators \$404,261. The share of the operators is slightly in excess of the 50 per cent of the employees' share which the law calls for. Of the other items of receipts, the largest is that of fines for infractions of mining rules; in 1896 the amount credited to fines was \$58,054; in 1903 it was \$87,145.

RECEIPTS OF MINERS' RELIEF FUNDS IN FRANCE, 1896 TO 1903.

[Source: Statistique de l'industrie minérale et des appareils à vapeur, 1896-1903. Conversion of French into United States money was made on the basis of 1 franc=\$0.193.]

Year.	Deductions from wages.	Contributions of employers.	Contributions of the State.	Fines for infractions of society rules.	Fines for infractions of mine rules.	Interest on funds.	Other receipts, including donations.	Total.
1896.....	\$569,496	\$285,376	.....	\$134	\$58,054	\$4,047	\$24,041	\$941,148
1897.....	598,371	299,667	.....	316	60,049	5,488	20,370	993,338
1898.....	626,643	314,364	.....	571	63,644	7,268	40,419	1,053,088
1899.....	666,429	335,802	.....	277	67,565	12,828	39,515	1,122,627
1900.....	727,742	372,380	.....	179	71,695	13,921	52,415	1,238,678
1901.....	767,802	387,559	.....	468	86,064	17,330	29,712	1,289,451
1902.....	722,285	361,816	.....	615	80,580	17,631	35,795	1,219,215
1903.....	807,158	404,261	.....	438	87,145	20,473	32,793	1,353,853

The following table shows the expenditures for various items. The item of statutory relief or sick benefit is naturally the largest source of expenditure. In 1896 it was \$376,511; in 1903 it was \$517,467. The expenses for medical relief include medical attendance, medicine, and hospital treatment. In 1896 these three items amounted to \$345,594; in 1903 they amounted to \$525,741. The number of items other than these two principal features of expenditure indicates the wide scope of the relief funds and the varied



form which their activities take. Funeral expenses in 1896 were \$15,566; in 1903 they were \$21,381. The payments into the National Fund for Old-Age Pensions amounted to \$9,626 in 1896 and \$18,558 in 1903. The item of administration called for \$16,589 in 1896 and \$20,376 in 1903. The other items of expenditure require no special comment.

## EXPENDITURES OF MINERS' RELIEF FUNDS IN FRANCE, 1896 TO 1903.

[Source: Statistique de l'industrie minière et des appareils à vapeur, 1896-1903. Conversion of French into United States money was made on the basis of 1 franc=\$0.193.]

Year.	Medical attendance.	Medicine.	Treatment at hospitals.	Statutory sick benefit.	Funeral expenses.	Payment into National Fund for Old-Age Pensions.	Supplementary relief to sick members.	Relief to infirm members.
1896.....	\$106,444	\$233,763	\$5,387	\$376,511	\$15,566	\$9,626	\$18,485	\$7,461
1897.....	114,064	251,115	6,886	394,876	15,468	12,940	20,133	10,886
1898.....	117,630	280,797	8,656	422,655	17,817	12,752	21,647	11,358
1899.....	124,885	310,018	8,403	441,243	20,107	14,906	24,153	13,364
1900.....	131,184	339,407	10,535	497,892	20,606	16,183	25,631	13,165
1901.....	141,510	375,630	11,815	524,099	21,834	17,100	31,171	11,580
1902.....	148,172	374,783	13,633	560,658	20,885	19,783	27,621	12,333
1903.....	150,858	360,748	14,135	517,467	21,381	18,558	27,280	13,436

Year.	Relief to families of deceased members.	Relief to families of members on military duty.	Various indemnities to members and their families.	Expenses of administration including legal salaries.	Per diem of members of the council of administration.	Compensation of the office force and of visitors to the sick.	Total.
1896.....	\$10,748	\$20,365	\$9,152	\$16,589	\$3,876	\$5,585	\$339,558
1897.....	16,331	20,043	11,561	17,904	4,157	6,351	902,715
1898.....	22,344	23,733	13,802	15,517	4,276	6,948	979,932
1899.....	25,524	20,544	15,659	15,650	4,355	7,352	1,046,163
1900.....	29,000	32,528	18,312	14,631	4,388	7,589	1,161,051
1901.....	30,929	24,086	16,301	21,167	5,001	8,569	1,240,792
1902.....	33,800	24,502	17,601	22,046	4,711	7,912	1,288,438
1903.....	38,519	32,905	15,711	20,376	5,035	9,389	1,245,798

The following table presents the statistics of expenditure in fuller detail and shows the average amount expended per member from 1896 to 1902:

## DETAILED EXPENDITURES OF MINERS' RELIEF FUNDS IN FRANCE, 1896 TO 1902.

[Source: Statistique de l'industrie minière et des appareils à vapeur, 1896-1902. Conversion of French into United States money was made on the basis of 1 franc=\$0.193. The report for 1903 does not contain these statistics.]

Year.	Medical attendance on members.				Medical attendance on members and their families.			
	Number of societies.	Number of members.	Amount of expenditure.	Average per member. <sup>(a)</sup>	Number of societies.	Number of members.	Amount of expenditure.	Average per member. <sup>(a)</sup>
1896.....	42	16,951	\$14,540	\$0.86	130	111,344	\$91,904	\$0.83
1897.....	31	7,481	6,278	.84	145	125,138	107,786	.86
1898.....	26	6,596	5,342	.81	156	131,099	112,288	.86
1899.....	31	8,048	6,870	.85	152	143,809	118,015	.82
1900.....	35	11,314	8,571	.76	150	141,629	122,613	.87
1901.....	33	14,270	13,307	.93	157	146,469	128,203	.88
1902.....	30	15,433	15,913	1.03	160	147,746	132,259	.90

<sup>a</sup> Computed.



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DETAILED EXPENDITURES OF MINERS' RELIEF FUNDS IN FRANCE, 1896 TO 1902—Continued.

[Source: Statistique de l'industrie minérale et des appareils à vapeur, 1896-1902. Conversion of French into United States money was made on the basis of 1 franc = \$0.193. The report for 1903 does not contain these statistics.]

Year.	Medicine for members.				Medicine for members and their families.			
	Number of societies.	Number of members.	Amount of expenditure.	Average per member. (c)	Number of societies.	Number of members.	Amount of expenditure.	Average per member. (c)
1896.....	44	17,414	\$20,033	\$1.15	128	118,028	\$213,730	\$1.81
1897.....	38	11,649	15,996,	1.37	138	130,171	235,119	1.81
1898.....	33	10,104	16,099	1.59	143	128,995	284,698	1.93
1899.....	34	11,261	19,225	1.71	147	148,745	290,793	1.95
1900.....	39	14,610	22,559	1.54	148	148,433	316,848	2.13
1901.....	37	19,331	34,589	1.78	155	150,516	341,041	2.27
1902.....	33	18,498	36,756	1.99	156	152,285	338,027	2.22

  

Year.	Treatment at hospitals.				Statutory sick benefits.			
	Number of societies.	Number of members.	Amount of expenditure.	Average per member. (c)	Number of societies.	Number of members.	Amount of expenditure.	Average per member. (c)
1896.....	71	95,651	\$5,387	\$0.06	187	154,515	\$376,511	\$2.44
1897.....	72	100,722	6,886	.07	188	158,706	394,876	2.49
1898.....	81	108,770	8,656	.08	187	164,155	422,655	2.57
1899.....	81	118,059	8,403	.07	188	170,236	441,243	2.69
1900.....	85	121,978	10,535	.09	196	178,822	497,892	2.78
1901.....	93	132,219	11,815	.09	200	185,138	524,099	2.83
1902.....	99	137,737	13,633	.10	198	186,368	560,656	3.01

  

Year.	Supplementary relief to sick members.				Relief to infirm members.			
	Number of societies.	Number of members.	Amount of expenditure.	Average per member. (c)	Number of societies.	Number of members.	Amount of expenditure.	Average per member. (c)
1896.....	121	121,479	\$18,485	\$0.15	38	48,976	\$7,461	\$0.15
1897.....	124	121,577	20,133	.17	42	62,027	10,896	.18
1898.....	132	132,432	21,647	.16	47	65,824	11,358	.17
1899.....	133	142,710	24,153	.17	49	69,782	13,364	.19
1900.....	131	147,015	25,631	.17	42	69,440	13,165	.19
1901.....	139	154,277	31,171	.20	46	73,062	11,580	.16
1902.....	141	156,613	27,621	.18	43	67,122	12,333	.18

  

Year.	Funeral expenses of members.				Funeral expenses of members and their families.			
	Number of societies.	Number of members.	Amount of expenditure.	Average per member. (c)	Number of societies.	Number of members.	Amount of expenditure.	Average per member. (c)
1896.....	<sup>b</sup> 85	<sup>b</sup> 53,395	\$2,779	\$0.05	<sup>b</sup> 65	94,889	\$12,787	\$0.13
1897.....	99	63,451	3,544	.06	55	90,046	11,924	.13
1898.....	90	65,958	5,214	.08	60	88,639	12,603	.14
1899.....	97	73,911	5,571	.08	62	92,994	14,536	.16
1900.....	98	77,634	5,980	.08	53	93,126	14,626	.16
1901.....	104	81,644	6,200	.08	61	99,329	15,634	.16
1902.....	97	82,639	5,887	.07	63	96,098	14,997	.16

<sup>a</sup> Computed.

<sup>b</sup> These figures do not agree with those found in the table on page 229. No explanation is given.

## DETAILED EXPENDITURES OF MINERS' RELIEF FUNDS IN FRANCE, 1886 TO 1902—Concluded.

[Source: Statistique de l'industrie minérale et des appareils à vapeur, 1886-1902. Conversion of French into United States money was made on the basis of 1 franc=\$0.193. The report for 1903 does not contain these statistics.]

Year.	Relief to families of deceased members.				Relief to families of members on military duty.			
	Number of societies.	Number of members.	Amount of expenditure.	Average per member. <sup>(a)</sup>	Number of societies.	Number of members.	Amount of expenditure.	Average per member. <sup>(a)</sup>
1886 .....	80	92,199	\$10,748	\$0.12	80	98,744	\$20,365	\$0.21
1887 .....	89	112,210	16,331	.15	89	103,931	20,043	.19
1888 .....	93	125,555	22,344	.18	88	110,922	23,733	.21
1889 .....	96	129,533	25,524	.20	86	114,780	20,544	.18
1900 .....	89	132,256	29,000	.22	92	122,479	32,528	.27
1901 .....	90	134,517	30,929	.23	95	131,107	24,086	.18
1902 .....	87	130,322	33,800	.26	96	133,439	24,502	.18

  

Year.	Various indemnities to members and their families.				Payment into National Fund for Old-Age Pensions.			
	Number of societies.	Number of members.	Amount of expenditure.	Average per member. <sup>(a)</sup>	Number of societies.	Number of members.	Amount of expenditure.	Average per member. <sup>(a)</sup>
1886 .....	63	72,294	\$9,152	\$0.13	142	129,647	\$9,626	\$0.07
1887 .....	61	80,697	11,561	.14	160	148,556	12,940	.09
1888 .....	81	92,913	13,802	.15	165	157,696	12,752	.08
1889 .....	90	114,860	15,659	.14	164	165,277	14,906	.09
1900 .....	82	107,267	18,312	.17	166	171,634	16,183	.09
1901 .....	83	105,847	16,301	.15	175	177,784	17,100	.10
1902 .....	90	105,794	17,601	.17	174	179,722	19,783	.11

  

Year.	Expense of administration.				Per diem of members of the council of administration.			
	Number of societies.	Number of members.	Amount of expenditure.	Average per member. <sup>(a)</sup>	Number of societies.	Number of members.	Amount of expenditure.	Average per member. <sup>(a)</sup>
1886 .....	149	143,546	\$16,589	\$0.12	70	103,997	\$3,876	\$0.04
1887 .....	152	147,890	17,904	.12	73	110,941	4,157	.04
1888 .....	151	154,293	15,517	.10	76	116,873	4,276	.04
1889 .....	146	158,137	15,650	.10	83	121,647	4,355	.04
1900 .....	158	167,096	14,631	.09	86	126,754	4,388	.03
1901 .....	164	174,013	21,167	.12	86	135,510	5,001	.04
1902 .....	162	174,127	22,046	.13	85	126,142	4,711	.04

  

Year.	Compensation of the office force and of visitors to the sick.				Total expenditure.
	Number of societies.	Number of members.	Amount of expenditure.	Average per member. <sup>(a)</sup>	
1886 .....	63	68,102	\$5,585	\$0.08	\$539,558
1887 .....	67	80,266	6,351	.08	902,715
1888 .....	72	83,457	6,948	.08	979,932
1889 .....	80	92,775	7,352	.08	1,046,163
1900 .....	84	97,737	7,589	.08	1,161,051
1901 .....	82	107,911	8,569	.08	1,240,792
1902 .....	86	98,669	7,912	.08	1,288,437

<sup>a</sup> Computed.

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SUPPLEMENTARY RELIEF GRANTED BY THE MINERS' RELIEF FUNDS IN FRANCE, 1897 TO 1902.

[Source: Statistique de l'industrie minière et des appareils à vapeur, 1897-1902. Conversion of French into United States money was made on the basis of 1 franc=\$0.193. The report for 1903 does not contain these statistics.]

SOCIETIES GRANTING RELIEF TO MEMBERS ONLY.

Year.	Number of societies.	Number of members.	Cases of sickness of members.						
			Persons reported sick.		Days of sickness.			Relief granted.	
			Number.	Per cent of total members. <sup>(a)</sup>	Total.	Average per member. <sup>(a)</sup>	Average per sick person. <sup>(a)</sup>	Per sick person.	Per member.
1897.....	31	7,481	3,546	47.4	63,568	8.5	17.9	\$1.77	\$0.84
1898.....	26	6,596	3,562	54.0	61,326	9.3	17.2	1.50	.81
1899.....	31	8,048	3,877	48.2	66,965	8.3	17.3	1.77	.85
1900.....	35	11,314	8,689	76.8	113,469	10.0	13.1	.99	.76
1901.....	33	14,270	10,066	70.5	146,669	10.3	14.6	1.32	.94
1902.....	30	15,433	9,859	63.9	166,413	10.8	16.9	1.61	1.03

SOCIETIES GRANTING RELIEF TO MEMBERS AND THEIR WIVES.

Year.	Number of societies.	Number of members.	Cases of sickness of members.				Cases of sickness of members' wives.				
			Persons reported sick.		Relief granted.		Persons reported sick.		Relief granted.		
			Number.	Per cent of total members. <sup>(a)</sup>	Per sick person.	Per member.	Number.	Average per member. <sup>(a)</sup>	Per sick person.	Per member.	Total relief per member.
1897...	2	222	92	41.4	\$3.84	\$1.59	42	0.19	\$0.74	\$0.14	\$1.73
1898...	3	3,335	6,336	190.0	.29	.49	5,140	1.5	.18	.29	.78
1899...	2	151	110	72.8	1.18	.86	50	.33	1.31	.43	1.29
1900...	1	115	112	97.4	.93	.90	42	.37	1.27	.47	1.37
1901...	1	117	71	60.7	.96	.53	53	.45	1.27	.58	1.16
1902...	2	2,005	1,078	53.8	.69	.37	748	.37	.81	.31	.68

SOCIETIES GRANTING RELIEF TO MEMBERS, THEIR WIVES, AND CHILDREN.

Year.	Number of societies.	Number of members.	Cases of sickness of members.							
			Persons reported sick.		Relief granted.		Persons reported sick.		Relief granted.	
			Number.	Per cent of total members. <sup>(a)</sup>	Per sick person.	Per member.	Number.	Average per member. <sup>(a)</sup>	Per sick person.	Per member.
1897.....			29		8,397	3,957	47.1	\$1.02	\$0.48	
1898.....			32		9,798	6,779	69.2	.73	.51	
1899.....			34		12,056	8,230	68.3	.76	.52	
1900.....			41		15,232	8,896	58.3	.82	.48	
1901.....			38		14,218	7,761	54.6	.82	.46	
1902.....			34		14,396	8,372	58.2	.85	.49	

Year.	Cases of sickness of members' wives.				Cases of sickness of children.				
	Persons reported sick.		Relief granted.		Persons reported sick.		Relief granted.		
	Number.	Average per member. <sup>(a)</sup>	Per sick person.	Per member.	Number.	Average per member. <sup>(a)</sup>	Per sick person.	Per member.	Total relief per member.
1897.....	2,520	0.3	\$0.61	\$0.19	3,049	0.4	\$0.53	\$0.19	\$0.86
1898.....	3,059	.3	.55	.17	4,343	.4	.48	.21	.89
1899.....	5,261	.4	.39	.17	6,861	.6	.38	.22	.91
1900.....	5,930	.4	.42	.16	7,191	.5	.37	.18	.82
1901.....	5,396	.4	.49	.19	6,028	.4	.45	.19	.84
1902.....	5,226	.4	.50	.18	6,630	.5	.48	.22	.89

<sup>a</sup> Computed.

SUPPLEMENTARY RELIEF GRANTED BY THE MINERS' RELIEF FUNDS IN FRANCE,  
1897 TO 1902—Concluded.

[Source: Statistique de l'industrie minière et des appareils à vapeur, 1897-1902. Conversion of French into United States money was made on the basis of 1 franc=\$0.193. The report for 1902 does not contain these statistics.]

## SOCIETIES GRANTING RELIEF TO MEMBERS, THEIR WIVES, CHILDREN, AND PARENTS.

Year.	Num- ber of socie- ties. (a)	Num- ber of mem- bers.	Cases of sickness of members.				Cases of sickness of members' wives.			
			Persons reported sick.		Relief granted.		Persons reported sick.		Relief granted.	
			Num- ber.	Per cent of total mem- bers. (a)	Per sick person.	Per member.	Num- ber.	Average per mem- ber. (a)	Per sick person.	Per member.
1897....	38	32,882	22,698	69.0	\$0.52	\$0.36	13,384	0.4	\$0.44	\$0.18
1898....	55	53,574	40,447	75.5	.47	.35	26,052	.5	.40	.18
1899....	47	39,121	32,971	84.3	.47	.39	17,207	.4	.43	.19
1900....	55	60,790	52,063	85.6	.42	.36	26,751	.4	.38	.17
1901....	56	64,598	42,592	65.9	.58	.38	26,516	.4	.41	.17
1902....	59	66,263	39,287	59.3	.64	.38	27,706	.4	.40	.17

  

Year.	Cases of sickness of children.				Cases of sickness of parents.				
	Persons reported sick.		Relief granted.		Persons reported sick.		Relief granted.		
	Number.	Average per mem- ber. (a)	Per sick person.	Per mem- ber.	Number.	Average per mem- ber. (a)	Per sick person.	Per mem- ber.	Total re- lief per member.
1897.....	18,170	0.6	\$0.40	\$0.22	2,257	0.1	\$0.45	\$0.03	\$0.79
1898.....	45,918	.9	.30	.26	3,784	.1	.36	.03	.82
1899.....	26,922	.7	.38	.26	1,676	.04	.35	.02	.86
1900.....	49,573	.8	.31	.25	3,063	.1	.40	.02	.80
1901.....	51,096	.8	.31	.24	3,123	.05	.47	.02	.81
1902.....	50,701	.8	.32	.24	4,222	.1	.39	.03	.82

<sup>a</sup> Computed.

MINE WORKERS' UNIONS.<sup>(a)</sup>

Entire freedom of organization among working people in France was not granted until the adoption of the law of March 21, 1884, which removed the restrictions placed upon organized labor by the law of June 14 to 17, 1791, and subsequent enactments. During the period from 1791 to 1884 the formation of labor organizations was prohibited except for a brief period following the revolution of 1848. The Government, however, was very tolerant in the enforcement of the law against association and consequently labor organizations developed during this period, especially after 1860. The passage of the law of 1884 granting entire freedom of organization marked a new era in labor organization, and since that time a rapid development has taken place. It was estimated that in 1903 over 40 per cent of the mining population of France was organized.

<sup>a</sup> In the preparation of this section free use has been made of the publication of the French labor bureau entitled "Les associations professionnelles ouvrières," Volume I, pp. 327 to 436. Information has also been obtained from the series of annual reports by the same bureau entitled "Annuaire des syndicats professionnels," and from the monthly bulletins of that bureau.

The mine workers' unions consist of local unions, known as "chambres syndicales, syndicats, sociétés de secours mutuels," etc. In some cases a local union consists of the employees of a single pit or mine, while in others the membership includes the employees of a large mining corporation, a department, or an entire coal field. As a result, the membership of local unions in 1903 varied from 2 to 9,119.

The general miners' strikes which occurred in France from time to time since 1833 give evidence of the existence of at least temporary combinations for defense among mine workers, but there is no record of any mine workers' organization of a permanent character earlier than 1849.

The earliest form of organization among mine workers was that of mutual aid societies. In 1866 a mine workers' cooperative distributive society and in 1868 a cooperative productive society were organized. The first mine workers' union proper (*chambre syndicale*) was founded in the Loire coal field in 1876. Since that time nearly all the mine workers' organizations that have been founded are of the trade union type.

Official statistics of these miners' unions are meager. As nearly as the data can be ascertained there was but one mine workers' organization (a mutual aid society) from 1849 until 1852, when it disbanded. In 1859 another mutual aid society was organized. From that time until 1888 the number of mine workers' organizations of all kinds in existence, on January 1 of each year, in France was as follows:

1860 to 1866.....	1	1881 to 1882.....	5
1867 to 1868.....	3	1883.....	6
1869 to 1870.....	4	1884 to 1885.....	8
1871 to 1876.....	3	1886 to 1887.....	7
1877 to 1878.....	4	1888.....	9
1879 to 1880.....	6		

In 1889 the French bureau of labor began the publication of annual lists and statistics of labor organizations in France. For the years 1889 to 1900, the data concerning mine workers' unions were not separately shown in tabular form and were therefore collated from the published list of organizations for the table which follows. For the years 1901 to 1903 the figures were taken from the published tables. The following table shows the number of mine workers' unions and their membership in France each year from 1889 to 1903.

NUMBER AND MEMBERSHIP OF MINE WORKERS' ORGANIZATIONS IN FRANCE ON  
JANUARY 1 EACH YEAR FROM 1889 TO 1903.

[Source: *Annaires des syndicats professionnels, 1889-1903*. A few small organizations which are not restricted to coal mine workers are included.]

Year.	Mine workers' unions.	Total members.	Year.	Mine workers' unions.	Total members.
1889	12	a 993	1897	40	b 36,422
1890	17	b 15,559	1898	(c)	(c)
1891	24	b 24,842	1899	48	45,670
1892	31	37,237	1900	57	63,140
1893	37	46,142	1901	58	91,351
1894	40	42,176	1902	62	80,088
1895	46	41,273	1903	69	68,900
1896	43	43,192			

a Not including 2 organizations, not reported.

b Not including 1 organization, not reported.

c Not reported.

In addition to the usual objects of trade unions proper, most of the miners' organizations in France have various other institutions such as relief funds, libraries, etc. Thus, of the 69 mine workers' unions in existence January 1, 1903, 15 had mutual aid funds, 13 had funds for the transportation of members, 12 had libraries, 6 had unemployment funds, 4 had employment agencies, 4 had cooperative distributive institutions, 3 had retirement funds, 1 had an accident relief fund, 1 had a fund for legal assistance, 11 reported funds of various kinds without specifying their character, and 1 was engaged in cooperative coal production. Twenty-seven organizations reported no special features.

Besides the individual unions there were, as far as known, in 1903, two district or departmental federations and one national federation of mine workers' unions.

The first departmental federation was organized in 1889, in the Department of the Loire, consisting of a few more or less important local unions. It disbanded in 1893. In 1897 another federation was organized in the same Department. Its object is to carry on active propaganda in organizing mine workers, to ascertain and defend the demands of mine workers, such as for retirement, reduction of hours of labor, etc. It also sustained the demands of the national and international miners' congress. The federal committee is composed of two representatives of each union. The dues are 5 centimes (1 cent) per month per member. At the close of the year 1897 there were 10 unions with a total membership of 3,497 miners affiliated with the federation. Eight of these unions were also represented in the national federation. Following is the membership of

the Loire federation on January 1 of each year from 1899 to 1903, as reported in the annual trade union reports of the French labor bureau [www.libtool.com.cn](http://www.libtool.com.cn)

## MEMBERSHIP OF LOIRE FEDERATION ON JANUARY 1 OF EACH YEAR, 1899 TO 1903.

[Source: Annuaire des syndicats professionnels, 1898-99-1903.]

Year.	Unions affiliated.	Total members.
1899.....	5	1,954
1900.....	5	3,770
1901.....	10	8,085
1902.....	11	8,000
1903.....	8	8,967

The federation of miners of the Nord and Pas-de-Calais Departments was organized in 1893. According to the provisions of the constitution adopted, each local union retained its autonomy in all its local affairs. The constitution further provided that whenever a dispute should arise in any of the unions concerning labor conditions it must be taken up by the federal council, which would take such steps as the situation should demand. The federal council consisted of representatives from each affiliated union. Nothing further has been reported concerning this federation, and it has probably ceased to exist.

In 1900 the miners of the Centre coal field, in the Department of Allier, organized a district federation. Its membership on January 1 of each year was as follows:

## MEMBERSHIP OF CENTRE FEDERATION OF DEPARTMENT OF ALLIER ON JANUARY 1 OF EACH YEAR, 1901 TO 1903.

[Source: Annuaire des syndicats professionnels, 1901-1903.]

Year.	Unions affiliated.	Total members.
1901.....	7	2,357
1902.....	9	2,214
1903.....	9	2,572

The initiative in the formation of a national federation of the mine workers of France was taken by the miners' union of the Loire coal field. In a campaign for the organization of mine workers, in which this union was engaged from 1881 to 1883, an effort was made to federate the unions organized into a national body for concerted action in their various demands. As a result of these efforts the Loire union called a congress of representatives of local unions to meet at St. Étienne on October 24, 1883. At this meeting, which lasted one week, miners' unions in 7 different Departments were represented.



By a unanimous vote a permanent organization was effected under the name of "Fédération des chambres syndicales des ouvriers mineurs de France." A constitution was adopted setting forth the objects of the federation. These were, to cooperate in the moral and material advancement of the mine workers and the legitimate satisfaction of their needs and desires, to study all questions concerning their interests, and to take all steps necessary for their emancipation. It was provided that whenever a demand for an increase of wages was contemplated by a federated union, the latter was to notify the federal committee, which was to consult all the unions before making a decision. This federal committee, which conducted the executive work of the federation, consisted of 5 members chosen at the annual congress. The office of general secretary was also provided for. The membership dues were fixed at 10 centimes (2 cents) per month for each member of the federated unions.

At the close of the year 1883, 11 miners' unions from 10 Departments had joined the federation. Meetings were held in 1888, 1889, and 1890, but no further development in organization took place.

In 1889 a departmental federation was formed in the Loire coal field, and the following year, a difference having arisen in the national federation, the unions from this Department seceded, and at the instance of the departmental federation a new national federation was organized. The old federation was subsequently dissolved. The new organization held a meeting at Commentry on March 5 to 8, 1891. At this congress 24 delegates, representing 33 unions and 20,000 mine workers, participated. The miners of the Nord and Pas-de-Calais Departments were not represented at this congress nor at the one held the following year. This congress adopted as its official organ the *Réveil des Mineurs*, a paper published at St. Étienne. The next meeting of the new federation was held at La Ricamarie September 28 to October 2, 1892. Fourteen delegates, representing 19 unions, were present. At this meeting a reorganization was effected under the name of "Fédération nationale des ouvriers mineurs en France." A new constitution was adopted, which provided for the selection of a federal committee composed of as many members as there were unions represented. The duties of this committee were to assiduously enter into relations with the miners throughout the country, to communicate to them the purposes of the federation, and to urge them to join the same; and to express an opinion upon all questions of interest to be submitted to the French Parliament or to other bodies. It left the miners' unions free to organize in any manner that they might agree upon with the federal committee, but provided that no person should be selected as delegate unless he was a miner and a member of a union. The

constitution provided that each union should pay a per capita contribution of 0.02 franc (\$0.004) to the federal committee for all payments of dues received by the same.

This new organization made but little progress in federating the miners' unions. Its influence was felt, however, in 1892, 1893, and 1894 by the activity of its members before parliamentary commissions and by their solicitations among the members of Parliament in support of the measures in which the federation was interested.

At the next meeting, held at Graissessac on April 18 to 22, 1894, there were indications of returning strength in the organization. The meetings were conducted in a more orderly manner, and the miners' unions of Nord and Pas-de-Calais were represented for the first time since the split in the organization in 1890.

This congress of 1894 consisted of 18 delegates, representing miners' unions in 8 Departments. The voting power of the delegates in the congress was fixed on the basis of 1 vote for every 1,000 miners represented in Nord and Pas-de-Calais and 1 vote for every 500 miners in other sections. On this basis there were 112 votes, representing 78,600 miners.

Since this time the federation has had a continuous existence. The membership of the federated unions on January 1 of each year, as reported in the annual trade union reports of the French labor bureau, was as follows:

NUMBER AND MEMBERSHIP OF UNIONS AFFILIATED WITH THE NATIONAL FEDERATION OF MINE WORKERS IN FRANCE ON JANUARY 1, 1895-1903.

[Source: *Annuaire des syndicats professionnels*, 1895-1903.]

Year.	Unions affiliated.	Total members.
1895.....	19	32,085
1896.....	19	32,085
1897.....	18	36,824
1898.....	22	36,295
1899.....	16	34,641
1900.....	8	57,739
1901.....	5	56,900
1902.....	11	60,000
1903.....	16	56,892

The various measures favored by the national federations at their annual sessions, and expressed in the form of demands or otherwise, included legislation for the reorganization and centralization of the aid and retirement funds, so that mine workers might be entitled to retirement after a certain period regardless of change of employment from one company to another; for the nomination of workingmen's delegates to watch over the safety of mine workers; for the creation of councils of prudhommes for mine workers; for a compulsory 8-hour day in mines; for prohibiting mining companies

from working more than 6 days out of 7; for the exclusion of women from all classes of mine labor; for a revision of the tariff in the interests of the French coal-mining industry; and for the withdrawal of all mining concessions granted to private companies, and the government operation of all mines. Demands for shorter hours, increased wages, and the abolition of piecework were also made in communications to mine owners.

Some of the means favored by the federations at their congresses for securing compliance with their demands were continued activity in organizing miners' unions throughout the State, petitioning the National Parliament, and the inauguration of a simultaneous strike of all mine workers. The last of these means was not resorted to by the national federation until the general strike of 1902.

Of the measures advocated by the federation, those relating to the aid and retirement funds and providing for workingmen's delegates to watch over the safety of mine workers have resulted in favorable legislation.

### LABOR DISPUTES.

The earliest coal mine strike in France of which there is an official record occurred among the employees of the mining company in Anzin, in the Department of the Nord, in 1833. Wages had been gradually reduced about 20 per cent from 1817 to 1833 until the average wages of mine workers did not reach 2 francs (38.6 cents) per day. The strike of 1833 was accompanied by rioting followed by arrests and convictions. Public sentiment favored the strikers, the convicted strikers were mostly released, and the wages were restored to their former rates.

In 1843 the mining companies of the Loire coal field consolidated into one company, resulting the following year in some alterations in the mining rules and a reduction in the wages of some of the miners in two mines. A strike followed, involving all the mine workers and causing the closing of all the mines of the company. An effort to extend the strike to other localities failed. After considerable rioting and bloodshed, resulting in several deaths and many arrests, the strike ended in failure.

In 1846 there were two strikes, one in the Loire coal field and the other at Anzin, in the Department of the Nord. The former was due partly to a misunderstanding and partly to a demand for increased wages. It was also accompanied by rioting, bloodshed, and loss of life. Many of the rioters were arrested, but only a few

were convicted, and these were sentenced to short terms of imprisonment. The strike was a failure. The other strike at Anzin (Nord) lasted 10 days and resulted in a slight increase of wages.

In 1848 the substitution of horses for trammers in the main passageways in the Anzin mines resulted in a strike lasting 7 days. It resulted in removing the horses for several months, after which they were restored, the company granting as a compromise an increase of wages from 2.30 francs (44.4 cents) to 2.50 francs (48.3 cents) per day.

From this time until 1866 there were no important mine strikes in France. In 1852 a strike against piecework in the Department of the Loire resulted in failure. In 1855 a strike at Anzin (Nord) for increased wages failed, but the following year the employees obtained an increase of wages to 2.70 francs (52.1 cents) per day. In 1856 a strike in the Pas-de-Calais Department against the payment by miners for powder resulted in failure. In 1857 three small strikes in the Departments of Nord and Pas-de-Calais, one against deductions from wages for a mutual-aid fund and the other two against an increase in the quantity of work required, resulted in failure. In 1858 and 1859 two strikes for increased wages in the Department of Pas-de-Calais resulted in failure. In 1862 there were four strikes in the Departments of Nord and Pas-de-Calais, two for increased wages, one against a change in the working rules, and one against deductions from wages for a mutual-aid fund, all of which ended in failure. In 1863, 50 miners in Anzin (Nord) struck for a reduction of hours and succeeded. In 1864, 100 mine workers in the same place struck for some reason not reported and failed.

In 1866 the mine workers of the Anzin Company (Nord) struck for the abolition of piecework, the fixing of 4 francs (77.2 cents) per day for all miners, and the creation of a cooperative society. The strike involved about one-half of the company's pits. It lasted 6 days, was accompanied by rioting, destruction of property, arrests, and convictions, and ended in failure.

In 1867 a strike for increased wages occurred at Lens (Pas-de-Calais). After 10 days an increase of 10 per cent was granted.

In 1869 a miners' organization of the Loire coal field, known as "Caisse fraternelle de prévoyance des ouvriers de la Loire," engaged in a campaign for the centralization of the aid funds, an increase of wages, and an 8-hour day, or at least a reduction of the hours of labor. This campaign resulted in a general strike in the Loire district. In an encounter between the strikers and the troops at La Ricamarie 13 workmen were killed and 9 wounded. Many arrests followed, resulting in 62 convictions. The strike ended in failure after the funds of the miners' organization had been exhausted.

In 1870 a strike for increased wages occurred at Lens (Pas-de-Calais). After 15 days the strikers receded from their demands, but obtained a division of the aid fund, which had been supported by a deduction of 3 per cent from the wages and an amount equal to 2 per cent contributed by the company. A new aid fund was organized, supported by a uniform contribution of 1.50 francs (29 cents) per month.

During the period from 1871 to 1883 no important coal mine strikes occurred in France. A strike at Anzin (Nord) in 1872 resulted in an advance in wages from 3 francs (57.9 cents) to 3.50 francs (67.6 cents) per day. In 1876 three unsuccessful strikes against reduction of wages occurred in the Nord and Pas-de-Calais Departments. In 1878 a strike at Anzin (Nord) against a reduction of the piece rates resulted in failure. In 1879 there were two unsuccessful strikes in the Department of Nord, one involving 1,200 miners. In 1880 a strike against reduction of wages at Anzin also ended in failure. Another strike at Lens (Pas-de-Calais) the same year was unsuccessful, a number of the strikers being arrested and convicted. Two strikes occurred in the Department of Gard in 1882. In 1883 there were two strikes in the Department of Nord, one against the working rules, involving 140 strikers, and the other for reinstatement of a member of the union, involving 430 strikers. The result was not reported.

The most important coal mine strike in France up to this time began February 21, 1884, at Anzin. The immediate cause was the decision of the Anzin Mining Company to dispense with the system of employing special workmen for cleaning the passageways leading to the workings and placing the burden of this work upon the miners. The miners objected to this arrangement because they believed it involved the discharge of their fellow-workmen and that it would reduce their earning capacity. On the other hand, the company claimed that it would have employed two-thirds of the 324 displaced cleaners in other work, and that it intended to pay the miners supplementary allowances for this extra work. The main cause of the strike, however, was believed to be the system of working by contract, which it was claimed by the employees resulted in unfair adjustments and consequently tended to reduce their earnings. A compromise was effected on February 24, but as the company refused to reemploy 144 workmen, nearly all of whom were officers of the local sections of the miners' union, the strike continued. The strike ended April 18, the company refusing to make any new concessions. The largest number of strikers at any one time was 7,263, out of a total of 14,035 employees immediately before the outbreak. This strike was the subject of a parliamentary inquiry, and although it failed the company made modifications in its proposed regulations which were satisfactory to the employees.

Two other coal mine strikes occurred in 1884 in the Pas-de-Calais Department. One, involving 330 strikers, was against a wage reduction, and resulted in failure, while the other, involving 180 strikers, was for the reinstatement of an overseer, and was successful.

No important strikes occurred in the coal mines until 1888. In 1885 one strike against a reduction in wages and for the discharge of a mining engineer, involving 500 strikers, failed, and another for the discharge of a mine boss, involving 320 strikers, was successful. In 1886 a strike against reduction of wages, involving 129 strikers, ended in failure. In 1887 there were two coal-mine strikes—one for a modification of the working rules, involving 20 strikers and resulting in failure, and one for the discharge of a mine boss and various other grievances, involving 500 miners, which was compromised. Of two strikes for increased wages in 1888, one, involving 200 strikers, failed, and the other, involving 170 strikers, ended in a compromise. All of these strikes were in the Nord and Pas-de-Calais Departments.

In 1888 an important strike occurred in the Loire coal field on account of a demand for an 8-hour day and against wage deductions for the aid and retirement fund. After 40 days the company accorded an advance of 50 centimes (9.7 cents) per day to miners, but adhered to the 10-hour day. After this strike there was a disposition both on the part of the mine workers and the principal mining companies in favor of creating conciliation committees similar to those of the miners at Mariemont and Bascoup, Belgium. This idea, however, was abandoned 2 years later, on the outbreak of another strike.

During the year 1889 there was general discontent among the mine workers in the Pas-de-Calais coal fields on account of wage reductions and the overtime work which, it was claimed, was necessary in order to earn a living wage. Complaints were also made of the neglect by the mining companies of the superannuated mine workers and the widows of deceased miners. This general discontent resulted in a strike which began October 9, 1889, at Lens and soon extended to other localities in the Department. The strike ended in the different mines from October 17 to November 5, a total of 6,000 miners having participated. The miners obtained important concessions, namely, an increase of 10 per cent in wages, the suppression of overtime, reduction of fines, better treatment of old workmen, and the maintenance of widows and orphans of deceased employees.

The strike of Pas-de-Calais was followed by a strike in 3 localities of the Department of Nord. This strike involved 1,700 employees and resulted in an increase of wages from 3.50 francs (67.6 cents) to 3.60 francs (69.5 cents) per day.



In 1890 the French bureau of labor began the publication of annual strike reports, and hence the information from that time on is more complete.

One strike in 1890, involving 5,000 strikers, occurred at Lens (Pas-de-Calais) and ended in failure after 4 days. It was undertaken for the reinstatement of three trade-union members who had been discharged. A general strike at St. Étienne, Rive de Gier, and other localities in the Loire coal field involved 20 establishments and 9,500 strikers. The principal causes of the strike were a demand for increased wages, an 8-hour day, and a reform in the aid fund. It lasted 11 days and ended in failure.

In the following tables concerning strikes during each of the years 1890 to 1903 it has not been possible to separate the strikes in coal mines from those in other mines. The data given relate, therefore, to all mines. The first of the tables is a summary of the strikes in the mining industry in 1890 according to principal causes and results:

STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1890.

[Source: Statistique des grèves survenues en France pendant les années 1890 et 1891. In the general strikes the individual strikes constituting the same in which all the circumstances (time of beginning and ending, locality, cause, and result) were not identical have been considered as separate strikes. Hence the figures showing the number of strikes in this table do not agree with those in the summary table on page 257.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against discharge of workmen, foremen, etc.	1	350			3	5,850
Against reduction of wages			1	780		
For discharge of workmen, foremen, etc.					3	545
For increase of wages	6	a 3,475	6	3,027	17	22,123
For reduction of hours			1	1,000		
Other causes	2	436			2	596
Total (b)	9	a 4,261	8	4,807	25	b 29,114

a Not including number of strikers in 2 strikes not reported.

b Result of strike and number of strikers not reported in 1 strike.

During the year 1891 there occurred in the Department of Pas-de-Calais the largest general strike that had been recorded up to that time, involving 13 establishments and 33,500 strikers. The principal demands were for: A more equitable distribution of the wages; an average wage of 5.50 francs (\$1.06) per day, exclusive of premiums; a reorganization of the aid and retirement funds; an eight-hour day; reinstatement of employees discharged on account of trade-union membership or participation in the strike, and an agreement by the company not to discharge employees for such reasons in future. At the proposal of the minister of public works a conciliation commission was organized, consisting of 5 workingmen's delegates and 5 representatives of the mine owners. This commission ended the strike after it had continued for 15 days. The result was a compromise by which the miners obtained an advance in wages and the companies



agreed not to discharge any of the employees on account of their trade-union activity.

The following table gives a summary of the strikes in 1891 according to principal causes and results:

STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1891.

[Source: Statistique des grèves survenues en France pendant les années 1890 et 1891. In the general strikes the individual strikes constituting the same in which all the circumstances (time of beginning and ending, locality, cause, and result) were not identical have been considered as separate strikes. Hence the figures showing the number of strikes in this table do not agree with those in the summary table on page 257.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against discharge of workmen, foremen, etc.	2	1,635			1	414
Against obnoxious working rules.....	1	150	1	3,000	2	1,080
Against reduction of wages.....	1	300				
For discharge of workmen, foremen, etc.....	1	40				
For increase of wages.....			1	113	1	650
For reform of aid and pension funds.....			1	600		
Various causes affecting wages, not enumerated above.....	2	1,600	5	38,390		
Other causes.....	1	70				
Total.....	8	3,795	8	40,103	4	2,144

In 1892 there were no general strikes in France, and only two strikes involved more than 500 employees each. A total of 8,583 strikers were involved. The following table gives a summary of the strikes in 1892 according to principal causes and results:

STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1892.

[Source: Statistique des grèves survenues en France pendant l'année 1892.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against change in working arrangements.....			1	440		
Against discharge of workmen, foremen, etc.....			2	2,970	1	212
Against reduction of wages.....			1	500	1	130
For an eight-hour day.....			1	440		
For discharge of workmen, foremen, etc.....					2	380
For increase of wages.....	1	26	1	60		
Various causes affecting wages.....			2	3,150		
Other causes.....	2	275				
Total.....	3	301	8	7,560	4	722

In 1893 there took place in the Pas-de-Calais Department one of the largest coal mine strikes recorded in France. Since the compromise of the strike in 1891 the employees had become more and more dissatisfied on account of alleged noncompliance on the part of the companies with the terms of the agreement, and on account of alleged unfairness in adjusting the earnings of the miners. On September 10, 1893, the mine workers' union made the following demands upon each of the companies in the department: (1) To be furnished each fortnight with a duplicate copy of the pay roll; (2) an increase of 10 per cent in wages and the fixing of a minimum rate of 5.50 francs

(\$1.06) per day; (3) a cessation of the practice of discharging employees upon reaching the age of 40 years because on account of an agreement among the companies it was impossible for them to obtain employment; (4) a discontinuance of certain fines; (5) against certain reductions in the piece-price earnings; (6) against the discharge of employees on account of convictions for offenses which were not detrimental to the employers. Additional demands were made later on for increased wages for surface workers in the same proportion as the underground workers; a minimum wage of 4 francs (77.2 cents) for trammers, and 4.50 francs (86.9 cents) for cleaners and certain other employees. The same demands were made of the companies in the Department of Nord. The companies having refused to accede to these demands, a strike was ordered by the unions on September 18, which in the Department of Nord involved a maximum of 3,489 persons and lasted until November 3, and in the Department of Pas-de-Calais involved a maximum of 39,000 employees and lasted until November 6. Efforts were made during the strike by the justices of the peace, under the law of December 12, 1892, to bring the parties together in a committee of conciliation, but while the trade unions were willing the companies refused. Appeals were made to the national miners' federation and to the trade unions of Belgium to bring about a general strike. The French national federation refused, and while strikes were ordered by a few miners' organizations in Belgium, they were of short duration. The strike ended in complete failure. Of the strikers, 741 were refused reemployment and many of them were evicted from their homes while 210 were arrested and convicted and sentenced to terms of imprisonment varying from 6 days to 6 months.

The following table shows the principal causes and results of the strikes in 1893:

STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1893.

[Source: Statistique des grèves et des recours à la conciliation et à l'arbitrage survenus en France pendant l'année 1893.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against discharge of workmen, foremen, etc.			1	771	1	260
Against increase of hours without increase of wages					2	70
For discharge of workmen, foremen, etc.	3	1,871				
For increase of wages	2	530	3	596	4	42,749
For modification of working rules					1	18
Relating to time, methods, etc., of wage payments	2	55	2	410		
Other causes					1	150
Total	7	2,456	6	1,777	9	43,247

In 1894 there were but 7 mine strikes, only one of which involved over 500 strikers. A total of 2,765 strikers were involved in the 7

strikes. The following table shows the mine strikes in France by principal causes and results:

STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1894.  
[Source: Statistique des grèves et des recours à la conciliation et à l'arbitrage survenus en France pendant l'année 1894.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against discharge of workmen, foremen, etc.			2	2,140		
Against piecework					1	200
For discharge of workmen, foremen, etc.	2	150				
For increase of wages			2	275		
Total	2	150	4	2,415	1	200

There were but 9 unimportant mine strikes, involving 2,509 strikers, in the mining industry in France in 1895. The largest strike involved 800 employees. The following table shows these strikes arranged according to principal causes and results:

STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1895.  
[Source: Statistique des grèves et des recours à la conciliation et à l'arbitrage survenus en France pendant l'année 1895.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against discharge of workmen, foremen, etc.	1	225				
Against reduction of wages			1	6	2	488
For increase of wages	1	40	1	800	a 1	c 570
Other causes	b 1	b 130			1	250
Total	c 3	c 395	c 2	c 806	c 4	c 1,308

a The principal demand was refused, but the strike as a whole was compromised.

b The principal demand was granted, but the strike as a whole was compromised.

c These figures do not agree with those in the summary on page 257 for reasons given in the preceding notes.

In 1896 there were 19 mine strikes in France, but none was general, and only two involved over 1,000 strikers each. A total of 8,378 strikers were involved in strikes during the year. The following table shows the strikes arranged according to principal causes and results:

STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1896.  
Source: Statistique des grèves et des recours à la conciliation et à l'arbitrage survenus en France pendant l'année 1896.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against piecework					1	30
Against reduction of wages	1	1,006	1	320		
For abolition or reduction of fines					1	170
For discharge of workmen, foremen, etc.			1	192	2	250
For increase of wages			4	3,007	5	2,577
For or against modification of conditions of work	2	713				
Relating to time, methods, etc., of wage payments	1	113				
Total	4	1,832	6	3,519	9	3,027

During the year 1897 there were 16 mine strikes, but these also were mostly unimportant, only two involving over 1,000 employees. A total of 6,655 strikers were involved in strikes during the year. The following table shows the strikes arranged according to the principal causes and results:

## STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1897.

[Source: Statistique des grèves et des recours à la conciliation et à l'arbitrage survenus en France pendant l'année 1897.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against discharge of workmen, foremen, etc.					3	2,960
For increase of wages			6	1,431	3	632
For modification of conditions of work	1	1,500				
For reduction of hours					1	46
Relating to time and method of wage payments					2	96
Total	1	1,500	6	1,431	9	3,724

<sup>a</sup> In the case of 1 strike involving 300 strikers the principal demand was refused, but the strike as a whole was compromised.

<sup>b</sup> These figures do not agree with those in the summary on page 257 for the reason given in the preceding note.

In 1898 there were but 12 strikes, involving a total of 4,365 strikers. Only one of these involved over 1,000 strikers. The following table shows the strikes by principal causes and results:

## STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1898.

[Source: Statistique des grèves et des recours à la conciliation et à l'arbitrage survenus en France pendant l'année 1898.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against discharge of workmen, foremen, etc.			1	12		
Against modification of conditions of work	1	180				
Against modification of mine rules			1	280		
Against reduction of wages	2	170			1	40
For increase of wages	1	971	1	260	3	2,428
Relating to time, methods, etc., of wage payments			1	24		
Total	4	1,321	4	576	4	2,468

The year 1899 marked the beginning of a series of years of unrest among employees in the mining industry of France, which reached its climax in 1902 when over 100,000 miners engaged in a general strike. In 1899 the strikes in the mining industry involved 31,099 strikers. Three of the strikes were general in character, but only one of these was important.

Of the larger strikes during this year, one, in a single establishment in the Department of Saône-et-Loire, began on June 6 and lasted 25 days. It involved a maximum of 9,890 strikers and 100 others were thrown out of work on account of the strike. The causes which led to the strike were demands for increased wages; for the discharge of 3 chiefs of the secret police employed by the company, and the

payment of wages fortnightly. The first of these demands was refused and the other two were granted. The settlement was effected through the intervention of the general inspector of mines of the Department.

A general strike, affecting 14 mines and involving a maximum of 13,053 strikers and causing 2,524 others to be thrown out of work, was begun December 26 in the Department of the Loire. The strike was the result of a demand for a minimum daily wage of 6 francs (\$1.16) for miners proper and an increase of 0.50 franc (9.7 cents) per day in the wages of all other employees; permission to leave the pit at 3 o'clock whether the work was finished or not, and for recognition by the company of the miners' union. The strike lasted 10 days, and it was settled by arbitration, the arbitrators being one representative of the mine workers' departmental federation and one representative of the mine owners of the Department of the Loire. The basis of settlement was as follows: An increase of 9 per cent in wages, the increase being in no case greater than 0.50 franc (9.7 cents) nor less than 0.30 franc (5.8 cents) per day; a reduction of the hours of labor from 10½ to 10 per day, the total actual working time below ground not to exceed 8 hours per day. As regards the recognition of the miners' union, it was considered that by accepting as one of the arbiters a representative of the union the companies recognized the union by implication.

The following table shows the strikes in 1899 by principal causes and results:

STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1899

[Source: Statistique des grèves et des recours à la conciliation et à l'arbitrage survenus en France pendant l'année 1899. In the general strikes the individual strikes constituting the same in which all the circumstances (time of beginning and ending, locality, cause, and result) were not identical have been considered as separate strikes. Hence the figures showing the number of strikes in this table do not agree with those in the summary table on page 257.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against night work.....					a 1	a 95
Against overtime.....	1	610	1	1,630		
Against piecework.....	1	50				
Against reduction of wages.....	1	70			2	45
For discharge of workmen, foremen, etc.....	1	50			1	240
For increase of wages.....	b 2	b 700	11	15,302	c 4	c 10,006
For modification of working rules.....			1	233		
For reduction of hours.....	d 1	d 175				
For reinstatement of discharged workmen, foremen, etc.....	e 3	e 1,069			2	290
In sympathy with strikers elsewhere.....			2	534		
Total.....	f 10	f 2,724	f 15	f 17,699	f 10	f 10,676

a The principal demand was refused, but the strike as a whole was compromised.

b In 1 strike, involving 580 strikers, the principal demand was granted, but the strike as a whole was compromised.

c In 1 strike, involving 9,890 strikers, the principal demand was refused, but the strike as a whole was compromised.

d The principal demand was granted, but the strike as a whole was compromised.

e In 1 strike, involving 197 strikers, the principal demand was granted, but the strike as a whole was compromised.

f These figures do not agree with those in the summary on page 257 for reasons given in the preceding notes.

In the year 1900 there were 41 strikes in the mining industry in France, involving a total of 41,927 strikers. One strike affected 2 mines and another 9 mines. All the others affected but one mine each. Six strikes affected over 1,000 employees each.

There were two important coal-mine strikes during this year. The first of these began at Montceau-les-Mines (Saône-et-Loire) on January 4 and lasted 4 days. It involved 9,819 employees. The mine workers in this case demanded an increase of 10 per cent in wages; the reinstatement of some discharged employees; the employment of discharged soldiers; political and religious liberty outside the works. The strike resulted in an increase of 5 per cent in wages and a compliance by the company with all the other demands.

The other important strike affected 9 mines and involved a maximum of 20,000 strikers in the Department of Pas-de-Calais. It began October 25 and lasted 16 days. The principal demands were for an increase in wages, the suppression of long shifts, and the adoption of certain working regulations. After a conference held between representatives of the companies and of the miners' union, the demands for increased wages were granted; the working of long shifts was made optional with the mine workers; the companies agreed to observe strict equity in the distribution of wages, and promised not to discharge any employees on account of the strike.

The following table shows the mine strikes in France in 1900 arranged according to causes and results:

## STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1900.

[Source: Statistique des grèves et des recours à la conciliation et à l'arbitrage survenus en France pendant l'année 1900.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against discharge of workmen, foremen, etc., and for reinstatement.	a 2	a 239	1	311	b 8	b 1,410
Against increase of hours without increase of wages.					1	25
Against piecework.	1	85			1	19
For abolition or reduction of fines.			1	217	1	40
For change in the method of wage payments.			1	1,087		
For discharge of workmen, foremen, etc.	1	52	1	251	c 1	c 52
For increase of wages.	d 1	d 20,000	6	10,687	5	5,876
For modification of working rules.	1	486				
For reduction of hours.					2	181
Various causes affecting hours of labor not enumerated above.					2	45
Various causes affecting wages not enumerated above.			1	300		
Other causes.	d 1	d 350			2	214
Total.	e 7	e 21,212	e 11	e 12,853	e 23	e 7,862

a In 1 strike, involving 59 strikers, the principal demand was granted, but the strike as a whole was compromised.

b In 1 strike, involving 70 strikers, the principal demand was refused, but the strike as a whole was compromised.

c The principal demand was refused, but the strike as a whole was compromised.

d The principal demand was granted, but the strike as a whole was compromised.

e These figures do not agree with those in the summary on page 257 for reasons given in the preceding notes.



In 1901 there were 20 mine strikes, involving a total of 19,454 employees. One of the strikes affected 2 and one affected 5 mines. Three strikes involved over 1,000 employees each.

The most important strike of the year began in Montceau-les-Mines (Sàone-et-Loire) on January 21 and lasted 105 days. It affected 1 mine and involved 8,566 strikers. The demands were for an increase in wages of 0.25 franc (4.8 cents) per day for all employees paid by the day; that no distinction be made by the companies between union and nonunion men; various modifications in the rules governing the payment of wages and the treatment of employees, and that no workman should be discharged on account of the strike. An attempt was made to settle the strike by conciliation but it failed. On March 13 the director of the company made a proposition to the union, which was accepted by the latter on May 5. According to the terms of this agreement the company granted an increase of 15 per cent in the wages to persons receiving a regular rate of 3 francs (57.9 cents) or less per day, and acceded to the other demands. Notwithstanding this settlement, however, 1,200 employees were not reemployed.

The following table shows the mine strikes in 1901 according to causes and results:

STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1901

[Source: Statistique des grèves et des recours à la conciliation et à l'arbitrage survenus en France pendant l'année 1901.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against deductions from wages.....			1	125		
Against excessive hours.....	1	100				
Against increase of hours.....			1	46		
For abolition of fines.....			1	210	1	20
For an 8-hour day.....					2	6,750
For discharge of workmen, foremen, etc.....	1	100	2	1,815	2	118
For increase of wages.....			1	8,566	1	26
For reduction of hours.....	1	60				
For reinstatement of discharged workmen, foremen, etc.....					4	1,249
Other causes.....					1	269
Total.....	3	260	6	10,762	11	8,432

<sup>a</sup> In 2 strikes, involving 808 strikers, the principal demand was refused, but the strikes as a whole were compromised.

<sup>b</sup> These figures do not agree with those in the summary on page 257 for reasons given in the preceding note.

The most extensive labor dispute in France occurred in 1902, when a general strike took place in the coal-mining industry which affected 67 mines and involved 107,923 strikers. In addition to these, 7,317 coal handlers at the ports of Calais, Dunkerque, and Marseille struck in sympathy with the coal miners, refusing to unload coal from steamers during the general strike. There were altogether 119,009 persons involved in mine strikes during the year.



The great strike of 1902 had its beginning in a local strike which commenced September 24 at Dorignies (Nord). There had been discontent among the coal miners in France for several years. As early as April, 1901, a general strike had been decided upon by a referendum vote on the question by the miners, but it was postponed on account of the announcement by the Government that two bills concerning the miners' demands had been introduced in the Chamber of Deputies, one for a modification of the retirement-pension system and another limiting the hours of labor of miners.

On May 31, 1902, an agreement between the mine workers and the mine operators of the Departments of Nord and Pas-de-Calais, made October 31, 1900, which provided for a 10 per cent increase in wages, expired, and the operators would not renew the agreement except on the basis of a 5 per cent increase over the 1900 wage rates.

On July 31, 1902, the mining companies of the Loire coal fields notified their employees that on account of the low price of coal the 9 per cent increase of wages agreed upon January 6, 1900, and maintained since that time, would be reduced to 3 per cent on August 16, 1902. Immediately an agitation for a strike began in the Loire coal field.

On August 25 a vote was taken by the federal committee of miners on the proposition for a general strike, to take place September 12, but the motion was lost by a tie vote. On September 24 the National Miners' Congress met at Commentry. On that day a message was received that a strike of 500 miners had begun at Dorignies (Nord) without awaiting the decision of the national congress. The delegates from the Department of the Nord telegraphed to Dorignies summoning the miners to resume work. They refused, however, to return to work and requested the congress to order a general strike. On September 27 the congress, by a unanimous vote, decided upon a general strike, leaving the date for the commencement to the decision of the executive committee of the national federation. By this time 3,423 miners were on strike.

On September 30 this committee addressed a letter to the president of the national council of France and one to the secretary of the executive committee of the French Mine-Operators' Association (*Comité des Houillères de France*). In the former a demand was made that the Government take steps to secure the passage of laws for an 8-hour day; for a retirement pension of 2 francs (38.6 cents) per day for miners 50 years of age and over, after 30 years of service; for the fixing of a minimum wage; for modifications of the law of 1890 concerning delegates to watch over the safety of miners and of the law of 1898 concerning accidents, and for the creation of miners' councils of prudhommes.

The letter to the Mine Owners' Association proposed that a delegation of mine owners be appointed to meet a similar delegation of mine workers for the purpose of discussing the wage question and the organization and regulation of mine labor.

The president of the council responded on October 3 that the proposed laws for the limitation of the hours of labor and concerning the miners' pensions were the order of the day in the Chamber and in the Senate, but that it was considered that the fixing of a minimum wage was a matter for adjustment between the parties concerned.

The secretary of the mine operators' committee on October 6 declined the offer of the miners' committee for a conference, on the ground that the Mine Owners' Association had no such powers under its constitution.

By this time 32,000 mine workers in the Departments of Nord and Pas-de-Calais had quit work. On October 7 and 8 the mine-workers' national committee fixed upon October 9 as the date for the commencement of the general strike. The miners in the Loire and Centre coal fields had, however, ceased work on the 8th.

Manifestoes were issued by the miners' committee, addressed successively to the miners, the French proletariat, the merchants, to the miners of all countries, and to the soldiers, and a letter was written the president of the council informing him that a general strike was ordered, and that it was not against the public authorities but against the mining companies. A second appeal to the mine owners' committee for a conference was also refused.

On October 10 the miners' delegates of the Nord and Pas-de-Calais district federation met at Lens and authorized their district committee to negotiate with the mining companies of that section. The next day the prefects of the Departments of Nord and Pas-de-Calais were requested to intervene with the view of securing negotiations between the companies and the miners' representatives on the subjects of: (1) A restoration of the wages; (2) the establishment of a minimum wage; (3) the suppression of overtime work; (4) an agreement to make no discharges on account of the strike; (5) a supervision over the fixing of wages. The prefects complied with this request, but the officers of the companies responded, on October 17 and 18, asking for time to await the decisions of their boards of directors.

On October 19 the strike had attained its maximum intensity, being general in 11 Departments.

On October 23 the French Chamber of Deputies adopted a resolution inviting the Government to use its whole influence to secure the acceptance of arbitration between the parties. At the invitation of the president of the council the prefects of the Departments affected by the strike invited the companies to accept arbitration. In the

Departments of Nord and Pas-de-Calais the companies held that arbitration was premature, but consented to open negotiations. Meetings were arranged between the mine owners and the miners' delegates of the Departments of Pas-de-Calais on October 31 and Nord on November 2. The agreements reached at these two meetings were almost identical. The companies agreed to be very considerate in the reinstatement of miners, to abolish overtime, making the working of long shifts optional; to arrange for a supervision of the wages; and finally to increase the pensions. The matter of increasing the wages was left to arbitration, the decision of the arbitrators to be final. The miners of both Departments selected the inspector-general of mines as their arbitrator; the mining companies of Nord selected the director of the Orleans Railway and those of Pas-de-Calais designated the inspector-general of roads and bridges. In both cases the arbitrators decided against an increase of the existing wage rates. On November 8 the miners met at Lens and refused to accept the decision, but at a meeting held 5 days later they voted to return to work.

In the Loire coal fields the dispute was submitted to arbitration, there being three arbiters, two representing the miners and operators and the third being the first president of the court of cassation (*premier président de la cour de cassation*). An agreement was reached November 21. The companies agreed to recognize the miners' federal committee, to insure an equitable division of wages, to turn over the fines to the relief funds, and to accord an amnesty to the strikers. The matter of increased wages was left to two special arbiters, one representing the miners and the other the mine operators. These failed to agree and a third arbiter was added. On November 28 the following decision was rendered: (1) That the 9 per cent increase over the 1900 rate which had been reduced to 3 per cent since August 16 1902, be increased to 5 per cent until June 30, 1903, this increase in no case being less than 0.20 franc (3.9 cents) nor more than 0.35 franc (6.8 cents) per day for any mine worker; (2) that this increase be 4 per cent for the second half year of 1903, with a minimum of 0.15 franc (2.9 cents) and a maximum of 0.25 franc (4.8 cents); and (3) that this increase be 3 per cent for the first six months of 1904 with a minimum of 0.10 franc (1.9 cents) and a maximum of 0.20 franc (3.9 cents) per day. This decision was accepted by both parties and work was resumed the same day.

In the other Departments some strikes were settled by arbitration, some through the intervention of public authorities, some by direct negotiations between the parties, and in a number of cases the miners failed completely. On December 5 the strike was practically over, although a few hundred strikers remained out until January 7, 1903.

The following table gives a summary of the strikes during 1902, all strikes in which the time of beginning and ending, locality, cause, and result, were not identical being separately considered:

## STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1902.

[Source: Statistique des grèves et des recours à la conciliation et à l'arbitrage survenus en France pendant l'année 1902. Twenty-nine strikes, constituting one general strike, are separately considered in this table; hence these figures do not agree with those in the summary on page 257.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against deductions from wages.....			1	31		
Against reduction of wages.....					1	50
For discharge of workmen, foremen, etc.....					1	17
For increase of wages.....	a 1	a 1,764	14	23,849	b 16	b 12,773
For recognition of trade union.....	a 1	a 17,206				
For reduction of hours.....					1	49
For reinstatement of discharged workmen, foremen, etc.....					1	40
Various causes affecting wages, not enumerated above.....			6	55,913		
Total.....	c 2	c 18,970	c 21	c 79,703	c 20	c 12,929

a The principal demand was granted, but the general strike as a whole was compromised.

b In 12 strikes, involving 12,525 strikers, the principal demand in each individual strike was refused, but the general strike as a whole was compromised.

c These figures do not agree with those in the summary on page 257 for reasons given in the preceding notes.

During the year 1903 there were fewer persons involved in mine strikes in France than during any other year of the period from 1890 to 1903. Of the 23 strikes reported, which involved a total of 2,452 strikers, all were small local disputes, the largest involving but 406 strikers.

The following table gives a summary of the strikes during 1903, arranged according to causes and results:

## STRIKES IN THE MINING INDUSTRY OF FRANCE, BY CAUSES AND RESULTS, 1903.

[Source: Statistique des grèves et des recours à la conciliation et à l'arbitrage survenus en France pendant l'année 1903.]

Cause or object.	Succeeded.		Succeeded partly.		Failed.	
	Strikes.	Strikers.	Strikes.	Strikers.	Strikes.	Strikers.
Against delay in wage payments.....	1	20	1	36	1	40
Against piecework.....			1	52		
Against reduction of wages.....	1	25	1	406	1	43
For discharge of workmen, foremen, etc.....	1	33	1	39	a 3	a 561
For increase of wages.....			3	304	2	100
For reduction of hours.....					b 1	b 60
Other causes.....	c 1	c 75	1	48	3	610
Total.....	d 4	d 153	d 8	d 885	d 11	d 1,414

a In 1 strike, involving 288 strikers, the principal demand was refused, but the strike as a whole was compromised.

b The principal demand was refused, but the strike as a whole was compromised.

c The principal demand was granted, but the strike as a whole was compromised.

d These figures do not agree with those in the summary on page 257 for reasons given in the preceding notes.

The following table gives a summary of the miners' strikes in France for the years 1890 to 1903:

## SUMMARY OF STRIKES IN THE MINING INDUSTRY IN FRANCE, 1890 TO 1903.

[Source: Statistiques des grèves, etc., survenus en France, 1890 to 1903. All general strikes have been considered as single strikes; hence the number here is smaller during some years than that shown in the preceding tables. In general strikes it frequently happens that, while the strike as a whole is partly successful, some of the individual strikes composing it were successful, some partly successful, and others failures. In like manner, in some strikes due to several causes the principal demand may have resulted in success or failure, while the strike as a whole was partly successful. For these reasons the figures in the columns showing results do not always agree with those in the preceding tables.]

Year.	Total strikes.	Strikes which—			Total establishments.	Establishments in which strikes—			Total strikers.	Strikers in strikes which—			Aggregate days of work lost by all employees thrown out of work.
		Succeeded.	Succeeded partly.	Failed.		Succeeded.	Succeeded partly.	Failed.		Succeeded.	Succeeded partly.	Failed.	
1890..	c 30	8	7	14	62	(b)	(b)	(b)	c 38,182	4,261	4,807	29,114	(b)
1891..	17	8	5	4	33	(b)	(b)	(b)	46,042	3,795	40,103	2,144	(b)
1892..	15	3	8	4	15	(b)	(b)	(b)	8,583	301	7,560	722	255,000
1893..	22	7	6	9	38	(b)	(b)	(b)	47,480	2,456	1,777	43,247	1,518,250
1894..	7	2	4	1	7	2	4	1	2,765	150	2,415	200	178,964
1895..	9	2	4	3	9	2	4	3	2,509	285	1,806	738	51,919
1896..	19	4	6	9	19	2	4	6	8,378	1,832	3,519	3,027	109,965
1897..	16	1	7	8	16	1	7	8	6,655	1,500	1,731	3,424	114,450
1898..	12	4	4	4	14	4	4	4	4,365	1,321	1,576	2,468	23,579
1899..	32	7	17	8	48	7	33	8	31,099	1,772	28,636	691	368,264
1900..	41	4	16	21	50	4	24	22	41,927	933	33,384	7,740	477,280
1901..	20	3	8	9	25	3	9	13	19,454	260	11,570	7,634	769,488
1902..	15	.....	7	8	147	.....	139	8	d111,692	.....	d111,288	404	3,274,407
1903..	23	3	11	9	23	3	11	9	2,452	78	1,308	1,066	49,068

a Result not reported in 1 strike.

b Not reported.

c Not including number of strikers in 3 strikes, not reported.

d Not including 3 strikes, involving 7,317 strikers, undertaken by longshoremen in sympathy with a general strike of coal miners and classed in the French report as part of the general strike.

## LEGISLATION.

The present mining law of France is based on the law of 1810, modified by a number of laws, decrees, and orders of later date. The safety regulations given herewith are mostly found in a draft of standard rules for the policing of mines, of July, 1895, prepared by a commission which was appointed to draw up a system of uniform regulations for the guidance of the prefects in their various departments. The results of the labors of this commission were approved by the council of mines and promulgated by an official circular of the minister of public works. Amendments and additions have been set forth in similar manner from time to time, so that while the draft has not the original force of a law, it is here used as representative of the standard set by the Government, and adopted with greater or less completeness in the different departments.

The law of 1810 classed the workings for the procuring of mineral substances under the head of "Mines, minières, and carrières," including under the first head all coal mines. The right to prosecute workings under the second and third heads rests with the proprietor of the soil. Mines, however, can be worked only by virtue of a concession granted by the Government, which must be preceded by prospecting or explorations.

## PROSPECTING AND MINING GRANTS.

Explorations may be made by the proprietor of the soil at any point on his estate not previously granted. Others may explore on leave obtained from him or on authorization by the Government.

Neither explorations, workings, nor mine buildings are allowed within inclosed walls, courts, or gardens without the consent of the owner, nor may pits or galleries open to the surface within 50 meters (164.04 feet) of dwellings or appurtenant inclosures without such consent.

The grant of a concession creates a new property, unlimited as to duration and capable of transfer, but not of subdivision without authorization from the Government. The grantee or purchaser need not be a citizen of France.

Provision is made in the grant of concession for rentals and indemnities to the surface proprietor, if he be not the grantee, and also for the safeguarding of public interests and of adjacent mine properties. The proprietor is required also to pay a fixed rental or tax to the State. Land much injured by mining operations must be purchased, and that desired for use by the mine proprietor for buildings, etc., may be secured by a form of expropriation. The area of a mining grant is fixed by the concession. If several grants become united in the hands of a single operator or company, the obligation of the continuous working of each concession is assumed by the new proprietor. Restrictions or suspensions of such a nature as to interfere with the public welfare or the needs of consumers are subject to prefectorial investigation and report.

If mines belonging to different concessions are affected or threatened by a flooding that might destroy them or interfere with public interests, the Government may require the grantees to join in a common undertaking for the drainage or other protection of the affected mines.

## MAPS.

Maps or plans of all workings are to be prepared by the operators of mines and copies thereof furnished to the mine engineers for the locality. These maps are to be revised so as to show the state of the mines from time to time, such revisions to be forwarded to the engineer at his request, and at least monthly, with a certificate of correctness.

Defective or delinquent plans may be corrected or properly supplied by the prefect at the cost of the mine owner. Besides the complete map, maps for each stratum and cutting are required; also a surface map drawn on transparent paper so as to show the relative position of the underground workings and of buildings, boundaries, etc., on the surface.



## OFFICIAL CONTROL AND INSPECTION.

The official inspection of mines rests with inspectors-general, chief engineers, engineers, principal controllers, and controllers. Each of the last four classes are subdivided into from one to four grades and they are of decreasing rank, in the order named. The inspectors-general, five in number, together form a general council of mines, while each has charge of a division of the country of which he must make a tour annually. Actual inspections of all mines and the supervision of the enforcement of all laws, rules, etc., are in the hands of the engineers, assisted by the controllers.

An administrative supervision rests also with the prefect of each Department and ultimately with the minister of public works. These alone have power of initiative, except in cases of accident or imminent danger.

Mine engineers are required to make annual inspections of all mines in their assigned districts, besides which they must frequently visit mines which for any reason require special surveillance.

Reports of the visits of inspection are kept at the office of the bureau of engineers, and are also transmitted to the prefectorial office. Every facility is to be furnished the inspectors for the prosecution of their work, including access to maps, plans, records of operations, drafts of rules for workmen, and lists of employees.

The proprietors are required to give information of any condition endangering the safety of mines or workmen, whereupon the engineer for such locality shall propose, or, in cases of imminent danger, set in operation, the measures needed to remedy such condition.

A continuous record and plan of daily workings must be kept at each mine, with a memorandum of incidents of importance. This is to be inspected by the engineer, and any suggestions or instructions that he may think desirable for the protection of life or property may be entered thereon.

Besides the official inspecting force proper, provision is made for the selection, for terms of three years, of delegates chosen by ballot by the miners themselves and from among their own number, whose duty it is to inspect underground workings with the exclusive object of examining the conditions of safety of the workmen employed therein, and, in cases of accident, the circumstances under which the accident occurred.

A delegate and an assistant are assigned a prescribed area, not requiring more than six days for inspection, and two inspections are to be made each month of all shafts, galleries, and working places, and of all machinery used for haulage and the movement of workmen. The assistant takes the place of the delegate only when the latter is unable to act.



Delegates are required to conform to the rules laid down by the Government to secure order and safety, and must enter, not later than the day following their inspection, a report of the same in a book furnished by the operator. Said book must be kept open to the view of the workmen. The observations of the operator may be entered in the same register. Copies of all entries must be forwarded to the prefect by their respective makers, to be by him communicated to the mine engineers.

Electors for delegates must be underground workmen who are French citizens and have their names on a pay roll within the area concerned for the last pay day prior to the election. Candidates must be able to read and write, be not less than 25 years of age, and underground workers of not less than 5 years' experience, at least 2 of which must be within the area for which they stand, or in a neighboring area. In areas less than 2 years in existence delegates may be chosen who have had experience in mines similar to those in which they are to serve. Older workmen of like experience who have left underground service not more than 10 years prior to the election, if they have previously served as delegates, may also be chosen. Provision is made against influence or corruption in the election and for contests and impeachments.

The costs of inspections by delegates are paid from the Government treasury, as for day's work, and the sum must be repaid by the mine operators as a matter of direct contribution. The maximum number of days that may be paid for and the rate per day are fixed annually for each area by the prefect, with the advice of the mine engineers, and under the authority of the minister of public works. It is an offense for operators to hinder inspection by delegates.

Inspections by agents or employees of the operators are required to be made twice during each shift in gaseous mines and once in others. In burning mines, the fire barriers must be inspected at least once daily when the mine is not being worked, and a lookout must be kept for outbreaks of fire.

Other details are given under the subjects of hoists, traveling ways, ventilation, etc.

#### WORKING.

The opening or resumption of work at any point requires a prior declaration to be filed with the prefect of the Department, accompanied by a plan of the working and its position with relation to adjacent mines, and a statement of the method of exploitation to be used. Material variations from such plan must also be reported. The plans are submitted to the engineers and may be modified by them within two months.

The minister of public works may, on advice from the council of mines, fix rules for the conduct of mining operations, either general or local, to which, after publication, the contemplated undertakings must conform.

Where mines are worked with partial or complete gobbing, the gob must be so disposed as not to allow opportunities for fires. Undermined parts where work is to continue must be supported, and no place may be abandoned until its security is provided for.

Gas-producing mines are to be worked by levels from above downward in such a manner as to prevent the existence of dangerous old workings underneath those in operation. A system of complete gobbing must be used in mines of the more dangerous class.

Working places or galleries driven toward points where the presence of water or of water-soaked gobbing is suspected must be preceded by divergent bore holes of at least 3 meters (9.84 feet) depth. Special rules are prescribed for the operation and ventilation of burning mines, corresponding mainly to those for gaseous mines. The maintenance and distinctive marking of fire barriers are prescribed, as well as the installation of an adequate water supply and provisions for combating fires. Except in cases of absolute necessity, no work may be done in places where the temperature exceeds 35° C. (95° F.).

The compulsory abandonment of dilapidated or otherwise dangerous workings may follow a prefectorial order based on a report as to the impracticability of such repairs being effected as will make the places secure. Voluntary abandonment of workings or portions of the same can only follow an inspection and a report to the prefect of the Department. This does not apply, however, to the gradual leaving of sections worked out in the regular course of operations.

#### REGULATIONS.

*Escape shafts.*—Except during the preparatory period or by special authorization, no work may be done in a mine not having at least two separate means of communication with the surface, accessible at all times to the workmen employed in all parts of the mine. These openings must be so situated and arranged as not to be affected by the same accident, whether it occur within the mine or on the surface. In gaseous mines one of these shafts must serve as the intake shaft for air and the other as the outflow.

The sections of shafts used for ladders are required to be securely divided from those used for hoisting coal or for pumping, except in shafts of slight depth and diameter, in which ladders may be placed in the hoisting section; the ladders may not be used during the work of hoisting, however. Ladders placed in return air shafts of gaseous or burning mines may not be customarily used by workmen.

Where shafts exceed 10 meters (32.81 feet) in depth, the slope of the ladders used must not be greater than 80°. Rest platforms are to be placed at intervals of not more than 10 meters (32.81 feet), above which the ladders must extend at least 1 meter (3.28 feet) or hand grips be placed to a like height.

Tools or other objects whose fall might produce injury, lamps excepted, must not be carried by workmen going upon ladders, but such objects may be fastened to the bodies of workmen or carried in sacks secured to their shoulders.

*Hoists, etc.*—All hoisting or forwarding machinery in use either within or without a mine must be equipped with a brake capable of stopping the machinery in any position, which can be controlled promptly and directly by the machine tender from his regular station. This brake must be set while the cage or car is at a loading platform. There must be devices to prevent overwinding and the slipping of the rope from the winding drum. In addition to any marks that may be on the rope, there must be installed an indicator to show the position of the cage or bucket in the shaft and also an automatic bell or whistle to announce the approach of the cage to the surface.

If cages or buckets used for the transportation of workmen are not equipped with safety apparatus, at least every three months not less than 2 meters (6.56 feet) must be cut from the lower end of the cable. In default of tests of the portion cut off, subsequent loads must not exceed one-tenth of the full capacity of a new cable, if of wire, or one-seventh if of other materials. If satisfactory tests are made, the cable may be kept in use so long as the carrying capacity is not reduced more than one-third. In any case one or more reserve ropes must be kept ready for use. Spliced wire cables, ropes brought under suspicion on account of wear or length of use, reversed ropes, or those not satisfactory on test, are not to be used for hoisting workmen.

A record is required of the composition, installation, tests, use, load, accidents, repairs, and cause of discontinuance of each rope used in hoists. Daily inspections are required of all parts of the apparatus, and a trial trip, at a rate slow enough to allow an examination of the rope throughout its length, must be made each day before the descent of workmen. A record is to be kept of all such inspections.

Cages and buckets used for the transportation of workmen must be adequately protected overhead against falling bodies. Cages are to be so constructed as to prevent persons falling out and must be equipped with safety catches. Buckets must be so attached to the hoist rope that they can not overturn. Workmen may ride only on the bottoms of such buckets unless they secure themselves to the rope by means of belts. The use of belts is obligatory in case the buckets have a depth of less than 80 centimeters (31.5 inches).

Except in shafts being sunk, no one but state officials and the engineers and chief workmen of the mine may travel alone in hoists. Children under 16 years of age must be at all times accompanied by an adult person charged with their care.

Bulletins must be permanently fixed at the approaches to shafts stating the number of persons that may descend, the maximum speed, the time and order of entry and departure, etc., the load and speed to be in all cases an appropriate reduction from those allowed in the forwarding of coal.

Special signals are to indicate the hoisting of workmen, whose entry and departure are under the observation of a person appointed for that duty.

At landing places a barrier must be placed at least 2 meters (6.56 feet) from the edge of the shaft, beyond which workmen must not pass except when their turn comes to enter the cage.

During the hoisting of the workmen the engine must be attended by an engineer and an assistant, and the engineer's post may not be abandoned at this time for any reason whatever. These employees and the shaft men are required to remain at their posts until they are relieved and have transmitted any special orders which they may have received.

*Traveling ways.*—The use of inclined planes is subject largely to the same regulations as that of hoists as to barriers, equipment, signals, etc. The placing thereon of uncoupled cars is forbidden unless special provisions exist to prevent their premature movement. Workmen must not be in or at the bottom of such planes during use, and transverse galleries or safety holes must afford convenient places of refuge for all employees engaged thereabout.

Travel on the cars or other movable parts of planes is forbidden unless authorized by the prefect under regulations fixed by him.

In galleries of a slope of more than three degrees, cars drawn by horses must be equipped with brakes. Going in front of cars and wagons to hold them in check is forbidden, as well as letting them run free.

Unless by special permission, car tenders must not ride on their cars. A lamp is required to be placed on the front of all trains unless galleries are lighted by fixed lights. Safety holes capable of accommodating at least two persons must be provided at intervals of not more than 50 meters (164.04 feet) in galleries where horses are used, unless the way is wide enough for safe passing.

*Signals.*—Except in shafts of such depth that communication by voice is practicable, special means of communication between each platform or coupling place and the surface must be provided. The signals to be used must be securely posted at these points and must be of such nature that mistakes or confusion will be avoided.

*Ventilation.*—All accessible underground working places must be traversed by air currents sufficient to assure salubrity and to furnish protection against all dangers arising from noxious gases or smoke under normal conditions. If the mines are gas producing, ventilation must be effected by mechanical means.

Every mine is required to have a chart of its ventilation plan, kept up to date, and showing the direction and division of the currents of air and the situation of all air doors and of the measuring stations.

Shafts and galleries used as air ways must be kept in good repair and be always accessible in all their parts. Works and ways out of use and not ventilated are to be made inaccessible to workmen.

Every six months the general and divided air currents are measured at fixed stations, and the results recorded. In gaseous mines these measurements may be required monthly and whenever new intersections or changes of doors alter the course of the currents; measurements in such mines shall also be taken at regular intervals at the front and rear of all working places.

The division of air currents by means of doors must be effected by the use of as few doors as possible. In much-frequented galleries, however, and at points where they are needed to prevent a disturbance of the principal currents, two or more doors must be installed at such distances that one of them shall be always closed while the other is open. Doors are to be self-closing, and those temporarily out of use must be taken from their hinges.

If possible, the outflow of air from underground stables and forage rooms (which must be near each other) must be so provided for that in case of fire the smoke, etc., can be drawn off without passing any working place or frequented gallery. The use of other than electric lamps in such places is forbidden, and only master miners and workmen employed therein are allowed to enter.

At least two safety lamps must be kept at every coal mine for use in testing suspected points when needed.

Gaseous mines are classed as freely (*franchement*) and feebly (*faiblement*) gas producing. This classification is to be made by the prefect on consultation with the mine engineers, the mine owner being heard. Mines and parts of the same having separate ventilation except as to the principal intake and outflow shafts may be classed differently. Ventilation shall always take place by ascending currents.

Every freely gas-producing mine which has not two sets of fans, with separate machinery, each capable of securing the normal ventilation of the mine, must have, besides one that is thus capable, an installation that can continue the ventilation sufficiently to allow the escape of the workmen in case of accident to the ventilating

system. Auxiliary ventilation may be provided for sections having exceptional needs.

Ventilating apparatus must be so placed as to avoid as far as possible the dangers arising from explosions. Each fan is to be provided with a device for recording its revolutions and a self-registering pressure gauge.

At every gaseous mine there must be kept at least two gas indicators and apparatus for analysis. Indicators must be capable of detecting a gas content of one-fourth of 1 per cent and they must be so constructed that their use may not expose the inspector to dangers more serious than those incurred in the use of approved types of safety lamps.

Daily inspections must be made before the resumption of labor in the more dangerous class of mines. In every case where ventilation has been suspended during a cessation of work, the resumption of work can take place only under conditions fixed by the engineer and after ventilation has been resumed for at least one hour, which period may be increased to as much as ten hours in exceptional cases.

The number of working places in simultaneous operation in a single air current is to be proportioned to their product, the volume of air, and the discharge of gas. The return current from any working place must not contain more than 2 per cent of gas. Daily observations of the gas content must be made in mines producing gas freely, and weekly observations must be made in other gaseous mines, and records kept.

Immediate measures are directed to be taken to purify every working place where gas in dangerous amounts is indicated, and no workman is to be allowed therein until this has been done. Efforts to drive the gas out by beating with cloths are forbidden.

If workings are directed toward old works or places suspected of containing accumulations of gas, bore holes must be driven in advance. If the presence of gas is disclosed thereby, the workmen must mark the place, withdraw therefrom, and inform the foreman of the conditions.

Except for the carrying on of necessary work in cases of rescue or imminent danger, it is forbidden to work, go, or be at any place in a mine where the gas affects a lamp. If during a shift the flame indicates the presence of gas, the workmen must retire, holding the lamps near the floor, and report to a foreman. In cases of urgent necessity, head miners may take such measures as are immediately necessary, referring the matter afterwards to the engineer.

Smoking in gas-producing mines, and the carrying therein of pipes, smoking tobacco, cigarette paper, matches, or other devices or material capable of starting fire are forbidden, as well as the possession of any tool which could be improperly used for opening lamps. Mine



foremen and their sworn agents are authorized to search the clothing, baskets, and sacks of workmen to assure compliance with these provisions. [www.libtool.com.cn](http://www.libtool.com.cn)

*Guards and safety appliances.*—The equipment and tools of a mine and its shafts, galleries, and workrooms are to be subject to the continuous supervision of the operator with a view to such security of all parts, both below and above ground, as will afford to the workman protection from the dangers of his employment.

All excavations opening to the surface not in an inclosure must be protected at points of danger by suitable and substantial barriers. The same rule applies to all openings of shafts, galleries, slopes, etc., of a dangerous declivity, whether interior or at the surface, and to the sumps of shafts where men are employed in any way. Belts, fly wheels, cages, friction cones, and other dangerous machinery must have suitable guards.

In all shafts where hoists with guides or tracks are used gates must be so installed at the landings that they will be closed automatically or by an engaging gear while the cage is not at the platform, unless a workman is specially detailed to keep the gates at such places closed.

In shafts not provided with guides, hooking-on places are to be equipped with an iron bar of sufficient strength to support the car or bucket during the work of loading.

Windlasses operated by hand must be provided with a ratchet or equivalent device; if by horsepower, with a brake or catch; and if by other power, with a brake. Buckets without guides, in use while shafts are being sunk, must not be filled above 20 centimeters (7.87 inches) from the top. Objects which project above the edge must be fastened to the suspending chain or rope.

Traveling ways in customary use having a slope of more than 25°, if not provided with ladders or steps cut in the rock, must have a rope or rail so fixed as to furnish assistance to those going thereon.

Repair work in shafts or inclined planes having a slope of more than 45° requires the use of a stage or a special cage for the protection of the workmen against falls; or, in the absence of such appliances, belts may be used.

*Lamps and lighting.*—Fixed lights are required to be used for the illumination of loading places or platforms in shafts.

Only safety lamps of a type approved by the minister of public works may be used for lighting mines in which gas occurs, except in intake shafts, where special modes of lighting may be authorized. Such lamps are to be furnished and kept in order by the mine owner. They must not be given out for use unless filled and lighted and closed in such a manner that they can not be opened while in use without leaving some apparent and easily discernible mark. Every person receiving a safety lamp is also required to assure himself that it is in



proper condition before accepting it, besides which a special employee verifies the condition of each lamp before it is taken into the workings.

An employee designated for that duty has the care of receiving, cleaning, filling, and giving out the lamps. A record kept by him must show the name of every person going into the mine with a lamp and the number of the same. Anyone returning a lamp not given to him by the lamp tender must state the causes and conditions of the exchange.

Lamps must never be left in the working places, even momentarily; nor may they be subjected to jars such as might injure the gauze cylinders or break the chimneys; nor exposed to strong currents of air, as at air pipes or the cracks of doors.

Every lamp injured during work or whose cylinder becomes red-hot must be extinguished by turning down the wick or carefully smothering it in the clothing. It must in no case be extinguished by blowing upon it. Lamps extinguished in any way whatever are to be relighted only at the lamp room unless provision for exchange or relighting by a special employee below ground is made by the operator.

*Explosives and blasting.*—The use of black powder is forbidden in gaseous or dusty mines. Detonating explosives may be used only after they have been approved and the conditions of their use have been regulated by the minister of public works. Such explosives may be used in gaseous mines only on condition that their discharge sets free no combustible element, and that the temperature of their detonation does not exceed 1,900° C. (3,452° F.) for explosives used in rock, and 1,500° C. (2,732° F.) for those used in coal. Only explosives, primers, tamping bars, etc., furnished by the operator may be used in any mine. The tamping bars must be exclusively of wood. Special employees are to be designated for the forwarding and use of explosives, and rules approved by the mine engineers or formulated by a prefect must control the handling and distribution of the same.

Explosives must not be delivered or used except in the form of cartridges prepared beforehand, and only the amount needed for use may be given out each day. Cutting or emptying cartridges is forbidden, but the covering may be broken at the time of use. Explosives or primers may be left at a working place only in accordance with fixed orders. Miners are not to take such objects to their homes.

Cartridges are to be placed in wooden boxes which are kept locked. Primers and explosives, as well as explosives of different kinds, must be kept separate. The boxes are to be kept in places as safe as possible from fires, dampness, or shocks, and having a temperature of not more than 38° C. (100.4° F.). Frozen dynamite must not be given out for use. It may be thawed either outside the mine or in an appropriate room, in a vessel surrounded by luke-warm water. If the

cartridge has been primed, the primer must not be removed until after thawing. Cartridges from which nitroglycerin exudes must be destroyed, with proper precautions. Ordinary powder and detonating explosives must not be put into the same hole.

Tamping material must not be mixed with powdered coal. In gaseous mines the amount of tamping material shall be not less than 20 centimeters (7.87 inches) for the first 100 grams (3.53 ounces) of the charge, with added amounts for larger charges. The depth need never exceed 50 centimeters (19.69 inches), however. No tamped shot may be drawn, whether it has been lighted or not. No shot may be fired until ample warning has been extended. In gaseous mines an inspection for gas within a possible danger radius must precede the firing. Unless electric firing or friction priming is used, shots must be fired exclusively by the use of safety matches not less than 80 centimeters (31.5 inches) in length. When a shot not fired by electricity misses fire a head miner must be immediately notified of the fact, and the working place must not be reentered for at least an hour. Holes drilled instead of those that have missed fire must be not closer than 20 centimeters (7.87 inches) to the old charge and require the supervision of a head miner. If dynamite was used the distance must be increased.

The deepening or cleaning out of a hole from which the shot has blown out, or of portions of holes remaining after a blast, is forbidden. If powder was used, the hole may be recharged with the authorization of a head miner after he has satisfied himself that nothing of the previous charge remains. If detonating explosives were used, the recharging may be done only by a skilled workman after not less than one-half hour has elapsed since the first firing. A soft ball of clay must first be put in and the new cartridge inserted gently to avoid concussion.

When more than four shots are simultaneously fired in one place by other means than electricity, the place must not be reentered for at least one hour after the last shot. Unless simultaneous firing is practiced, two shots must not be charged so near together that one can be ignited from the other.

In firing by electricity the instrument must always be under the exclusive control of the shift boss or shot firer, and may be put in place only when ready for use. The storerooms for explosives shall be separate from the place where electricity is generated.

The explosion of cartridges in gaseous mines is to be effected by fulminating capsules of sufficient power to assure the discharge of the explosive even in the open air. If the firing is not done by electricity, it must be by means avoiding as far as possible the giving off of sparks during the firing, especially in a lateral direction.

Mines containing inflammable dust are the subject of especial designation by the prefect, on the advice of engineers, and the use of explosives therein is regulated as for gas-producing mines. Such other provision as to sprinkling and the removal of dust as may be ordered must be made.

*Accidents.*—Operators must give notice to a mine engineer, within 48 hours, of any accident to a person in or about their mines, causing a disability to labor which continues for 3 days. If the accident caused death or serious injury, the report must be made immediately, by the quickest possible means. Any injury will be considered serious which is apparently of such a nature that death might ensue, or that it might cause permanent disability, partial or entire, or a temporary disability for more than 30 days. (<sup>a</sup>)

Causes are to be officially investigated and reported to the prefect of the Department and to the attorney of the Republic, with advices from the investigating engineer, and the work of rescue and of the prevention of further injuries must be performed as may be ordered. Operators and foremen of neighboring mines and the residents of the commune may be called on for emergency supplies and assistance, for which they shall receive a compensation from the operator aided.

The bodies of workmen killed by accident must not be buried until viewed by the mayor, where such view is possible, and until the preparation of a written account of the accident; nor may local conditions be altered before an examination by the engineer or controller. This prohibition does not extend to works of rescue, nor to work required to prevent a suspension of the operation of the mine.

Medicines and appliances for aid to the injured must be provided at each mine and proportioned to the number of workmen employed. Stretchers must be kept both above and below ground. The superior authorities may require those mines that appear to them in need of such provision to employ and maintain at their own expense a special surgeon to attend to the workmen. Several mines may unite in such employment, if conveniently situated therefor.

The employment of a single workman at a point where he would have no one to assist him in case of accident is forbidden.

#### EMPLOYMENT.

*Rules, etc.*—Instructions and rules for personal safety are to be posted and brought to the knowledge of every workman affected thereby. Insubordination and violation endangering the safety of persons or property render the offender liable to penal prosecution and punishment.

Strangers may enter mines only when accompanied by a master miner. The admission of sick or intoxicated workmen is forbidden.

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<sup>a</sup> Custom has required the report of injuries causing disability of 20 days' continuance.

*Miners, etc.*—The contract of hiring miners is subject to the usual rules of law, the pass-book system, established by a decree of 1813, having been abrogated in 1890. Miners may, however, demand a certificate at the expiration of their term of service which shall state only the date of the beginning of employment and the date of ending of the same and the nature of the employment.

Daily lists of both inside and outside employees are to be so maintained as to show, as far as possible, the exact working place or employment in or at which each workman is occupied.

*Foremen, etc.*—The persons charged with the supervision of the operations at any mine must be reported by the owner to the prefect of the Department. Under the authority of such superintendent or manager, or of the engineer, there must be foremen, head miners, and overseers of sufficient number to exercise constant and careful supervision over the entire mine, both works and workmen. No one may be employed as head miners or foremen in mines, under any title whatever, except such persons as have worked as miners, carpenters, timbermen, or mechanics for at least three consecutive years.

If a foreman is not constantly present in every working place where several miners are employed one of the workmen must be designated to act as foreman.

*Women and children.*—The employment of children under 13 years of age in mines and their dependencies is forbidden by the general law relative to the employment of women and children, unless they have attained the age of 12 years and have procured a certificate of primary instruction and also one of physical ability. Girls and women must not be admitted to works below ground.

Labor inspectors may at any time require an examination of any infant employee less than 16 years of age to determine whether its strength is overtaxed by its work.

No person under 18 years of age may be employed at the work of oiling, cleaning, inspecting, or repairing moving machinery, or be placed in charge of engines or boilers.

The hours of actual labor of women and of children under 18 were fixed at 11 per day by the law of 1900, to be reduced to 10½ after 2 years and to 10 hours after 2 years additional. This period of employment is to be interrupted by one or more rest periods, amounting to not less than one hour, during which work must be suspended. Adult males employed at the same places come within the provisions of this law. The employment of women and of children under 18 after 9 o'clock at night or before 5 a. m. is forbidden unless two shifts of not more than 9 hours each are worked, when the hours may be 10 p. m. and 4 a. m., respectively. Mine shifts for boys from 13 to 18 years of age must not exceed 8 hours in length, and they must not be required to be at the mine more than 10 hours per day.

In addition to the feast days recognized by law, a weekly rest day is required for young persons under 18 years and for women of all ages.

Mayors are required to furnish pass books to the parents, guardians, etc., of each child at work under the age of 18 years, containing the name, date, and place of birth, and the place of residence of such child. Employers are to enter therein the date of entry on and departure from service and must likewise keep a record of all data mentioned above.

The enforcement of this law, so far as it relates to employment in mines, is in the hands of the mine engineers and controllers.

*Hours of labor.*—The hours of labor of adult males employed at the same places with women and children are subject to the restrictions named above. The law of June 29, 1905, provides that six months after its promulgation 9 hours shall constitute a day's labor for workmen employed at mining in the underground workings of coal mines. After two years additional, the workday is to be limited to 8½ hours, with a further reduction to 8 hours on the expiration of another two-year period. The time is counted from the entrance into the pits of the last workmen descending to the arrival at the surface of the first workmen ascending. Rest periods allowed by the mine regulations, whether passed at the surface or below ground, are to be added to the length of the required workday.

This law is not to be construed as affecting the length of the working day where agreement or custom allows a shorter day than the period fixed thereby.

Provision is made for temporary waiver of the law for periods not exceeding two months, but renewable in cases where a reasonable necessity is shown, and also in cases of accident or of imminent danger.

#### REPORTS.

Besides the records of inspection, reports of accidents, of working conditions, etc., that are required, each operator is obliged to furnish to the prefect, in the form and at the times determined, statistical reports concerning the number of workmen and the conditions of their employment, and a statement of the amount of coal extracted.

#### LAWS OF GENERAL APPLICATION.

The Employers' Liability Law of 1898 (<sup>a</sup>) includes mining among the employments within its scope. This law allows an indemnity to workmen injured in the course of their employment, if the injury is

<sup>a</sup>See pp. 222 to 226.

such as to cause an interruption of labor of more than 4 days' duration. The compensation to be allowed varies with the customary earnings and the extent of the disability of the person injured. In case of his death it takes the form of a life pension to the widow, if there be any, unless she remarries, when the payment of a lump sum terminates the obligation of the employer. Children under 16 years of age receive an allowance. Provision is also made for cases in which neither widow nor child survives.

The law provides in detail for reports, hearings, and legal procedure. The liability of the employer is limited by its provisions, but the injured party is not thereby prevented from taking action against any third person in any way responsible for the injury, other than the employer and his representatives or employees.

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CHAPTER IV.

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COAL MINE LABOR IN GERMANY.

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## CHAPTER IV.

### COAL MINE LABOR IN GERMANY.

#### OUTPUT, VALUE, AND DISTRIBUTION OF PRODUCT.<sup>(a)</sup>

There are six principal coal fields in the German Empire, namely: The Rhenish Westphalian, Aix-la-Chapelle, Saar, Upper Silesian, Lower Silesian, and Saxon fields.

The most important of these is the Rhenish Westphalian, which is situated in the government districts of Westphalia and Lower Rhine. This field yields over half the entire coal output of the German Empire and is the most productive on the Continent of Europe. The quality of the Rhenish Westphalian coal varies considerably, but taken as a whole it is said to be excellent. Previous to the year 1860 coal mining had not been very extensively conducted in this field. About that time, however, a great increase in the production began, chiefly on account of large investments of capital in the form of stock companies for the mining of coal, and the manufacture of iron, steel, and other metals.

The coal field of Aix-la-Chapelle may be considered as a continuation of the coal deposits of Belgium, as is shown by the irregularity of the strata, which though numerous are frequently interrupted and are mostly at a great depth. The mining conditions are more difficult than in most of the other German coal fields, but this inconvenience is somewhat compensated for by the good quality of the coal and the convenience of these mines to the very important iron, lead, zinc, textile, glass, paper, and other industries of this part of the Empire.

The Saar coal field is situated in the southwestern part of the province of Rhenish Prussia, extends eastward to Rhenish Bavaria, and westward as far as German Lorraine, being about 99 kilometers (61.52 miles) long and 30 kilometers (18.64 miles) wide. In general, the coal of the Saar field is of a good quality, being adapted both for use as fuel and for the manufacture of illuminating gas. The mining of coal in this field is made somewhat difficult by the presence of foreign substances and of gas, the latter of which is more frequent in the Saar than in the other mining districts of Germany.

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<sup>a</sup>The description of the coal fields and the historical part of this chapter were largely obtained from *Coal and Iron in All Countries of the World*, by Joh. Pechar.

The quantity produced by the state coal mines is much greater than that produced by private mines in the province of Rhenish Prussia as well as in the districts adjacent to Bavaria and Lorraine. The industrial establishments, such as iron works, glass works, chemical works, etc., which are situated in this district, assure a regular market for the coal produced from these mines.

The coal field of Upper Silesia is situated at the Austrian and Russian border, and the part lying within the German lines embraces seven counties in the administrative district of Oppeln. The deposits being regular, the cost of mining is moderate. The seams, for the most part, have a thickness of from 3 to 4 meters (9.84 to 13.12 feet). The coal is particularly distinguished for its hardness. The production of this basin aggregates from 20 to 25 per cent of the total production of the Empire. A little over one-fifth of the output is from government-owned mines.

The coal field of Lower Silesia, that is, of Waldenburg and Neurode, extends from east to west from about Charlottenbrunn to Landeshut, and in a southern direction from Salzbrunn to the Bohemian boundary. It is inferior to the Upper Silesian coal field, with regard to the extent as well as to the thickness of the seams. The coal of Lower Silesia is particularly adapted to the manufacture of coke and is in great demand for that purpose.

Of the coal fields in the Kingdom of Saxony the most important are those of Zwickau and Lugau, which are a considerable distance from each other. In area these fields are greatly inferior to either those of Rhenish Westphalia, the Saar, or Upper Silesia. Mining operations are more laborious than in the other districts on account of the many foreign substances, the presence of water, and the depth of seams of sufficient thickness to be remunerative. The mines are particularly dangerous on account of fire damp. However, within this limited area is found an excellent quality of coal. The density of the population and the extensive industries in this section offer an excellent market for the coal.

In addition to the large coal fields which are enumerated above, the Empire of Germany contains other less important deposits of coal, which in the German reports are considered in two groups. The first group is located in the northwestern part of Germany, and embraces the mines between Wettin and Löbejün (province of Saxony, administrative district of Merseburg); the coal field on the southern edge of the Harz Mountains; the mines located in the Deister and Suntel Mountains, south of the city of Hanover; the mines near Rehburg and Obernkirchen, near the Porta Westphalica, and in the Teutoburg forest; and, finally, the mines at Ibbenbüren and at Piesberg, near Osnabrück. The second group consists of the coal fields of Upper Bavaria, which are located at Miesbach, Prenzberg, and

Peisenberg, and includes also the two small fields of the Ilm River at Manebach and on the southwestern slope of the Frankenwald Mountain at Stockheim and Neuhaus.

The German coal is generally known as "Fettkohle" and "Magerekohle." The Fettkohle contains a large amount of volatile matter (gases) and a small amount of carbon; the Magerekohle a small amount of gas and a large amount of carbon.

The Empire of Germany is almost as rich in lignite deposits as it is in those of coal. A belt of lignite extends from Silesia, almost to the Weser and the Rhine. The belt is interrupted at intervals and is sometimes subdivided into two or three belts. It is found in Lower Silesia, in Prussian and in Saxon Lausitz, in the northern part of the Kingdom of Saxony, in Thuringia, and in Hesse, and near the Westerwald Mountains. The quality, however, is frequently so inferior that it is not extracted. The deposits are often so near the surface that the lignite is obtained by quarrying. Thus the cost of extraction is very small, and the price of the lignite is correspondingly low. The lignite is largely consumed in the vicinity of the mines. A considerable quantity, however, is made into briquettes and exported in that form.

It is not known during what century coal was first used as fuel in Germany. There are evidences of the use of coal at a very early period, but owing to the abundance of wood and the imperfect heating appliances it was not until the last few centuries that coal has been used to any great extent. The first record that we have of coal production in Germany is at the Zwickau mines, which were worked as early as the tenth century. In 1348 the use of coal by blacksmiths was prohibited by the police authorities on account of the impurity of the atmosphere occasioned by its combustion. The first mention of the use of coal in the Rhenish Westphalian field, from which at the present time over half the German coal is obtained, was in the year 1302. In Essen, coal was first used in 1317. In the vicinity of Aix-la-Chapelle coal was mined as early as the eleventh or the twelfth century. In the Saar fields, coal mining does not seem to have been begun until 1529, and in Silesia it did not commence until shortly before the beginning of the seventeenth century. The use of coal for domestic purposes is comparatively recent in Germany. It was not until the beginning of the nineteenth century that coal was extensively mined in Germany. The application of steam in manufacturing industries, the use of coal in iron manufacture, the extension of steam railways and steam navigation, and the diminution of the supply of wood as a fuel, gave a great impetus to coal production at that time. About the middle of the eighteenth century the output in what is now the German Empire did not exceed 150,000 metric tons, and at the beginning of the nineteenth

century it had not exceeded 500,000 metric tons. In 1903, the production of coal in the German Empire amounted to 116,637,765 metric tons, or about two hundred and thirty-three times the quantity extracted at the beginning of the nineteenth century.

At the present time, next to the United States and Great Britain, Germany is the greatest coal-producing country in the world. In fact, its annual output of coal and lignite is about four times as great as that of Austria-Hungary, the country next in rank.

Official figures for all the countries now included within the German Empire extend back to 1860, with the exception of Schleswig-Holstein, Mecklenburg, and Alsace-Lorraine, figures for which were not reported until 1868, 1869, and 1872, respectively. In 1860 the total production was 12,347,800 metric tons of coal and 4,382,700 metric tons of lignite, or a total of 16,730,500 metric tons of both. In 1903, the total production in the German Empire was 116,637,765 metric tons of coal, and 45,819,488 metric tons of lignite, or 162,457,253 metric tons of both combustibles, which after deducting the production in Alsace-Lorraine, Mecklenburg, and Schleswig-Holstein, leaves a net increase of nearly 867 per cent in 43 years. The increase of lignite production has been slightly more rapid than that of coal. The two following tables show the quantity and value, respectively, of coal and lignite produced in Germany in each year from 1860 to 1903:

PRODUCTION OF COAL AND LIGNITE IN THE GERMAN EMPIRE, 1860 TO 1903.

[Source: 1860 to 1882, Statistisches Jahrbuch für das Deutsche Reich, Jahrg. I, V; 1883 to 1903, Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. II-XIII. A metric ton = 2,204.6 pounds.]

Year.	Quantity produced (metric tons).			Year.	Quantity produced (metric tons).		
	Coal.	Lignite.	Total coal and lignite.		Coal.	Lignite.	Total coal and lignite.
1860 (a).....	12,347,800	4,382,700	16,730,500	1882.....	52,118,595	13,259,616	65,378,211
1861 (a).....	14,133,000	4,622,300	18,755,300	1883.....	55,943,004	14,499,644	70,442,648
1862 (a).....	15,576,300	5,084,400	20,660,700	1884.....	57,233,875	14,879,945	72,113,820
1863 (a).....	16,906,700	5,459,500	22,386,200	1885.....	58,320,398	15,355,117	73,675,515
1864 (a).....	19,409,000	6,203,900	25,612,900	1886.....	58,056,598	15,625,986	73,682,584
1865 (a).....	21,794,700	6,758,100	28,552,800	1887.....	60,333,984	15,898,634	76,232,618
1866 (a).....	21,629,900	6,533,100	28,162,900	1888.....	65,388,121	16,573,963	81,962,083
1867 (a).....	21,808,100	6,994,400	30,802,900	1889.....	67,342,171	17,631,059	84,973,230
1868 (a).....	25,704,900	7,174,400	32,879,200	1890.....	70,237,806	19,053,026	89,290,834
1869 (a).....	26,774,400	7,569,600	34,344,000	1891.....	73,715,653	20,536,625	94,252,278
1870 (a).....	26,397,800	7,605,200	34,003,000	1892.....	71,372,193	21,171,857	92,544,050
1871 (a).....	29,373,500	8,482,838	37,856,138	1893.....	73,852,330	21,573,823	95,426,153
1872.....	33,306,418	9,018,048	42,324,466	1894.....	76,741,127	22,064,575	98,805,702
1873.....	36,392,280	9,752,914	46,145,194	1895.....	79,169,276	24,788,363	103,957,639
1874.....	35,918,614	10,739,532	46,658,146	1896.....	85,690,333	26,780,373	112,471,106
1875.....	37,436,368	10,367,686	47,804,054	1897.....	91,054,682	29,419,503	120,474,485
1876.....	38,454,128	11,096,034	49,550,462	1898.....	96,309,652	31,648,908	127,958,550
1877.....	37,529,449	10,700,334	48,229,883	1899.....	101,639,763	34,204,066	135,844,419
1878.....	39,589,778	10,930,121	50,519,899	1900.....	109,290,237	40,498,019	149,788,256
1879.....	42,025,687	11,445,029	53,470,716	1901.....	108,539,444	44,479,970	153,019,414
1880.....	46,973,666	12,144,469	59,118,035	1902.....	107,478,933	43,126,281	150,605,214
1881.....	48,688,161	12,852,324	61,540,485	1903.....	116,637,765	45,819,488	162,457,253

<sup>a</sup> The coal and lignite production of Alsace-Lorraine not reported from 1860 to 1871, and the lignite production of Schleswig-Holstein not reported from 1860 to 1867, and of Mecklenburg from 1860 to 1868 are not included.

TOTAL VALUE AND VALUE PER METRIC TON OF COAL AND LIGNITE PRODUCED  
IN THE GERMAN EMPIRE, 1860 TO 1903.

[Source: 1860 to 1882, Statistisches Jahrbuch für das Deutsche Reich, Jahrg. I, V; 1883 to 1903, Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. II-XIII. The value per metric ton was computed. Conversion of German into United States money was made on the basis of 1 mark=\$0.238. A metric ton=2,204.6 pounds.]

Year.	Coal.		Lignite.		Total value of coal and lignite.
	Total value.	Value per metric ton.	Total value.	Value per metric ton.	
1860 (a)	\$18,834,944	\$1.53	\$3,147,312	\$0.72	\$21,982,156
1861 (a)	19,225,478	1.36	3,166,590	.69	22,392,468
1862 (a)	19,777,424	1.27	3,358,180	.66	23,135,504
1863 (a)	20,341,422	1.20	3,613,792	.66	23,955,414
1864 (a)	23,932,466	1.23	4,177,614	.67	28,110,180
1865 (a)	28,685,902	1.32	4,708,592	.70	33,394,494
1866 (a)	30,280,740	1.40	4,485,824	.69	34,766,564
1867 (a)	32,704,132	1.37	4,772,138	.68	37,476,670
1868 (a)	34,698,258	1.35	4,781,428	.66	39,459,686
1869 (a)	37,076,430	1.38	5,010,376	.66	42,087,206
1870 (a)	38,921,906	1.47	5,248,614	.69	44,170,420
1871 (a)	51,967,138	1.77	6,238,604	.74	58,206,232
1872.	70,606,984	2.12	7,020,048	.78	77,627,032
1873.	96,067,610	2.64	8,241,226	.84	104,308,736
1874.	92,149,554	2.57	9,337,216	.87	101,486,770
1875.	70,801,430	1.89	8,778,630	.85	79,580,060
1876.	62,755,464	1.63	9,149,196	.82	71,904,560
1877.	51,639,136	1.38	8,549,198	.80	60,188,534
1878.	49,484,008	1.25	8,201,242	.75	57,685,250
1879.	48,067,314	1.16	8,394,026	.73	57,341,340
1880.	58,468,270	1.24	8,736,980	.72	67,205,250
1881.	60,035,976	1.23	9,073,036	.71	69,109,012
1882.	63,750,442	1.22	8,605,128	.65	72,355,570
1883.	69,883,571	1.25	9,283,663	.64	79,167,234
1884.	71,109,686	1.24	9,419,646	.63	80,529,332
1885.	72,100,234	1.24	9,609,924	.63	81,710,158
1886.	71,573,191	1.23	9,572,899	.61	81,146,090
1887.	74,036,400	1.23	9,587,929	.60	83,604,329
1888.	81,173,073	1.24	9,733,339	.59	90,906,412
1889.	91,649,011	1.36	10,555,137	.60	102,204,148
1890.	128,054,504	1.82	11,844,963	.62	139,899,467
1891.	140,305,333	1.90	12,891,467	.63	153,196,800
1892.	125,421,044	1.76	13,924,404	.66	139,345,448
1893.	118,618,010	1.61	13,095,474	.61	131,713,484
1894.	121,165,900	1.58	12,650,176	.57	133,815,976
1895.	128,257,010	1.62	13,806,618	.56	142,063,628
1896.	141,128,288	1.65	14,490,154	.54	155,618,442
1897.	154,447,482	1.70	15,787,738	.54	170,215,220
1898.	169,035,454	1.76	17,454,440	.55	186,499,894
1899.	187,888,962	1.85	18,671,100	.55	206,559,962
1900.	229,923,470	2.10	23,442,286	.58	253,365,756
1901.	241,630,452	2.23	26,246,640	.59	267,877,092
1902.	226,223,046	2.10	24,411,898	.57	250,634,944
1903.	239,226,414	2.05	25,544,056	.56	264,790,470

\* The value of the coal and lignite production of Alsace-Lorraine not reported from 1860 to 1871, and of the lignite production of Schleswig-Holstein not reported from 1860 to 1867, and of Mecklenburg from 1860 to 1868 are not included.

The number of tons produced represents the entire output for each year, including the amount of marketable coal used by the mines for their own operation (heating, lighting, etc.). The value represents the selling price at the mine of the total output at the time of its production and regardless of the time it was marketed, whether in the year it was mined or subsequently.

With but five exceptions, each year of the period shows an increase of the total coal and lignite production over the preceding year. These exceptions were the years 1866, 1870, 1877, 1892, and 1902, when slight decreases occurred, which in every case were less than 2,500,000 tons. Of the leading coal countries of the world

the proportionate increase in production in Germany in recent years has been exceeded only by that of the United States.

Up to 1894 the average value of coal at the pit's mouth in the German Empire fluctuated from year to year, being usually between 5 marks (\$1.19) and 7 marks (\$1.67), except during a few years following the Franco-Prussian war, when coal was abnormally high, reaching an average of 11.09 marks (\$2.64) in 1873. Since 1894 there has been a steady rise in the value of coal, except in 1902 and 1903, the average in 1902 being 8.84 marks (\$2.10) and in 1903, 8.62 marks (\$2.05) per ton.

The average value per ton of lignite at the pit's mouth ranged from 2.25 marks (54 cents) per ton in 1897 to 3.65 marks (87 cents) per ton in 1874. It was 2.34 marks (56 cents) in 1903.

The following table shows the production of coal by principal coal fields and what per cent the production in each field is of the total production, from 1881 to 1900. Amounts are given in round numbers:

PRODUCTION OF COAL IN THE GERMAN EMPIRE, BY COAL FIELDS, 1881 TO 1900.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I, X. The percentages were computed. A metric ton = 2,204.6 pounds.]

Year.	Upper Silesia.		Lower Silesia.		Saxony.		Wettin, Löbejün, Southern Hartz, Ibbenbüren, and North Germany.	
	Product (metric tons).	Per cent of total.	Product (metric tons).	Per cent of total.	Product (metric tons).	Per cent of total.	Product (metric tons).	Per cent of total.
1881.....	10,403,900	21.37	2,707,000	5.56	3,707,700	7.62	791,900	1.63
1882.....	10,888,300	20.89	2,902,400	5.57	3,807,800	7.31	817,200	1.57
1883.....	11,799,300	21.09	3,064,000	5.48	4,088,700	7.31	863,900	1.55
1884.....	12,342,300	21.56	3,045,000	5.32	4,131,900	7.22	870,600	1.52
1885.....	12,842,100	22.02	2,943,700	5.05	4,150,500	7.12	888,100	1.52
1886.....	13,018,000	22.42	2,978,300	5.13	4,249,000	7.32	872,300	1.50
1887.....	13,093,300	21.70	3,063,400	5.13	4,293,400	7.12	896,100	1.48
1888.....	14,449,300	22.10	3,193,000	4.88	4,359,100	6.66	959,100	1.47
1889.....	15,753,300	23.39	3,247,600	4.82	4,234,700	6.29	999,400	1.48
1890.....	16,870,900	24.02	3,204,700	4.56	4,150,800	5.91	1,032,600	1.47
1891.....	17,725,800	24.05	3,385,400	4.59	4,366,800	5.92	1,034,300	1.40
1892.....	16,437,500	23.03	3,411,400	4.78	4,212,900	5.90	951,100	1.33
1893.....	17,109,700	23.17	3,596,100	4.87	4,274,100	5.79	906,600	1.23
1894.....	17,204,700	22.42	3,686,700	4.80	4,123,200	5.37	896,600	1.16
1895.....	18,066,400	22.82	3,877,300	4.90	4,435,300	5.60	900,700	1.14
1896.....	19,613,200	22.89	4,065,700	4.74	4,536,600	5.29	951,800	1.11
1897.....	20,628,000	22.65	4,147,000	4.55	4,571,700	5.02	977,000	1.07
1898.....	22,489,700	23.35	4,363,000	4.53	4,436,500	4.61	866,600	.90
1899.....	23,470,100	23.09	4,489,600	4.42	4,546,800	4.47	967,300	.95
1900.....	24,782,600	22.69	4,767,400	4.36	4,784,200	4.38	1,156,500	1.06



PRODUCTION OF COAL IN THE GERMAN EMPIRE, BY COAL FIELDS, 1881 TO 1900—Concluded.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I. X. The percentages were computed on the basis of 1 metric ton = 2,204.6 pounds.]

Year.	Upper Bavaria, Ibm, and Frankenwald.		Rhenish Westphalia.		Inde and Worm.		Saar, Rhenish Bavaria, and Baden.		German Empire (metric tons). <sup>(a)</sup>
	Product (metric tons).	Per cent of total.	Product (metric tons).	Per cent of total.	Product (metric tons).	Per cent of total.	Product (metric tons).	Per cent of total.	
1881.....	345,300	0.71	23,577,000	48.42	1,203,900	2.47	5,951,600	12.22	48,688,200
1882.....	340,300	.65	25,757,500	49.42	1,266,400	2.43	6,338,400	12.16	52,118,600
1883.....	333,900	.60	27,716,300	49.54	1,277,800	2.28	6,798,600	12.15	55,943,000
1884.....	346,600	.61	28,259,200	49.38	1,221,700	2.13	7,016,200	12.26	57,233,900
1885.....	379,200	.65	28,864,600	49.49	1,225,000	2.10	7,026,600	12.05	58,320,400
1886.....	409,100	.70	28,439,200	48.99	1,270,300	2.19	6,820,400	11.75	58,056,600
1887.....	461,900	.77	30,067,800	49.87	1,322,400	2.19	7,085,300	11.74	60,334,000
1888.....	508,900	.78	33,164,000	50.72	1,398,300	2.14	7,364,600	11.25	65,386,100
1889.....	549,300	.82	33,867,400	50.29	1,412,300	2.10	7,278,300	10.81	67,342,200
1890.....	551,900	.79	35,517,100	50.57	1,484,800	2.11	7,425,000	10.57	70,237,800
1891.....	573,600	.78	37,478,600	50.84	1,484,700	2.02	7,666,100	10.40	73,715,700
1892.....	545,600	.77	36,969,500	51.80	1,404,700	1.97	7,439,100	10.42	71,372,200
1893.....	567,500	.77	38,703,000	52.40	1,438,300	1.95	7,257,100	9.82	73,852,300
1894.....	539,100	.70	40,734,000	53.06	1,527,900	1.99	8,039,000	10.48	76,741,100
1895.....	585,600	.74	41,277,900	52.14	1,606,600	2.03	8,419,700	10.63	79,169,300
1896.....	606,300	.71	45,008,700	52.53	1,669,400	1.95	9,238,500	10.78	85,690,200
1897.....	625,500	.69	48,519,900	53.29	1,763,000	1.94	9,822,900	10.79	91,055,000
1898.....	650,400	.69	51,306,300	53.27	1,804,400	1.87	10,383,100	10.78	96,309,700
1899.....	663,900	.65	55,072,400	54.19	1,764,400	1.74	10,665,400	10.49	101,639,800
1900.....	706,700	.65	60,119,400	55.04	1,771,600	1.62	11,136,700	10.20	109,225,000

<sup>a</sup> The figures in this column are given in round numbers and do not, therefore, agree with those in the table on page 278. The figures given in this table for 1900 differ materially, however, from those in the former table, and it is probable that they were preliminary at the time the original data were compiled.

The following table shows the total value and the value per metric ton of the coal produced in the principal coal fields in the German Empire from 1881 to 1900:

TOTAL VALUE AND VALUE PER METRIC TON OF COAL PRODUCED IN THE GERMAN EMPIRE, BY COAL FIELDS, 1881 TO 1900.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I. X. The value per metric ton was computed. Conversion of German into United States money was made on the basis of 1 mark = \$0.238. A metric ton = 2,204.6 pounds.]

Year.	Upper Silesia.		Lower Silesia.		Saxony.		Wettin, L5bej5n, Southern Hartz, Ibbenb5ren, and North Germany.	
	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value.	Value per metric ton.
1881.....	\$9,971,724	\$0.96	\$4,041,240	\$1.48	\$6,108,032	\$1.65	\$1,404,076	\$1.77
1882.....	10,239,236	.94	4,275,432	1.47	6,057,814	1.59	1,443,708	1.77
1883.....	11,101,034	.94	4,488,442	1.46	6,719,216	1.64	1,484,382	1.72
1884.....	11,667,236	.95	4,493,440	1.48	6,702,080	1.62	1,484,382	1.71
1885.....	12,142,760	.95	4,262,818	1.45	7,040,754	1.70	1,515,346	1.71
1886.....	12,066,124	.93	4,197,844	1.41	7,663,362	1.80	1,480,598	1.70
1887.....	11,805,276	.90	4,320,176	1.40	8,381,408	1.95	1,514,332	1.69
1888.....	12,061,718	.90	4,415,138	1.38	8,694,354	1.99	1,626,492	1.70
1889.....	14,714,350	.93	4,918,984	1.51	9,005,920	2.13	1,802,374	1.80
1890.....	20,146,038	1.19	6,084,470	1.90	9,795,128	2.36	2,170,560	2.10
1891.....	23,734,788	1.34	6,664,952	1.97	10,431,778	2.39	2,312,170	2.24
1892.....	22,053,794	1.34	6,380,780	1.87	9,462,642	2.25	2,038,946	2.14
1893.....	22,800,162	1.33	6,343,176	1.76	9,642,308	2.26	1,866,472	2.06
1894.....	22,327,256	1.30	6,198,234	1.68	8,983,072	2.18	1,815,226	2.05
1895.....	23,518,208	1.30	6,491,212	1.67	9,733,248	2.19	1,844,738	2.05
1896.....	25,673,398	1.31	6,767,292	1.66	10,260,356	2.26	1,950,386	2.05
1897.....	27,457,322	1.33	6,959,834	1.68	11,008,214	2.41	2,044,182	2.09
1898.....	31,249,038	1.39	7,516,992	1.72	11,261,208	2.54	1,816,492	2.10
1899.....	34,771,066	1.48	8,184,582	1.82	11,838,358	2.60	2,136,050	2.21
1900.....	43,451,422	1.75	10,429,398	2.19	14,335,454	3.00	2,789,122	2.41

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TOTAL VALUE AND VALUE PER METRIC TON OF COAL PRODUCED IN THE GERMAN EMPIRE, BY COAL FIELDS, 1881 TO 1900—Concluded.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I, X. The value per metric ton was computed. Conversion of German into United States money was made on the basis of 1 mark=\$0.238. A metric ton=2,204.6 pounds.]

Year.	Upper Bava- ria, Ilm, and Frankenwald.		Rhenish West- phalia.		Inde and Worm.		Saar, Rhenish Bavaria, and Baden.		German Empire.	
	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value. (a)	Value per metric ton.
1881....	\$721,854	\$2.09	\$25,535,258	\$1.08	\$1,657,670	\$1.38	\$10,595,522	\$1.78	\$60,035,976	\$1.23
1882....	710,668	2.09	27,992,132	1.09	1,760,724	1.39	11,270,728	1.78	63,750,442	1.22
1883....	712,096	2.13	31,150,392	1.12	1,783,572	1.40	12,443,830	1.83	69,883,464	1.25
1884....	725,424	2.09	31,763,004	1.12	1,625,064	1.33	12,648,510	1.80	71,109,640	1.24
1885....	793,254	2.09	32,072,404	1.11	1,628,158	1.33	12,644,702	1.80	72,100,196	1.24
1886....	859,418	2.10	31,563,560	1.11	1,646,246	1.30	12,096,112	1.77	71,573,264	1.23
1887....	969,374	2.10	33,066,054	1.10	1,728,832	1.31	12,250,574	1.73	74,036,320	1.23
1888....	1,092,182	2.15	37,709,434	1.14	1,836,408	1.31	12,836,768	1.75	81,172,994	1.24
1889....	1,233,792	2.25	43,929,088	1.30	1,985,396	1.41	14,059,136	1.93	91,049,040	1.36
1890....	1,243,312	2.25	67,128,852	1.89	2,323,118	1.56	19,162,094	2.58	128,054,472	1.82
1891....	1,280,302	2.23	74,377,380	1.98	2,285,752	1.54	19,218,262	2.51	140,305,284	1.90
1892....	1,219,036	2.23	64,709,106	1.75	1,966,594	1.40	17,590,104	2.36	125,421,002	1.76
1893....	1,271,872	2.24	58,944,746	1.52	2,008,720	1.40	15,739,654	2.17	118,618,010	1.61
1894....	1,212,848	2.25	61,700,310	1.51	2,130,338	1.39	16,798,516	2.09	121,165,800	1.58
1895....	1,318,996	2.25	65,323,384	1.58	2,373,098	1.48	17,654,126	2.10	128,257,010	1.62
1896....	1,362,312	2.25	72,530,738	1.61	3,062,346	1.83	19,520,760	2.11	141,128,288	1.65
1897....	1,409,912	2.25	81,196,556	1.67	2,912,644	1.65	21,458,318	2.18	154,447,482	1.70
1898....	1,492,260	2.26	89,347,342	1.74	3,170,636	1.76	23,180,486	2.23	169,035,454	1.76
1899....	1,506,540	2.27	100,450,518	1.82	3,525,732	2.00	25,475,996	2.39	187,888,862	1.85
1900....	1,722,644	2.44	122,029,502	2.03	3,965,556	2.24	30,702,476	2.76	229,425,574	2.10

a The figures in this column do not in all cases agree with those in the table on page 279, but they were converted from original figures, in marks, as given in the source quoted.

During the 20-year period the production has increased in a much larger proportion in the two principal fields than in the others. Thus in the Rhenish Westphalian coal field it increased from 23,577,000 to 60,119,400 metric tons, or 155 per cent, and in the Upper Silesian coal field from 10,403,900 to 24,782,600 metric tons, or 138.2 per cent, while the production for the whole Empire increased 124.3 per cent. All the coal fields, however, show a steady increase of production during the period.

While the mines of the German Empire are mostly in private hands, the German Government also carries on extensive mining operations, chiefly in the Saar and Upper Silesian coal fields. In 1900, 14.9 per cent of the entire coal output of Germany was produced from Government mines. The two tables following show the production and value of coal in German State mines, by principal coal fields, from 1881 to 1900:

PRODUCTION OF COAL IN THE STATE MINES OF THE GERMAN EMPIRE, BY COAL FIELDS, 1881 TO 1900.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I, X. The percentages were computed. A metric ton=2,204.6 pounds.]

Year.	Upper Silesia.		Saxony.		Wettin, Löbejün, Southern Hartz, Ibbenbüren, and North Germany.		Saar, Rhenish Bavaria, and Baden.		German Empire. (a)	
	Product (metric tons).	Per cent of total.	Product (metric tons).	Per cent of total.	Product (metric tons).	Per cent of total.	Product (metric tons).	Per cent of total.	Product (metric tons).	Per cent of total.
1881....	2,366,700	4.86	230,800	0.47	463,500	1.01	5,286,100	10.86	8,535,300	17.53
1882....	2,489,300	4.78	236,200	.45	521,600	1.00	5,647,300	10.84	9,050,600	17.37
1883....	2,794,300	4.99	247,900	.44	551,300	.99	6,066,300	10.84	9,817,700	17.55
1884....	2,838,000	4.96	235,600	.41	574,100	1.00	6,262,400	10.94	10,047,900	17.56
1885....	3,318,300	5.69	248,800	.43	576,700	.99	6,244,300	10.71	10,527,300	18.05
1886....	3,137,100	5.40	272,200	.47	552,200	.85	5,988,800	10.31	10,089,100	17.38
1887....	3,070,300	5.09	287,000	.47	558,600	.83	6,139,000	10.21	10,225,300	16.95
1888....	3,419,300	5.23	278,800	.43	592,000	.91	6,424,300	9.83	10,880,500	16.64
1889....	3,511,700	5.21	279,300	.41	650,700	.97	6,306,700	9.37	10,924,700	16.22
1890....	3,795,000	5.40	281,100	.40	674,500	.96	6,404,100	9.12	11,335,500	16.14
1891....	3,867,100	5.25	292,400	.40	788,100	1.07	6,560,300	8.90	11,558,900	15.68
1892....	3,655,300	5.12	282,200	.40	684,900	.96	6,414,300	8.99	11,089,100	15.54
1893....	3,894,900	5.27	351,800	.34	624,200	.85	6,052,600	8.20	10,888,000	14.74
1894....	3,974,300	5.18	247,000	.32	599,100	.78	6,762,800	8.81	11,654,300	15.19
1895....	4,027,700	5.09	261,100	.33	563,100	.71	7,057,900	8.91	11,988,100	15.14
1896....	4,574,400	5.34	282,700	.31	589,300	.69	7,878,300	9.19	13,379,100	15.61
1897....	4,756,400	5.22	255,600	.28	613,900	.67	8,438,100	9.27	14,139,700	15.53
1898....	5,064,300	5.26	269,700	.27	655,100	.68	8,967,300	9.31	15,048,300	15.62
1899....	5,105,100	5.02	247,200	.24	801,300	.79	9,242,000	9.09	15,496,000	15.25
1900....	5,296,300	4.85	303,200	.28	970,000	.89	9,637,700	8.81	16,205,500	14.92

\* Including output of 5 mines from 1881 to 1883, of 4 mines in 1894, of 3 mines from 1885 to 1890, and of 1 mine from 1891 to 1900, the figures for which were not reported separately by coal fields.

TOTAL VALUE AND VALUE PER METRIC TON OF COAL PRODUCED IN THE STATE MINES OF THE GERMAN EMPIRE, BY COAL FIELDS, 1881 TO 1900.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I, X. The value per metric ton was computed. Conversion of German into United States money was made on the basis of 1 mark=\$0.238. A metric ton=2,204.6 pounds.]

Year.	Upper Silesia.		Saxony.		Wettin, Löbejün, Southern Hartz, Ibbenbüren, and North Germany.		Saar, Rhenish Bavaria, and Baden.		German Empire. (a)	
	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value.	Value per metric ton.	Total value.	Value per metric ton.
1881....	\$2,340,254	\$0.99	\$543,830	\$2.36	\$886,550	\$1.80	\$9,351,734	\$1.77	\$13,434,148	\$1.57
1882....	2,416,652	.97	439,348	1.86	939,148	1.80	9,992,906	1.77	14,087,696	1.56
1883....	2,704,394	.97	422,688	1.71	937,720	1.70	11,038,440	1.82	15,415,736	1.57
1884....	2,797,690	.99	431,494	1.83	983,416	1.71	11,176,004	1.78	15,654,450	1.56
1885....	3,280,820	.99	453,866	1.82	955,094	1.66	11,127,452	1.78	16,086,420	1.53
1886....	3,040,450	.97	520,982	1.91	904,638	1.64	10,498,656	1.75	15,236,760	1.51
1887....	2,920,498	.95	592,382	2.06	919,632	1.65	10,529,120	1.71	15,254,134	1.49
1888....	3,340,806	.98	574,294	2.08	1,000,076	1.69	11,090,088	1.73	16,332,988	1.50
1889....	3,572,618	1.02	575,722	2.08	1,171,674	1.80	12,064,458	1.91	17,752,182	1.62
1890....	5,313,112	1.40	642,362	2.29	1,373,974	2.04	16,610,020	2.59	24,394,762	2.15
1891....	5,895,812	1.52	653,072	2.23	1,790,712	2.27	16,407,244	2.50	24,864,098	2.15
1892....	5,457,340	1.49	613,088	2.17	1,492,022	2.18	15,189,160	2.37	22,873,466	2.06
1893....	5,657,498	1.45	569,058	2.26	1,303,526	2.09	13,134,744	2.17	20,815,956	1.91
1894....	5,514,698	1.39	535,976	2.17	1,236,172	2.06	14,197,414	2.10	21,646,576	1.86
1895....	5,533,024	1.37	578,578	2.22	1,168,104	2.07	14,881,902	2.11	22,342,964	1.86
1896....	6,351,744	1.39	587,384	2.24	1,222,368	2.07	16,799,468	2.13	25,130,420	1.88
1897....	6,822,270	1.43	565,488	2.23	1,305,668	2.13	18,572,092	2.20	27,445,922	1.94
1898....	7,581,014	1.50	605,472	2.33	1,404,438	2.14	20,136,466	2.25	29,968,008	1.99
1899....	8,187,676	1.60	583,814	2.36	1,814,750	2.26	22,215,634	2.40	33,043,920	2.13
1900....	10,280,648	1.94	832,762	2.75	2,404,038	2.48	26,687,654	2.77	40,440,008	2.48

\* Including value of output of 5 mines from 1881 to 1883, of 4 mines in 1894, of 3 mines from 1885 to 1890, and of 1 mine from 1891 to 1900, the figures for which were not reported separately by coal fields.

The value per ton of coal at the pit's mouth varies considerably in the different fields, owing to the difference in the quality of the product. Thus in 1900 the average value of Saxon coal was 12.59 marks (\$3.00) per ton, while that of Upper Silesian coal was but 7.37 marks (\$1.75). In the Government mines the average value in 1900 ranged from 8.16 marks (\$1.94) in Upper Silesia to 11.65 marks (\$2.77) in the Saar, etc., coal field. The product of the Government mines is valued at a higher figure per ton than that from private mines in all but the Saxon fields. In all localities, however, for which separate statistics are given there has been, during the 20-year period, a steady increase in the average value per ton of coal.

The price of the same grade of coal likewise varies in the different markets according to the demand, the distance from the pits, the facilities for transportation, etc.

The following table gives the average prices, from 1879 to 1903, of the various grades of coal, the prices being based upon the monthly quotations regularly published by the German statistical bureau:

PRICE OF COAL PER METRIC TON AT THE PRINCIPAL MARKETS OF THE GERMAN EMPIRE, 1879 TO 1903.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I, VII, X-XIII. Conversion of German into United States money was made on the basis of 1 mark = \$0.238. A metric ton = 2,204.6 pounds.]

Year.	Market price per metric ton of German coal.										
	Berlin. <sup>(c)</sup>			Breslau. <sup>(b)</sup>		Dortmund. <sup>(b)</sup>		Dusseldorf. <sup>(t)</sup>			Gas.
	West-phalian, run of mine, gas.	Upper Silesian, lump, low carbon high volatile.	Lower Silesian, lump, low carbon high volatile.	Upper Silesian, gas.	Lower Silesian, gas.	Screened.	Puddle.	Free burning.	Low carbon high volatile.	High carbon low volatile.	
1879.....	\$4.00	(c)	(c)	\$1.40	\$2.40	\$1.81	\$1.12	\$1.24	\$1.19	\$1.12	
1880.....	4.40	\$4.50	\$4.45	1.50	2.45	1.98	1.43	1.55	1.43	1.29	1.79
1881.....	4.41	4.41	4.46	1.50	2.43	1.87	1.32	1.46	1.36	1.21	1.44
1882.....	4.41	4.45	4.38	1.47	2.41	1.85	1.34	1.55	1.42	1.30	1.74
1883.....	4.44	4.49	4.31	1.47	2.36	1.78	1.43	1.50	1.45	1.29	1.77
1884.....	4.28	4.39	4.22	1.46	2.36	1.71	1.30	1.44	1.31	1.21	1.79
1885.....	4.17	4.39	4.17	1.41	2.36	1.72	1.22	1.40	1.31	1.12	1.75
1886.....	4.11	4.38	4.11	1.42	2.36	1.58	1.07	1.39	1.34	1.15	1.72
1887.....	4.02	4.36	4.07	1.41	2.36	1.49	1.05	1.36	1.33	1.14	1.68
1888.....	4.18	4.34	4.10	1.40	2.33	1.53	1.31	1.49	1.43	1.26	1.79
1889.....	5.03	4.58	4.45	1.66	2.59	2.21	1.77	2.14	2.07	2.01	2.64
1890.....	5.72	4.83	5.26	2.26	3.20	3.07	2.36	3.01	2.87	2.94	3.55
1891.....	5.59	4.84	5.08	2.19	3.05	2.74	1.90	2.64	2.36	2.36	3.07
1892.....	5.07	4.83	4.83	2.16	3.01	2.19	1.74	2.33	2.05	1.98	2.81
1893.....	4.93	4.91	4.76	2.13	3.00	1.95	1.55	1.90	1.74	1.79	2.33
1894.....	4.95	4.77	4.78	2.13	3.00	2.14	1.64	2.11	1.88	1.79	2.48
1895.....	4.95	4.66	4.76	2.13	3.00	2.14	1.76	2.09	1.90	1.79	2.50
1896.....	4.90	4.57	4.76	2.11	3.00	2.14	1.88	2.04	1.93	1.81	2.50
1897.....	4.93	4.41	4.71	2.07	3.05	2.24	2.02	2.17	2.14	2.09	2.50
1898.....	5.07	4.47	4.81	2.16	3.12	2.31	2.07	2.26	2.14	2.09	2.59
1899.....	5.31	4.56	5.08	2.33	3.26	2.38	2.14	2.38	2.24	2.14	2.81
1900.....	5.50	4.99	6.00	2.62	4.06	3.24	2.36	2.67	2.43	2.31	3.02
1901.....	(c)	(c)	(c)	2.81	4.24	3.33	2.38	2.69	2.45	2.32	3.05
1902.....	(c)	(c)	(c)	2.78	3.93	3.17	2.21	2.50	2.28	2.17	2.90
1903.....	(c)	(c)	(c)	2.74	3.57	2.87	2.14	2.45	2.24	2.03	2.88

<sup>a</sup> At freight yards.

<sup>b</sup> At mine.

<sup>c</sup> Comparable prices not reported.

## PRICE OF COAL PER METRIC TON AT THE PRINCIPAL MARKETS OF THE GERMAN EMPIRE, 1879 TO 1903—Concluded.

[Source: *Viertelejahreshefte zur Statistik des Deutschen Reichs*, Jahrg. I, VII, X-XIII. Conversion of German into United States money was made on the basis of 1 mark = \$0.233. A metric ton = 2,204.6 pounds.]

Year.	Market price per metric ton of German coal.						Market price per metric ton of British coal.				
	Essen. <sup>(a)</sup>				Hamburg. <sup>(b)</sup>	Saarbrücken. <sup>(a)</sup>		Danzig. <sup>(b)</sup>		Hamburg. <sup>(b)</sup>	
	Free burning.	Low carbon high volatile.	High carbon low volatile.	Gas.	Westphalian, double screened and washed nut.	Free burning.	Low carbon high volatile.	English black-smith nut.	Scotch furnace lump.	West Hartley steam coal.	Sunderland nut.
1879.....	\$1.19	\$1.12	\$1.17	(c)	(c)	\$1.79	\$1.71	\$2.88	\$2.95	\$3.74	\$3.57
1880.....	1.76	1.57	1.40	(c)	\$3.28	1.66	1.76	3.19	3.28	3.86	3.47
1881.....	1.39	1.30	1.29	(c)	3.37	1.63	1.79	3.36	3.50	3.82	3.45
1882.....	1.46	1.37	1.24	\$1.70	3.61	1.81	1.76	3.28	3.17	3.33	3.07
1883.....	1.50	1.40	1.26	1.77	3.53	1.66	1.83	3.07	3.09	3.32	3.05
1884.....	1.58	1.24	1.13	1.75	3.51	1.95	1.81	3.07	3.14	3.20	2.98
1885.....	1.40	1.34	1.12	1.74	3.22	1.88	1.76	2.93	2.83	3.16	2.96
1886.....	1.39	1.33	1.17	1.71	3.18	1.88	1.76	2.93	2.74	3.07	2.90
1887.....	1.36	1.34	1.16	1.69	3.17	1.81	1.74	2.90	2.74	3.02	2.86
1888.....	1.50	1.44	1.26	1.79	3.24	1.79	1.76	2.95	2.83	3.11	2.95
1889.....	2.21	2.02	1.97	2.63	3.99	1.93	1.98	3.67	3.28	3.76	3.81
1890.....	2.94	2.55	2.62	3.47	4.55	2.56	2.59	4.69	3.86	4.24	4.43
1891.....	2.62	2.35	2.81	3.07	4.48	2.48	2.46	3.50	4.21	4.07	4.26
1892.....	2.33	2.02	1.86	2.81	4.22	2.48	2.27	3.95	3.09	3.59	3.74
1893.....	1.81	1.74	1.79	2.33	3.96	2.36	2.03	3.45	3.07	3.61	3.88
1894.....	2.07	1.90	1.79	2.50	3.90	2.31	1.95	3.52	3.36	3.59	3.55
1895.....	1.93	1.90	1.79	2.40	3.75	2.28	1.98	3.17	2.86	3.18	3.31
1896.....	1.90	1.96	1.83	2.43	3.77	2.24	2.00	3.19	2.78	3.03	3.14
1897.....	2.05	2.11	1.98	2.67	3.99	2.31	2.09	3.57	3.00	3.12	3.26
1898.....	2.09	2.16	2.05	2.74	4.12	2.33	2.15	3.97	3.62	3.48	3.43
1899.....	2.17	2.23	2.12	2.81	4.28	2.50	2.20	4.52	4.07	3.78	3.71
1900.....	2.38	2.44	2.26	3.05	5.57	2.81	2.66	6.38	5.47	5.34	5.40
1901.....	2.38	2.45	2.26	3.05	(c)	3.05	2.95	5.24	3.93	4.14	4.43
1902.....	2.31	2.28	2.09	2.86	(c)	2.88	2.74	4.88	3.59	3.97	4.23
1903.....	2.25	2.23	1.98	2.80	(c)	2.80	2.61	4.72	3.55	3.80	4.06

<sup>a</sup> At mine.

<sup>b</sup> At dock.

<sup>c</sup> Comparable prices not reported.

These quotations invariably represent wholesale prices paid by purchasers of large quantities either directly at the mine or at the principal markets after the coal had been unloaded from the railroad cars or from vessels. It will be observed that the difference between the prices at the mines and at the markets is very considerable, owing mainly to the high cost of transportation.

Of the lignite production of the German Empire, about four-fifths is mined in the Prussian provinces of Saxony, Brandenburg, and Rhenish Prussia. The two tables following show the quantity and value, respectively, of the lignite output of Germany, by States and provinces, from 1891 to 1900, inclusive.



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PRODUCTION OF LIGNITE IN THE GERMAN EMPIRE, BY STATES AND PROVINCES, 1891 TO 1900.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. X. A metric ton = 2,204.6 pounds.]

Year.	Quantity produced (metric tons).					
	West Prussia, Posen, Pomerania, Mecklenburg-Schwerin.	Province of Brandenburg.	Province of Silesia.	Kingdom of Saxony.	Province of Saxony.	Duchy of Anhalt.
1891	36,600	4,066,300	440,200	864,400	11,004,900	911,600
1892	35,600	4,598,100	456,900	927,900	10,925,100	904,500
1893	31,800	5,116,400	444,800	941,000	10,598,900	944,100
1894	35,200	5,183,900	448,300	918,600	10,536,200	1,095,200
1895	30,600	6,102,700	449,900	1,018,500	11,462,500	1,107,700
1896	27,400	6,939,700	483,500	1,035,800	12,123,000	1,112,800
1897	23,600	7,941,000	514,400	1,073,200	13,009,700	1,219,700
1898	31,700	8,525,000	573,800	1,180,900	13,724,300	1,332,800
1899	41,400	8,695,100	609,500	1,292,300	14,677,300	1,292,100
1900	75,200	10,346,800	802,500	1,538,900	16,841,700	1,347,400

Year.	Quantity produced (metric tons).					German Empire. (e)
	Saxe-Weimar, Saxe-Altenburg (Meuselwitz district), Schwarzburg-Rudolstadt, Reuss J.L.	Bavaria.	Duchy of Brunswick and Province of Hanover.	Hessian districts (Duchy of Hesse and Province of Hesse-Nassau).	Lower Rhine district (Province of Rhineland).	
1891	1,202,100	16,500	628,900	524,000	841,400	20,536,600
1892	1,287,600	15,100	647,700	510,200	863,200	21,171,900
1893	1,277,800	19,400	684,300	493,100	1,022,300	21,573,800
1894	1,293,200	22,500	797,100	496,300	1,236,100	22,064,600
1895	1,411,700	28,600	962,700	565,400	1,648,100	24,788,400
1896	1,454,100	41,400	1,037,900	563,100	1,962,400	26,780,900
1897	1,583,900	41,100	1,151,300	603,500	2,257,500	29,419,500
1898	1,772,400	51,800	1,144,400	598,700	2,713,100	31,648,900
1899	1,810,200	37,300	1,200,100	622,100	3,927,300	34,204,700
1900	1,940,300	39,200	1,495,100	699,800	5,162,400	40,279,300

e The figures in this column are given in round numbers, and do not, therefore, agree with those in the table on page 278. The figures given in this table for 1900 differ materially, however, from those in the former table, and it is probable that they were preliminary at the time the original data were compiled.

## TOTAL VALUE AND VALUE PER METRIC TON OF LIGNITE PRODUCED IN THE GERMAN EMPIRE, BY STATES AND PROVINCES, 1891 TO 1900.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. X. The value per metric ton was computed. Conversion of German into United States money was made on the basis of 1 mark = \$0.238. A metric ton = 2,204.6 pounds.]

Year.	West Prussia, Posen, Pomerania, Mecklenburg-Schwerin.		Province of Brandenburg.		Province of Silesia.		Kingdom of Saxony.	
	Value of product.	Value per metric ton.	Value of product.	Value per metric ton.	Value of product.	Value per metric ton.	Value of product.	Value per metric ton.
1891.....	\$32,806	\$0.89	\$2,168,894	\$0.53	\$383,180	\$0.87	\$626,178	\$0.72
1892.....	31,654	.89	3,074,484	.67	406,646	.89	642,362	.69
1893.....	26,656	.84	2,832,914	.55	381,038	.86	631,890	.67
1894.....	28,322	.90	2,431,646	.47	387,472	.82	610,946	.67
1895.....	24,038	.79	2,860,522	.47	359,142	.80	638,078	.63
1896.....	22,848	.83	3,059,490	.44	381,752	.79	634,746	.61
1897.....	21,182	.90	3,479,064	.44	412,454	.80	634,508	.59
1898.....	27,846	.88	3,680,670	.43	461,958	.81	693,294	.59
1899.....	46,410	1.12	3,743,502	.43	506,368	.83	765,650	.58
1900.....	74,018	.98	4,850,440	.47	717,332	.89	1,025,066	.67

  

Year.	Province of Saxony.		Duchy of Anhalt.		Saxe-Weimar, Saxe-Altenburg (Meuselwitz district), Schwarzburg-Rudolstadt, Reuss j. L.).		Bavaria.	
	Value of product.	Value per metric ton.	Value of product.	Value per metric ton.	Value of product.	Value per metric ton.	Value of product.	Value per metric ton.
1891.....	\$7,101,020	\$0.65	\$649,502	\$0.71	\$573,104	\$0.48	\$15,946	\$0.97
1892.....	7,232,082	.66	650,166	.73	609,994	.47	16,660	1.10
1893.....	6,662,334	.63	640,696	.68	593,334	.46	15,232	.79
1894.....	6,441,332	.61	733,040	.67	585,956	.45	17,612	.78
1895.....	6,802,004	.60	737,086	.67	638,316	.45	23,562	.82
1896.....	7,034,090	.58	738,276	.66	651,406	.45	33,796	.82
1897.....	7,538,050	.58	806,820	.66	730,660	.46	24,752	.60
1898.....	7,997,614	.58	888,662	.67	869,176	.49	43,316	.84
1899.....	8,488,084	.58	870,604	.67	921,774	.51	33,082	.89
1900.....	9,871,050	.59	922,250	.68	1,145,494	.59	35,700	.91

  

Year.	Duchy of Brunswick and Province of Hanover.		Hessian districts (Duchy of Hesse and Province of Hesse-Nassau).		Lower Rhine district (Province of Rhineland).		German Empire. (e)	
	Value of product.	Value per metric ton.	Value of product.	Value per metric ton.	Value of product.	Value per metric ton.	Value of product.	Value per metric ton.
1891.....	\$471,002	\$0.75	\$527,646	\$1.01	\$341,530	\$0.41	\$12,801,508	\$0.63
1892.....	498,134	.77	474,066	.93	279,650	.32	13,924,428	.66
1893.....	523,838	.77	423,402	.86	364,140	.36	13,086,474	.61
1894.....	599,780	.75	392,700	.79	441,252	.36	12,649,938	.57
1895.....	696,626	.72	441,014	.78	496,230	.30	13,806,618	.56
1896.....	758,506	.73	438,158	.78	737,086	.38	14,400,154	.54
1897.....	825,146	.72	477,190	.79	817,292	.36	15,767,738	.54
1898.....	818,958	.72	491,708	.82	1,491,308	.55	17,464,440	.55
1899.....	884,646	.74	552,398	.89	1,865,682	.48	18,671,100	.55
1900.....	1,130,500	.76	680,680	.99	2,811,018	.54	23,263,548	.58

<sup>a</sup> The figures in this column do not in all cases agree with those in the table on page 279, but they were converted from original figures, in marks, as given in the source quoted.



Figures showing production and value of coal by coal fields and of lignite by States and provinces are not continued in the form shown in the preceding tables beyond the year 1900. The nearest approach to such a classification published for subsequent years is shown in the following table for the years 1901, 1902, and 1903:

QUANTITY AND VALUE OF COAL AND LIGNITE PRODUCTION IN THE GERMAN EMPIRE, BY STATES AND PROVINCES, 1901 TO 1903.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. XI-XIII. The value per metric ton was computed. A metric ton = 2,204.6 pounds.]

Industry and State.	1901.			1902.			1903.		
	Product (metric tons).	Value of product. (c)		Product (metric tons).	Value of product. (c)		Product (metric tons).	Value of product. (c)	
		Total.	Per metric ton.		Total.	Per metric ton.		Total.	Per metric ton.
<b>COAL.</b>									
Prussia:									
Silesia.....	29,061,123	\$62,190,590	\$2.08	29,055,054	\$56,466,452	\$1.94	30,185,327	\$55,915,482	\$1.85
Hanover.....									
Osnaabrück.....	553,418	1,292,578	2.34	551,685	1,271,872	2.31	541,113	1,231,412	2.28
Westphalia.....	41,303,447	85,668,100	2.07	41,009,302	81,847,724	2.00	45,750,565	90,707,274	1.98
Rhineland.....	29,216,521	70,469,658	2.41	29,331,874	66,530,520	2.27	32,150,788	70,750,498	2.20
Other localities in Prussia.....	169,298	423,402	2.50	167,400	404,362	2.42	181,591	500,752	2.76
Total Prussia.....	101,203,807	220,044,328	2.17	100,115,315	206,520,930	2.06	108,809,384	219,105,418	2.01
Bavaria.....	1,203,792	3,337,236	2.77	1,233,568	3,191,104	2.59	1,356,556	3,473,848	2.56
Saxony.....	4,759,812	14,423,038	3.03	4,649,100	12,740,140	2.74	4,693,133	12,223,204	2.60
Alsace-Lorraine.....	1,193,169	3,383,408	2.84	1,309,818	3,365,320	2.57	1,583,365	3,897,488	2.46
Other German States.....	178,864	442,442	2.47	166,132	406,552	2.44	195,327	526,456	2.70
Total Germany.....	108,539,444	241,630,452	2.23	107,473,933	226,223,046	2.10	116,637,765	239,226,414	2.05
<b>LIGNITE.</b>									
Prussia:									
Brandenburg.....	11,730,841	5,791,730	.49	11,623,366	5,280,744	.45	12,457,648	5,414,738	.43
Marienwerder, Stettin, Posen, Bromberg.....	67,187	65,212	.97	56,105	51,884	.92	59,147	61,880	1.05
Silesia.....	879,834	811,342	.92	875,210	734,706	.84	882,774	869,418	.97
Saxony.....	17,924,990	10,863,986	.61	17,608,218	10,507,224	.60	18,384,286	10,742,368	.58
Hanover, Hildesheim, Lüneburg.....	233,848	186,354	.80	193,303	149,940	.78	201,108	143,038	.71
Hesse-Nassau.....	452,672	530,264	1.17	435,931	474,334	1.09	455,579	483,140	1.06
Rhineland.....	6,202,040	3,272,500	.53	5,436,152	2,668,218	.49	6,022,224	3,077,816	.51
Total Prussia.....	37,491,412	21,521,388	.57	36,228,285	19,867,050	.55	38,462,766	20,782,398	.54
Bavaria.....	26,224	23,086	.92	27,337	24,752	.91	25,189	22,372	.88
Saxony.....	1,635,060	1,049,104	.64	1,746,638	1,076,712	.62	1,839,422	1,094,066	.59
Hesse.....	307,952	210,868	.68	296,685	181,594	.61	351,057	236,810	.67
Brunswick.....	1,436,314	1,096,942	.76	1,307,867	961,520	.74	1,428,067	1,038,394	.73
Saxe-Altenburg.....	2,146,976	1,305,668	.61	2,181,661	1,293,054	.59	2,274,646	1,321,614	.58
Anhalt.....	1,365,950	991,746	.73	1,278,112	965,804	.76	1,376,695	1,026,018	.75
Other German States.....	71,062	47,838	.67	59,696	41,412	.69	61,646	42,364	.69
Total Germany.....	44,479,970	26,246,640	.59	43,126,281	24,411,898	.57	45,819,488	25,564,056	.56

\* In the source quoted the value of product is given in round numbers; hence the figures for Prussia in this table do not agree with those in the tables on pages 289 and 291.

While complete statistics of coal and lignite production in the States constituting the present German Empire are not available for an earlier year than 1860, reports for Prussia were published as far back as 1817. As this State produces over 90 per cent of the entire German coal and lignite output, the published figures for Prussia may be considered as fairly representative of Germany.

The following table shows the annual production of coal in Prussia since 1817 and the value of the annual coal output since 1837:

## QUANTITY AND VALUE OF COAL PRODUCED IN PRUSSIA, 1817 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände I-LII. The value per metric ton was computed. The quantity was reported in "tonnen" from 1817 to 1859. "Tonnen" were reduced to metric tons on the basis 5 tonnen=1 metric ton. From 1860 to 1879 the quantity was reported in "centner," which were reduced on the basis 20 centner=1 metric ton. The values from 1837 to 1874 were reported in "thalers" and were converted into United States money, on the assumption that by "thaler" was meant the "North German silver thaler" on the following basis: 1 North German silver thaler=\$0.717, 1858 and 1859; \$0.72, 1860 and 1861; \$0.7289, 1862 to 1867; \$0.729, 1868 to 1872; \$0.714, 1873; \$0.70, in 1874. These values were quoted from year to year by the Director of the United States Mint. No earlier official valuations of this coin could be found, hence the value of the "thaler" as quoted for 1858 (\$0.717) has been used as a basis for converting the values from 1837 to 1858. For the years 1875 to 1903 the basis for conversion was 1 mark=\$0.238. A metric ton=2,204.6 pounds.]

Year.	Product (metric tons).	Value of product.		Year.	Product (metric tons).	Value of product.	
		Total.	Per metric ton.			Total.	Per metric ton.
1817	1,017,570	(a)	(a)	1861	12,264,586	\$15,701,995	\$1.28
1818	1,069,601	(a)	(a)	1862	13,088,390	16,447,667	1.26
1819	994,139	(a)	(a)	1863	14,304,675	17,027,880	1.19
1820	1,021,141	(a)	(a)	1864	16,547,745	20,074,149	1.21
1821	1,068,863	(a)	(a)	1865	18,592,115	24,077,688	1.30
1822	1,086,455	(a)	(a)	1866	18,628,548	26,220,613	1.41
1823	1,216,999	(a)	(a)	1867	21,028,557	28,541,784	1.36
1824	1,258,274	(a)	(a)	1868	22,731,333	30,396,449	1.34
1825	1,303,692	(a)	(a)	1869	23,761,693	32,655,792	1.37
1826	1,264,664	(a)	(a)	1870	23,316,237	33,562,157	1.44
1827	1,363,141	(a)	(a)	1871	25,967,043	44,406,769	1.71
1828	1,366,949	(a)	(a)	1872	29,523,775	62,051,626	2.10
1829	1,359,407	(a)	(a)	1873	32,347,911	84,291,331	2.61
1830	1,441,822	(a)	(a)	1874	31,938,683	78,727,722	2.46
1831	1,385,475	(a)	(a)	1875	33,419,399	60,593,030	1.81
1832	1,496,870	(a)	(a)	1876	34,466,249	53,926,569	1.56
1833	1,649,108	(a)	(a)	1877	33,672,025	44,429,781	1.32
1834	1,659,724	(a)	(a)	1878	35,500,168	42,374,855	1.19
1835	1,708,123	(a)	(a)	1879	37,674,648	41,624,488	1.10
1836	1,808,109	(a)	(a)	1880	42,172,944	50,126,862	1.19
1837	2,078,496	\$2,691,884	\$1.29	1881	43,780,545	51,639,903	1.18
1838	2,308,368	3,082,366	1.34	1882	47,097,376	55,388,429	1.18
1839	2,442,632	3,426,963	1.40	1883	50,611,018	60,766,840	1.20
1840	2,550,336	3,535,462	1.39	1884	51,867,646	62,015,996	1.20
1841	2,782,131	3,917,246	1.41	1885	52,879,004	62,565,916	1.18
1842	2,980,186	4,106,914	1.38	1886	52,482,799	61,345,838	1.17
1843	2,833,688	3,805,593	1.34	1887	54,548,283	62,810,246	1.15
1844	3,108,737	4,150,826	1.34	1888	59,475,351	69,476,707	1.17
1845	3,466,530	4,568,560	1.32	1889	61,436,961	79,154,292	1.29
1846	3,662,406	5,033,519	1.37	1890	64,373,816	114,126,675	1.77
1847	3,829,022	5,308,737	1.39	1891	67,528,015	125,479,562	1.86
1848	3,514,116	4,807,248	1.37	1892	65,442,558	112,028,949	1.71
1849	3,639,426	4,916,451	1.35	1893	67,657,944	104,860,106	1.55
1850	4,159,449	5,724,804	1.38	1894	70,643,970	108,069,228	1.53
1851	4,534,113	5,970,231	1.32	1895	72,621,609	114,133,952	1.57
1852	5,157,434	6,350,248	1.23	1896	78,963,333	126,468,563	1.60
1853	5,739,332	7,323,776	1.26	1897	84,253,363	138,673,222	1.65
1854	6,811,355	9,973,408	1.46	1898	89,573,328	152,762,999	1.71
1855	6,841,326	13,745,973	1.69	1899	94,740,329	170,678,799	1.80
1856	8,887,096	15,618,607	1.76	1900	101,966,158	209,023,765	2.05
1857	9,472,425	16,816,045	1.78	1901	101,203,407	222,044,420	2.17
1858	10,417,096	18,319,147	1.76	1902	100,115,115	2206,520,862	2.06
1859	9,720,835	15,611,149	1.61	1903	108,809,384	2219,105,311	2.01
1860	10,666,725	15,334,769	1.44				

<sup>a</sup> Not reported.

<sup>b</sup> These figures do not agree with those for Prussia on page 288, because the figures there shown were given in round numbers in the source quoted.

The next table shows the annual coal production for each Prussian government mine district from 1852 to 1903:

[www.libtool.com.cn](http://www.libtool.com.cn)

PRODUCTION OF COAL IN PRUSSIA, BY MINE DISTRICTS, 1852 TO 1903.

[Source: 1852 to 1890, Mittheilungen aus der Geschichte des königlichen Oberbergamts zu Dortmund, etc., 1892. 1891 to 1903, Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Bände XL-LII. A metric ton=2,204.6 pounds.]

Year.	Quantity of coal produced (metric tons).					Total for Prussia.
	Breslau.	Halle.	Clausthal.	Dortmund.	Bonn.	
1852	1,949,178	30,205	(a)	1,955,937	1,222,334	5,157,654
1853	2,018,784	38,407	(a)	2,186,648	1,495,793	5,739,632
1854	2,227,023	39,384	(a)	2,718,674	1,826,174	6,811,255
1855	2,571,517	41,585	(a)	3,316,523	2,218,201	8,147,826
1856	2,971,930	42,588	(a)	3,575,399	2,267,879	8,857,696
1857	3,148,219	43,007	(a)	3,724,521	2,556,678	9,472,425
1858	3,634,134	45,611	(a)	4,006,370	2,731,280	10,417,295
1859	3,318,777	47,314	(a)	3,888,482	2,466,262	9,720,835
1860	3,484,500	47,933	(a)	4,365,334	2,758,458	10,656,225
1861	3,677,965	50,350	(a)	5,555,067	2,981,204	12,264,586
1862	3,964,981	55,671	(a)	6,242,346	2,825,392	13,068,390
1863	4,421,119	52,971	(a)	6,875,120	2,955,365	14,304,575
1864	4,923,417	65,889	(a)	8,146,433	3,412,006	16,547,745
1865	5,512,760	72,654	(a)	9,276,085	3,730,016	18,592,115
1866	5,359,450	61,524	(a)	9,329,503	3,878,071	18,628,548
1867	5,879,306	64,069	298,226	10,714,185	4,072,871	21,028,557
1868	6,752,226	64,960	302,790	11,443,944	4,167,613	22,731,533
1869	6,966,473	68,228	301,503	12,034,169	4,390,719	23,761,083
1870	7,424,631	71,022	328,979	11,812,529	3,679,075	23,816,237
1871	8,527,229	85,975	376,325	12,715,249	4,259,254	25,967,043
1872	9,371,328	71,789	386,045	14,450,965	5,263,548	29,523,775
1873	10,083,320	52,257	402,855	16,416,571	5,412,368	32,347,911
1874	10,616,011	50,255	406,917	15,539,683	5,325,837	31,938,683
1875	10,444,364	44,885	396,330	16,983,140	5,550,080	33,419,299
1876	10,618,380	42,035	354,742	17,902,412	5,348,680	34,466,249
1877	10,118,565	36,110	319,633	17,723,691	5,474,626	33,672,025
1878	10,381,708	39,234	301,728	19,208,943	5,568,555	35,500,168
1879	11,196,987	33,773	294,145	20,380,421	5,769,322	37,674,648
1880	12,656,764	35,114	358,328	22,495,394	6,627,534	42,172,944
1881	13,110,848	29,657	386,662	23,644,755	6,608,623	43,780,545
1882	13,790,947	29,310	391,134	25,873,332	7,012,653	47,097,376
1883	14,863,833	29,084	414,351	27,863,025	7,440,725	50,611,018
1884	15,387,783	17,751	437,757	28,400,596	7,623,769	51,867,646
1885	15,785,786	23,196	465,893	28,970,323	7,634,306	52,879,004
1886	15,996,326	24,565	470,226	28,497,317	7,494,365	52,482,799
1887	16,187,078	24,884	470,043	30,150,238	7,716,040	54,548,283
1888	17,642,284	25,445	497,995	33,223,614	8,086,713	59,475,351
1889	19,000,875	25,469	572,993	33,855,110	7,982,544	61,436,991
1890	20,075,620	23,121	627,911	35,469,290	8,177,874	64,373,816
1891	21,111,542	22,694	615,474	37,402,994	8,375,811	67,528,015
1892	19,849,242	20,182	558,035	36,853,502	8,160,997	65,442,558
1893	20,705,861	10,416	529,487	38,613,146	7,798,934	67,657,844
1894	20,891,381	7,409	538,075	40,613,073	8,593,141	70,643,979
1895	21,943,540	8,832	549,397	41,145,744	8,974,096	72,621,509
1896	23,678,938	7,761	571,665	44,893,304	9,841,987	78,993,655
1897	24,775,000	9,905	578,969	48,423,687	10,465,532	84,253,093
1898	26,853,260	9,293	596,359	51,001,551	11,112,565	89,573,528
1899	27,959,689	8,241	664,227	54,641,120	11,467,552	94,740,829
1900	29,596,738	12,255	758,279	59,618,000	11,979,986	101,966,158
1901	29,961,123	11,194	681,871	58,447,657	12,101,962	101,203,807
1902	29,055,054	9,882	684,092	58,038,594	12,327,693	100,115,315
1903	30,185,327	8,056	709,615	64,689,594	13,216,792	108,809,384

<sup>a</sup> Prior to 1867 Clausthal was under the Hanoverian government

The next table shows the quantity and value of the lignite output in Prussia since 1837:

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QUANTITY AND VALUE OF LIGNITE PRODUCED IN PRUSSIA, 1837 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände I-LII. The value per metric ton was computed. The quantity was reported in "tonnen" for the years 1837 to 1856. "Tonnen" were reduced to metric tons on the basis 6 $\frac{2}{3}$  tonnen=1 metric ton. From 1860 to 1879 the quantity was reported in "centner," which were reduced on the basis 20 centner=1 metric ton. For bases for conversion of money values see note to table on page 289. A metric ton=2,204.6 pounds.]

Year.	Product (metric tons).	Value of product.		Year.	Product (metric tons).	Value of product.	
		Total.	Per met-ric ton.			Total.	Per met-ric ton.
1837	391,895	\$202,177	\$0.52	1871	6,876,245	\$5,078,164	\$0.74
1838	460,450	239,900	.52	1872	7,449,637	5,117,495	.69
1839	457,059	255,244	.52	1873	7,987,832	6,029,639	.83
1840	521,400	269,413	.52	1874	8,716,649	7,342,497	.84
1841	558,549	308,795	.55	1875	8,340,359	7,036,570	.84
1842	664,747	346,269	.52	1876	8,985,122	7,496,031	.83
1843	618,427	311,511	.50	1877	8,636,398	6,972,774	.81
1844	712,051	365,818	.51	1878	8,841,366	6,661,881	.75
1845	882,641	485,327	.55	1879	9,278,354	6,853,307	.74
1846	958,985	519,238	.54	1880	9,874,888	7,179,452	.73
1847	1,084,979	607,180	.56	1881	10,412,153	7,442,020	.71
1848	1,217,753	687,146	.56	1882	10,798,091	7,637,632	.65
1849	1,315,953	759,975	.57	1883	11,826,030	7,558,773	.64
1850	1,325,966	754,811	.57	1884	12,055,697	7,599,498	.63
1851	1,506,479	880,796	.58	1885	12,387,284	7,704,332	.62
1852	1,764,202	1,099,327	.62	1886	12,565,405	7,618,799	.61
1853	1,830,103	1,152,741	.63	1887	12,696,487	7,585,387	.60
1854	1,885,028	1,190,046	.63	1888	13,207,888	7,653,925	.58
1855	2,066,157	1,324,214	.64	1889	14,205,047	8,408,496	.59
1856	2,333,443	1,549,080	.66	1890	15,468,434	9,489,558	.61
1857	2,736,663	1,880,119	.69	1891	16,739,984	10,369,599	.62
1858	2,908,352	2,095,156	.72	1892	17,219,033	11,341,207	.66
1859	3,052,446	2,114,489	.69	1893	17,553,482	10,579,853	.60
1860	3,153,294	2,139,738	.68	1894	17,791,062	10,008,294	.56
1861	3,320,574	2,188,078	.66	1895	20,114,877	10,974,515	.55
1862	3,807,050	2,428,936	.64	1896	21,981,201	11,610,012	.53
1863	4,026,204	2,658,408	.66	1897	24,222,911	12,684,681	.52
1864	4,649,521	3,099,137	.67	1898	26,035,814	14,072,365	.54
1865	5,021,446	3,452,264	.69	1899	28,418,598	15,114,439	.53
1866	4,900,432	3,556,072	.73	1900	34,007,542	19,101,386	.56
1867	5,513,878	3,815,243	.69	1901	37,491,412	21,521,467	.57
1868	5,602,323	3,766,196	.67	1902	36,228,285	21,967,033	.55
1869	6,014,688	4,027,022	.67	1903	38,462,766	20,782,375	.54
1870	6,116,521	4,213,562	.69				

<sup>a</sup> These figures do not agree with those for Prussia on page 288, because the figures there shown were given in round numbers in the source quoted.

The following table shows the lignite production for each Prussian mine district from 1861 to 1903:

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PRODUCTION OF LIGNITE IN PRUSSIA, BY MINE DISTRICTS, 1861 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XXIX-LII. The quantity was reported in "centner" from 1861 to 1879, which were reduced to metric tons on the basis 20 centner=1 metric ton. A metric ton=2,204.6 pounds.]

Year.	Quantity of lignite produced (metric tons).					
	Breslau.	Halle.	Clausthal.	Dortmund.	Bonn.	Total for Prussia.
1861.....	135,051	2,960,82	(a)	1,211	203,430	3,320,574
1862.....	171,209	3,429,08	(a)	1,117	204,816	3,807,050
1863.....	188,807	3,645,90	(a)	1,631	190,576	4,026,204
1864.....	223,172	4,258,18	(a)	1,344	166,887	4,649,521
1865.....	269,519	4,597,75	(a)	1,391	152,761	5,021,446
1866.....	242,404	4,489,87	(a)	992	167,549	4,900,432
1867.....	266,557	4,894,71	161,056	203	191,299	5,513,878
1868.....	325,999	4,901,90	172,939	.....	201,445	5,602,323
1869.....	368,317	5,287,50	178,045	.....	180,776	6,014,888
1870.....	372,678	5,398,11	177,942	.....	167,590	6,116,521
1871.....	397,304	6,122,97	185,072	41	171,131	6,876,245
1872.....	418,638	6,677,40	169,541	127	183,791	7,449,637
1873.....	436,238	7,204,618	174,386	.....	172,590	7,987,832
1874.....	460,021	7,868,70	187,718	.....	200,040	8,716,649
1875.....	457,829	7,522,21	170,701	.....	189,308	8,340,259
1876.....	462,502	8,228,64	151,461	.....	143,096	8,985,122
1877.....	438,559	7,925,136	128,797	.....	144,106	8,636,598
1878.....	444,254	8,123,61	126,714	.....	146,737	8,841,366
1879.....	452,874	8,543,72	129,824	.....	151,784	9,278,354
1880.....	446,526	9,131,89	136,991	.....	159,582	9,874,888
1881.....	462,983	9,576,146	149,980	.....	223,044	10,412,153
1882.....	434,457	10,004,95	151,474	.....	207,565	10,798,091
1883.....	437,193	10,968,86	166,626	.....	254,225	11,826,630
1884.....	415,067	11,138,08	181,363	.....	320,559	12,055,697
1885.....	416,218	11,424,89	186,284	.....	360,293	12,387,284
1886.....	382,768	11,578,35	184,282	.....	419,420	12,565,405
1887.....	391,184	11,648,27	202,155	.....	454,621	12,696,487
1888.....	454,802	12,045,02	203,739	.....	503,645	13,207,888
1889.....	486,523	12,862,27	226,753	.....	629,044	14,205,047
1890.....	448,489	14,077,82	280,973	.....	661,590	15,468,434
1891.....	466,346	15,070,66	324,496	.....	878,276	16,739,984
1892.....	485,422	15,523,15	313,392	.....	897,004	17,219,033
1893.....	471,051	15,715,12	309,942	.....	1,057,277	17,553,482
1894.....	478,328	15,729,134	326,105	.....	1,266,495	17,791,062
1895.....	475,867	17,565,57	392,169	.....	1,681,584	20,114,677
1896.....	507,904	19,062,92	418,987	.....	1,991,818	21,981,201
1897.....	537,427	20,951,85	445,556	.....	2,288,643	24,222,911
1898.....	602,547	22,249,81	442,603	.....	2,741,383	26,035,814
1899.....	644,333	23,373,53	444,736	.....	3,956,176	28,418,568
1900.....	868,983	27,407,04	534,663	.....	5,196,892	34,007,542
1901.....	945,359	29,657,93	650,045	.....	6,238,515	37,491,412
1902.....	928,963	29,233,36	604,013	.....	5,461,373	36,228,285
1903.....	938,365	30,845,490	632,414	.....	6,046,497	38,462,766

a Prior to 1867 Clausthal was under the Hanoverian Government.

An interesting account is given of the condition of the coal industry during recent years in an article on "Production and distribution of coal in Germany during the years 1891 to 1900," published in Vierteljahrshefte zur Statistik des Deutschen Reichs, 1901, Part I, page 148. The following is an extract from this article:

At the beginning of the period under consideration [1891 to 1900] conditions were favorable to German coal mining, and the mines were in a position to increase their output largely, since there was not only a great demand for domestic use, but other consumers and dealers endeavored to lay in new supplies in place of the completely exhausted stock. But the subsequent reaction in the iron industry and the decreased activity in the industries correlative to agriculture (sugar



refineries, distilleries, etc.) resulting from poor crops had an unfavorable effect upon the consumption of coal, and toward the end of 1891 production had to be materially restricted. Nevertheless, at the beginning of the year 1892 a considerable stock of coal had accumulated, and as the demand continued dull the mines were compelled still further to restrict their production. Toward the end of the year, however, the good crops and cold weather caused a better demand for coal, and this demand was still further increased by a strike of 20,000 miners in the Saar district during the month of December and by the prospect of a combination of the mine operators in the Ruhr (Rhenish Westphalian) district. This combination was effected about the middle of February, 1893, under the name of "Rheinisch-Westphälisches Kohlsyndikat," for the purpose of regulating the production and sale of coal in such a manner as to secure fair prices and to prevent violent fluctuations of the same. The strike, which had partly extended from the Saar district to the Rhenish-Westphalian territory, came to an end in February. In March, the demand for coal slackened again, because warm weather set in earlier than usual and industrial consumption remained comparatively dull. In addition to this, competition from England became quite perceptible. Besides, transportation on the German rivers was interfered with by the low stage of the water owing to the continued drought. In the latter part of the year 1893 the coal miners' strike in England, which had begun in July, and which continued several months, and the strikes in northern France and in Belgium resulted in a more stable market for coal and in an increased demand, especially in the Westphalian market, both for domestic use and for foreign export. The losses which had been sustained by the German coal industry in 1892, in comparison with 1891, could therefore be recovered in the year 1893. During the first half of the year 1894 the mines were, in many cases, again compelled to restrict their output owing to the preceding mild winter and to the strong competition of English coal, which again became quite noticeable soon after the close of the great strike of the coal miners in England. But about the middle of the year, after the commercial treaty with Russia went into effect, a strong demand for coal set in by manufacturers, the railroads, and the navy, and the mining industry again became brisk. However, during the first half of the year 1895 the market for coal was less satisfactory, and its production had to be restricted by suspension of many shifts. On the other hand, the demand again increased during the second half of the year in consequence of increased activity in all industrial branches, and the mines could be worked to their full capacity. This favorable condition continued during the year 1896, and while the production was but very slightly restricted during the summer months, the supply was barely equal to the demand during the second half of the year. The consequence was an unusual increase in the output in comparison with previous years. Throughout 1897 the conditions were almost equally favorable; the mines could, with few exceptions, develop their capacity to their full extent, their operations having been interrupted only occasionally by lack of sufficient labor, by congestion in transportation, or by severe storms, which flooded some of the mines in Lower Silesia and in the Zwickau coal district. During the first few months of 1898 the market became somewhat dull owing to the very mild winter, but it quickly grew strong again and the

demand became exceedingly active. This demand was caused partly by the strike of the coal miners in Wales in the month of April, also by the Spanish-American war, which caused an extraordinary demand for coal for ships, but it was mainly the demand from domestic manufacturing industries which stimulated the production of the German coal mines. During the year 1899 the demand upon the German coal mines was still further promoted by the extremely brisk industrial activity and by the heavy shipping and railroad traffic, the mines seeking to meet this demand by an increased output, which, however, was frequently checked by want of sufficient labor. In consequence of a continuously severe winter and exceedingly heavy business requirements, the demand for coal at the beginning of 1900 was extraordinarily great, while the German mines, owing to continuous lack of sufficient labor, were unable to increase their production correspondingly. The importation of English coal [into Germany] at this period remained proportionately small, because the British navy required a large supply of coal on account of the war in South Africa, and because the production of the English mines was very much restricted through lack of mine laborers, many of whom had enlisted for the war. In addition to this, a strike of over two months' duration broke out in the Moravian coal district in January, which extended to the coal mines of Saxony. This concurrence of unfavorable circumstances made it very difficult to satisfy the demand for coal, which was also strongly felt in foreign countries, especially in Austria and in Russia. Advanced bids in prices soon succeeded in again procuring coal from England, notwithstanding the scarcity which prevailed there, but the falling off in imports of Bohemian lignite during the year could not be made up. The summer months brought no abatement in the demand, because the manufacturers made an effort to lay in supplies of coal, and, in consequence of the Chinese complications, considerable quantities of coal were required for ships. When in the fall the requirements for domestic use became a factor, it became very difficult to satisfy the demand. Notwithstanding the unsatisfactory labor situation, the German coal and lignite mines, by strenuous efforts, succeeded in increasing their output to such an extent that at the end of the year [1900] there was no danger of a real shortage in the coal supply.

The statistics of imports and exports of coal are not given for the entire Empire, as are the statistics of production, etc., but only for the countries included in the German customs territory. The difference, however, is not sufficient to affect the comparative value of the figures given.

It is not possible to give an accurate presentation of the home consumption of coal, since in order to do so it would be necessary to ascertain the actual quantity of coal used in the production of the coke and other manufactured fuel which is exported and imported. These figures are not given in any of the published official reports.

Germany exports more than twice the quantity of coal that she imports. This relation between exports and imports has remained about the same during the past 15 years. From 1878 to 1887 the excess of exports over imports was much greater, the exports in



some years being nearly four times as great as the imports. Both the imports and exports have increased almost steadily during the past 25 years.

The amount of lignite exported (22,499 metric tons in 1903) is insignificant when compared with the quantity imported. Both the exports and imports, however, have increased very materially during the period from 1878 to 1903. The following table shows the quantity and value of coal and lignite imported into and exported from the German customs territory from 1878 to 1903:

QUANTITY AND VALUE OF COAL AND OF LIGNITE IMPORTED INTO AND EXPORTED FROM THE GERMAN CUSTOMS TERRITORY, 1878 TO 1903.

[Source: 1878 to 1890, Statistisches Jahrbuch für das Deutsche Reich, Jahrg. I-IV; 1891 to 1903, Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. X-XIII. Conversion of German into United States money was made on the basis of 1 mark=\$0.238. The German customs territory includes the Grand Duchy of Luxemburg and a few Austrian districts, but excludes the Hamburg free port and a few German districts. A metric ton=2,204.6 pounds.]

Year.	Coal.				Lignite.			
	Imported.		Exported.		Imported.		Exported.	
	Quantity (metric tons).	Value.	Quantity (metric tons).	Value.	Quantity (metric tons).	Value.	Quantity (metric tons).	Value.
1878.....	1,930,899	(c)	5,825,340	(a)	2,596,735	(a)	6,271	(b)
1879.....	1,893,747	(c)	6,012,033	(a)	2,859,325	(a)	7,706	(b)
1880.....	2,058,768	\$6,124,530	7,236,466	\$11,194,806	3,081,369	\$2,419,984	(c)	(b)
1881.....	1,953,132	5,810,532	7,458,248	12,425,504	3,064,080	2,916,928	(c)	(b)
1882.....	2,090,022	5,721,996	7,631,017	13,622,406	3,020,984	2,875,992	(c)	(b)
1883.....	2,181,182	5,450,076	8,705,000	18,646,110	3,319,944	3,160,640	(c)	(b)
1884.....	2,296,777	5,733,008	8,816,935	18,885,776	3,466,322	3,299,870	(c)	(b)
1885.....	2,375,005	6,440,230	8,955,029	19,183,038	3,647,777	3,212,286	(c)	14,122
1886.....	2,560,291	6,702,794	8,665,240	18,951,464	4,084,930	3,697,132	(c)	15,856
1887.....	2,674,739	7,002,436	8,781,377	19,018,818	4,424,327	3,896,060	(c)	16,443
1888.....	3,252,009	8,824,326	9,460,258	22,290,366	5,211,668	4,589,354	(c)	17,239
1889.....	4,556,559	15,154,888	8,847,202	22,711,626	5,650,300	4,706,688	(c)	14,170
1890.....	4,164,338	15,120,616	9,145,187	27,508,516	6,506,404	6,194,188	(c)	17,285
1891.....	5,032,226	18,296,964	9,536,374	28,523,110	6,805,586	6,478,836	(c)	\$18,564
1892.....	4,436,883	14,156,240	8,971,055	23,775,486	6,701,309	6,060,670	(c)	17,612
1893.....	4,664,048	14,207,648	9,677,005	24,896,466	6,705,672	6,064,716	(c)	22,757
1894.....	4,805,071	14,352,828	9,739,035	24,084,172	6,868,162	5,884,550	(c)	20,444
1895.....	5,117,356	15,056,594	10,360,338	25,456,480	7,181,050	9,400,048	(c)	18,814
1896.....	5,476,753	14,543,704	11,598,757	29,005,774	7,637,503	10,724,518	(c)	15,703
1897.....	6,072,029	15,837,710	12,389,007	31,761,100	8,111,076	12,161,800	(c)	19,112
1898.....	5,820,332	16,410,100	13,989,223	38,009,076	8,450,149	13,273,498	(c)	22,155
1899.....	6,220,489	20,325,438	13,943,174	42,884,030	8,616,751	14,355,446	(c)	20,925
1900.....	7,384,049	32,101,440	15,275,005	51,631,344	7,960,313	16,103,794	(c)	52,795
1901.....	6,297,389	22,019,284	15,266,267	49,904,316	8,108,943	17,948,294	(c)	21,718
1902.....	6,425,658	21,403,816	16,101,141	49,714,630	7,882,010	15,007,328	(c)	21,766
1903.....	6,766,513	22,448,398	17,389,034	52,207,680	7,962,123	13,643,826	(c)	22,499

a No continuous statistics of value were issued prior to 1880.

b No continuous statistics of value were issued prior to 1891.

c Not reported

The following table shows the quantity and value of exports and imports of coke for the German customs territory from 1878 to 1903:

QUANTITY AND VALUE OF COKE IMPORTED INTO AND EXPORTED FROM THE GERMAN CUSTOMS TERRITORY, 1878 TO 1903.

[Source: 1878 to 1890, Statistisches Jahrbuch für das Deutsche Reich, Jahrg. I-IV; 1891 to 1903, Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. X-XIII. Conversion of German into United-States money was made on the basis of 1 mark=\$0.238. The German customs territory includes the Grand Duchy of Luxemburg and a few Austrian districts, but excludes the Hamburg free port and a few German districts. A metric ton=2,204.6 pounds.]

Year.	Imported.		Exported.	
	Quantity (metric tons).	Value.	Quantity (metric tons).	Value.
1878	228,308	(a)	270,857	(a)
1879	233,662	(a)	256,225	(a)
1880	228,307	\$651,644	348,804	\$1,328,040
1881	170,308	567,392	430,272	1,740,732
1882	201,323	766,598	478,351	1,935,416
1883	166,309	534,310	602,138	2,221,254
1884	123,190	322,490	670,606	2,074,884
1885	151,124	420,784	633,897	1,885,912
1886	250,307	714,952	640,280	1,859,018
1887	236,739	704,242	724,763	2,242,436
1888	268,635	1,054,816	917,904	3,429,818
1889	385,703	1,761,914	812,570	3,565,954
1890	351,258	1,872,346	1,074,755	5,928,342
1891	318,798	1,647,436	1,354,298	6,795,614
1892	465,736	2,043,468	1,717,893	6,945,078
1893	439,182	1,641,486	1,902,424	6,961,500
1894	404,179	1,346,604	2,261,924	8,453,998
1895	461,779	1,601,502	2,293,328	8,466,612
1896	393,831	1,538,670	2,216,395	8,570,142
1897	435,161	1,848,070	2,161,886	8,719,130
1898	332,579	1,596,980	2,133,179	9,708,258
1899	462,577	2,463,538	2,137,985	10,938,956
1900	512,690	3,071,390	2,229,188	13,273,022
1901	400,197	2,168,656	2,096,931	12,556,166
1902	362,498	1,717,646	2,182,383	10,896,830
1903	432,819	1,983,254	2,523,351	12,526,892

a No continuous statistics of value were issued prior to 1880.

German coal is mostly exported to the neighboring countries of Austria-Hungary, the Netherlands, Belgium, and Switzerland, over four-fifths of the total exports being to these four countries. This is shown in the following table, which gives the amount of coal exported from the German customs territory to various coal-consuming countries from 1884 to 1903:

## EXPORTS OF COAL FROM THE GERMAN CUSTOMS TERRITORY TO VARIOUS COAL-CONSUMING COUNTRIES, 1884 TO 1903.

[Source: Statistisches Jahrbuch für das Deutsche Reich, Jahrg. VII-XXV. The German customs territory includes the Grand Duchy of Luxemburg and a few Austrian districts, but excludes the Hamburg free port and a few German districts. A metric ton=2,204.6 pounds.]

Year.	Quantity (metric tons) of coal exported to—								Total ex-ports of coal (metric tons).
	Austria-Hungary.	Belgium.	France.	Italy.	Nether-lands.	Russia.	Switzer-land.	Other countries.	
1884.....	2,382,613	786,590	1,223,152	68,519	2,776,005	323,016	573,461	683,579	8,816,936
1885.....	2,484,665	741,536	1,129,340	59,208	2,947,367	312,235	600,512	680,766	9,955,629
1886.....	2,608,879	497,987	986,945	42,316	2,962,208	319,191	584,996	652,718	8,655,240
1887.....	2,691,987	510,360	903,061	53,149	3,088,955	208,442	629,142	696,261	8,781,377
1888.....	3,004,321	554,391	810,707	70,872	3,531,594	185,200	610,481	692,692	9,460,258
1889.....	3,098,302	374,267	679,141	127,653	3,128,079	174,543	616,389	648,828	8,847,202
1890.....	3,296,239	752,493	714,189	85,879	3,034,726	151,758	622,685	487,218	9,145,187
1891.....	3,651,640	701,138	639,707	62,076	3,361,732	134,246	660,693	325,142	9,536,374
1892.....	3,231,196	696,169	590,939	45,279	3,313,256	117,100	632,430	344,686	8,971,055
1893.....	3,663,596	713,113	674,389	46,444	3,481,941	130,156	646,596	321,070	9,677,306
1894.....	3,822,539	709,851	636,368	48,702	3,429,825	187,991	691,330	212,429	9,739,035
1895.....	4,380,396	782,723	577,419	21,532	3,457,397	199,135	749,843	192,393	10,360,838
1896.....	5,136,668	929,649	629,501	16,415	3,525,561	258,805	838,292	263,866	11,598,757
1897.....	4,942,869	1,054,003	650,671	17,627	3,558,186	333,973	875,845	956,733	12,389,907
1898.....	5,466,125	1,316,875	686,966	98,381	3,724,580	463,334	998,861	1,234,121	13,989,223
1899.....	5,134,866	1,527,577	731,402	21,062	3,595,859	690,024	1,065,986	1,176,398	13,943,174
1900.....	6,004,061	1,619,176	803,860	20,578	3,681,512	844,455	1,145,419	1,156,744	15,275,805
1901.....	5,671,173	1,761,791	796,987	31,858	4,025,661	838,950	1,028,599	1,111,248	15,266,267
1902.....	5,604,497	2,217,419	980,867	37,479	4,540,955	579,238	1,019,704	1,120,982	16,101,141
1903.....	5,658,974	2,409,112	1,073,043	62,285	5,180,531	605,279	1,085,793	1,314,917	17,389,934

Although large quantities of coal are produced in Austria and Belgium, they are not sufficient to supply the highly developed industries of those countries. The Netherlands produces coal on a small scale only and is therefore practically dependent for coal supply upon the adjacent countries. From 1884 to 1903 the exports of coal from Germany to Austria-Hungary showed an increase of 137.5 per cent; exports to Belgium increased 206.3 per cent, and to the Netherlands, 86.6 per cent. Switzerland has to depend entirely upon other countries for coal supply and naturally obtains the greater part of it from Germany. From 1884 to 1903 the exports to Switzerland increased 89.3 per cent. There are also considerable exports of German coal to France, which, as well as the exports to Italy (mostly by the St. Gothard road), have fluctuated considerably. Exports to Russia, including Finland, have very materially increased since 1892. Previous to that year there appears to have been a steady decline since 1884, the first year for which statistics were available. There has also been a large increase in the exports of coal to German free ports, not only for local consumption, but especially to meet the demand for coal for vessels.

The German coal imports are nearly all from Great Britain, 5,393,828 out of a total of 6,766,513 metric tons imported in 1903 being from that country. Other leading countries from which Germany imports coal are Austria-Hungary and Belgium, but these imports are more in the nature of an exchange between border districts than a supply for the interior demand. Almost the entire lignite imports of Germany are obtained from Austria-Hungary.

The following table shows the quantity of coal imported into the German customs territory from each of the leading countries from 1884 to 1903: [libtool.com.cn](http://libtool.com.cn)

QUANTITY OF COAL IMPORTED INTO THE GERMAN CUSTOMS TERRITORY, BY COUNTRIES, 1884 TO 1903.

[Source: Statistisches Jahrbuch für das Deutsche Reich, Jahrg. VII-XXV. The German customs territory includes the Grand Duchy of Luxemburg and a few Austrian districts, but excludes the Hamburg free port and a few German districts. A metric ton = 2,204.6 pounds.]

Year.	Quantity (metric tons) of coal imported from—					Total imports of coal (metric tons).
	Austria-Hungary.	Belgium.	Great Britain.	Netherlands.	Other countries.	
1884	315,258	57,241	1,519,067	32,640	372,571	2,296,777
1885	362,914	55,719	1,515,819	28,439	413,014	2,375,905
1886	416,368	75,955	1,639,914	19,726	408,328	2,560,291
1887	495,346	171,655	1,555,906	38,386	414,346	2,674,739
1888	602,880	217,875	1,913,396	34,697	483,361	3,252,409
1889	600,698	395,496	3,405,467	40,339	114,359	4,556,559
1890	532,625	328,740	3,211,363	35,566	56,244	4,164,538
1891	549,130	400,481	4,000,979	39,292	42,944	5,032,826
1892	518,035	343,281	3,492,374	38,628	44,665	4,436,983
1893	561,121	452,924	3,568,374	38,009	53,120	4,664,048
1894	557,214	451,643	3,705,997	36,861	54,656	4,805,971
1895	554,421	507,943	3,972,664	43,915	38,413	5,117,356
1896	560,855	507,333	4,307,463	73,336	27,566	5,476,753
1897	589,791	560,497	4,808,901	85,872	26,868	6,072,029
1898	628,088	549,492	4,506,163	114,871	21,518	5,820,332
1899	618,720	596,476	4,873,555	116,836	14,902	6,220,489
1900	556,021	616,824	6,063,316	180,444	17,444	7,394,049
1901	464,130	457,623	5,205,664	127,108	22,864	6,297,389
1902	542,312	496,683	5,192,147	171,755	23,361	6,425,658
1903	613,758	535,401	5,393,328	202,433	21,093	6,766,513

## EMPLOYEES.

In the German official mine reports three different classes of figures are used to represent the number of persons employed in coal and in lignite mines. Those reproduced here, in connection with production and those showing employment above and below ground, represent the average number of employees at work per day in all coal and lignite mines either in actual operation or in the course of preparation for mining, including both wageworkers and salaried persons. The statistics used in connection with wages, hours of labor, etc., show the average number of wageworkers actually employed, including those temporarily absent on account of sickness or for other reasons, but exclusive of salaried persons. The statistics of mine accidents in Prussia are for mines which come under the supervision of the Prussian mine authorities, and hence the number of employees shown in connection therewith, which include both wageworkers and salaried persons, does not agree with the number in the first-mentioned class. This accounts for the seeming discrepancies between the various tables in this chapter.

In the year 1903 there were 470,305 persons employed as wageworkers and salaried employees in coal mines and 52,518 in lignite

mines in the German Empire. This is an increase in 32 years of 190 per cent in the case of coal mine employees and of 115.7 per cent in the case of lignite mine employees. During the 32 years from 1872 to 1903 the annual production of coal per employee increased from 205 to 248 metric tons, and that of lignite from 370 to 872 metric tons. The following table shows the average number of employees and the annual production per employee in the coal and lignite mines in the German Empire from 1872 to 1903:

AVERAGE NUMBER OF EMPLOYEES AND ANNUAL PRODUCT PER EMPLOYEE IN THE COAL AND LIGNITE MINES IN THE GERMAN EMPIRE, 1872 TO 1903.

[Source: 1872 to 1892, Statistisches Jahrbuch für das Deutsche Reich, Jahrg. IX-XV; 1893 to 1903, Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I, X-XIII. Figures include salaried employees. The product per employee was computed. A metric ton = 2,204.6 pounds.]

Year.	Coal mines.		Lignite mines.		Year.	Coal mines.		Lignite mines.	
	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).		Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).
1872.....	162, 172	205	24, 352	370	1888.....	225, 452	290	29, 630	559
1873.....	178, 867	203	25, 249	396	1889.....	239, 954	281	31, 140	566
1874.....	185, 504	194	25, 718	418	1890.....	262, 475	268	33, 161	575
1875.....	183, 823	204	25, 289	410	1891.....	283, 227	260	35, 682	576
1876.....	182, 428	211	25, 651	433	1892.....	289, 415	247	37, 480	565
1877.....	168, 761	222	24, 418	438	1893.....	290, 632	254	36, 586	590
1878.....	168, 068	236	23, 969	458	1894.....	299, 627	256	35, 620	619
1879.....	170, 509	246	24, 150	474	1895.....	303, 937	260	37, 476	661
1880.....	178, 799	263	25, 358	479	1896.....	316, 513	271	38, 195	701
1881.....	186, 335	261	25, 563	503	1897.....	336, 174	271	40, 057	734
1882.....	195, 958	266	25, 546	519	1898.....	357, 695	269	42, 812	739
1883.....	207, 577	270	26, 824	541	1899.....	378, 575	268	44, 745	764
1884.....	214, 728	267	27, 422	543	1900.....	413, 663	264	50, 911	795
1885.....	218, 725	267	28, 186	545	1901.....	448, 000	242	58, 537	760
1886.....	217, 581	267	29, 668	527	1902.....	451, 187	238	53, 740	802
1887.....	217, 357	278	29, 408	541	1903.....	470, 305	248	52, 518	872

Statistics of mine employees and their efficiency in each of the different coal fields of Germany have been officially published for the twenty-year period from 1881 to 1900. These show in all but one of the smaller districts a steady increase in the number of employees. The average production per employee in 1900 varies greatly in the different localities, ranging from 187 metric tons in Upper Bavaria, Ilm, and Frankenwald to 353 metric tons in Upper Silesia. In three of the eight German fields the production per employee has increased almost steadily; in three, including the Rhenish Westphalian field, there is a tendency to decrease, while in the others the production per employee shows no marked tendency either way. The decline which is noticeable in nearly every district during the few years following 1889 is said to have been caused mainly by a reduction in the hours of labor per shift in the years 1889 to 1891. The decline in most of the districts during the last three years is attributed to the employment of a large number of unskilled laborers. The following table shows the number of persons employed

and the production per employee in each of eight principal coal fields and in the German Empire as a whole from 1881 to 1900:

[www.libtool.com.cn](http://www.libtool.com.cn)

AVERAGE NUMBER OF EMPLOYEES AND ANNUAL PRODUCT PER EMPLOYEE IN COAL MINES IN THE GERMAN EMPIRE, BY COAL FIELDS, 1881 TO 1900.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I, X.. Figures include salaried employees. The product per employee was computed. A metric ton = 2,204.6 pounds.]

Year.	Upper Silesia.		Lower Silesia.		Saxony.		Wettin, Löbejün, Southern Hartz, Ibbenbüren, and North Germany.		Upper Bavaria, Ilm, and Frankenthal.	
	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).
1881	33,554	310	12,469	217	16,946	219	5,853	135	1,980	174
1882	35,416	307	12,797	227	17,042	223	5,912	138	2,037	167
1883	36,269	325	13,660	224	17,239	237	6,167	140	1,794	186
1884	38,021	325	14,083	216	17,756	233	6,148	142	1,848	188
1885	40,258	319	14,004	210	18,064	230	6,300	141	2,061	184
1886	40,925	318	13,790	216	18,495	230	6,097	143	2,191	187
1887	40,951	320	14,005	221	18,650	230	6,149	146	2,407	192
1888	41,901	345	14,436	221	19,069	229	6,220	154	2,594	196
1889	44,244	356	14,919	218	19,166	221	5,749	174	2,694	204
1890	49,453	341	16,379	196	19,682	211	5,732	180	2,859	193
1891	54,752	324	17,244	196	21,258	205	6,018	172	3,133	183
1892	55,225	298	17,903	191	21,240	198	6,193	154	3,179	172
1893	54,312	315	17,828	202	21,267	201	6,119	148	3,111	182
1894	53,656	321	17,906	206	21,177	195	5,814	152	2,959	182
1895	53,760	336	18,481	210	21,335	208	5,807	155	3,109	186
1896	56,004	350	19,069	213	21,651	210	5,852	163	3,243	187
1897	57,852	357	19,553	212	22,014	208	6,034	162	3,460	181
1898	60,327	373	20,322	215	21,963	202	5,854	148	3,542	186
1899	63,629	399	21,277	211	22,471	202	5,190	186	3,579	185
1900	70,271	353	22,987	207	23,473	204	5,633	205	3,772	187

Year.	Rhenish Westphalia.		Inde and Worm.		Saar, Rhenish Bavaria, and Baden.		German Empire.	
	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).
1881	82,239	287	5,917	203	27,377	217	186,335	261
1882	88,718	290	6,124	207	27,912	227	196,958	266
1883	96,845	286	6,459	198	29,144	233	207,577	270
1884	99,874	283	6,453	189	30,545	230	214,728	267
1885	100,557	287	6,545	187	30,936	227	218,725	267
1886	98,796	288	6,595	193	30,692	222	217,581	267
1887	96,463	306	6,391	207	30,341	234	217,357	278
1888	104,337	318	6,335	221	30,500	241	225,452	280
1889	115,018	294	6,187	228	31,977	228	239,954	281
1890	127,534	278	6,609	225	34,227	217	262,475	268
1891	138,467	271	6,987	212	35,368	217	283,227	260
1892	141,997	260	6,963	202	36,715	203	289,415	247
1893	146,193	265	7,038	204	34,764	209	290,632	254
1894	152,597	267	6,947	220	38,571	206	299,627	256
1895	154,786	267	7,239	222	39,410	214	303,937	260
1896	161,965	278	7,379	226	41,350	223	316,513	271
1897	176,192	275	7,779	227	43,290	227	336,174	271
1898	192,235	267	8,019	225	45,433	229	357,665	269
1899	206,616	267	7,964	222	47,849	223	378,575	268
1900	228,693	263	7,989	222	50,847	219	413,665	264

\* These figures do not agree with those in the table on page 299, but they are reproduced as found in the source quoted. It is probable they were preliminary at the time the original data were compiled.



The following table gives the same kind of information regarding the State coal mines in the German Empire:

[www.libtool.com.cn](http://www.libtool.com.cn)

AVERAGE NUMBER OF EMPLOYEES AND ANNUAL PRODUCT PER EMPLOYEE IN STATE COAL MINES IN THE GERMAN EMPIRE, BY COAL FIELDS, 1881 TO 1900.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I, X. The product per employee was computed. Figures include salaried employees. A metric ton=2,204.6 pounds.]

Year.	Upper Silesia.		Saxony.		Wettin, Löbejün, Southern Hartz, Ibbenbüren and North Germany.		Saar, Rhenish Bavaria, and Baden.		German Empire. (e)	
	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).
1881..	6,624	357	1,204	192	3,580	138	23,216	228	35,766	239
1882..	7,084	351	1,154	205	3,701	141	23,733	238	36,900	246
1883..	7,630	366	1,118	222	3,872	142	24,997	243	38,709	254
1884..	7,781	365	1,099	214	3,975	144	26,285	238	40,128	250
1885..	9,168	362	1,090	230	3,820	151	26,301	237	41,350	255
1886..	8,930	351	1,125	242	3,796	145	25,787	232	40,618	248
1887..	9,193	334	1,199	239	3,814	146	25,302	243	40,490	253
1888..	9,265	360	1,166	239	3,855	154	25,595	251	40,877	266
1889..	9,992	351	1,175	238	3,694	176	27,011	233	42,995	255
1890..	11,786	322	1,580	238	3,651	185	28,830	222	46,468	244
1891..	12,842	301	1,193	245	4,440	178	29,443	223	48,360	239
1892..	12,929	283	1,191	237	4,457	154	30,680	209	49,723	223
1893..	12,413	314	1,145	220	4,293	145	28,421	213	46,761	233
1894..	12,060	330	1,100	225	4,035	148	31,850	212	49,585	235
1895..	12,025	335	1,106	236	3,910	144	32,269	219	49,907	240
1896..	12,918	354	1,129	233	3,906	151	34,207	230	52,806	253
1897..	13,543	351	1,150	221	4,018	153	36,189	233	55,527	255
1898..	13,960	365	1,169	222	4,174	157	38,002	236	57,010	260
1899..	14,432	354	1,158	213	4,285	187	40,239	230	60,994	254
1900..	14,800	358	1,251	242	4,489	216	42,414	227	63,665	256

\* Including persons employed in 5 mines from 1881 to 1883, in 4 mines in 1884, in 3 mines from 1885 to 1890, and in 1 mine from 1891 to 1900, the figures for which were not reported separately by coal fields.

It will be observed that for Germany as a whole in each year of the period the production per employee in the State mines is smaller than that in both private and Government mines taken collectively. This, however, is probably accounted for by the fact that the Government owns no mines in the Rhenish Westphalian coal fields, where the labor efficiency is greater than in any other except the Upper Silesian fields, and where over one-half of the entire output is produced. In those coal fields where the Government owns mines the production per employee in the Government mines is as great as or greater than it is in those under private control. The number of persons employed in lignite production in the German Empire is shown by States and provinces from 1891 to 1900. There is a great diversity in the efficiency of lignite mine employees in the different States owing to the difference in the conditions under which lignite can be mined. Thus, while the annual production per employee in Bavaria ranged from 103 to 236 metric tons during the 10-year period, in the Duchy of Anhalt it ranged from 682 to 964 metric tons. There is a general upward movement in the lignite product

per employee in most of the States and provinces, as well as in the number of persons employed. This is shown in the following table:

AVERAGE NUMBER OF EMPLOYEES AND ANNUAL PRODUCT PER EMPLOYEE IN LIGNITE MINES IN THE GERMAN EMPIRE, BY STATES AND PROVINCES, 1891 TO 1900.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. X. The product per employee was computed. Figures include salaried employees. A metric ton=2,204.6 pounds.]

Year.	West Prussia, Posen, Pomerania, Mecklenburg-Schwerin.		Province of Brandenburg.		Province of Silesia.		Kingdom of Saxony.	
	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).
1891..	130	282	6,548	621	1,301	338	2,318	373
1892..	128	278	7,540	610	1,266	361	2,470	376
1893..	132	241	7,819	654	1,210	368	2,366	398
1894..	140	251	7,609	681	1,133	396	2,204	417
1895..	117	262	8,443	723	1,174	383	2,101	485
1896..	114	240	9,236	751	1,225	395	1,979	523
1897..	116	203	10,167	781	1,227	419	2,066	519
1898..	182	174	10,543	809	1,230	467	2,298	514
1899..	216	192	10,421	834	1,303	468	2,355	549
1900..	268	281	12,336	839	1,436	559	2,602	591

  

Year.	Province of Saxony.		Duchy of Anhalt.		Saxe-Weimar, Saxe-Altenburg (Meuselwitz district), Schwarzburg-Rudolstadt, Reuss J. L.		Bavaria.	
	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).
1891..	17,857	616	1,207	755	1,712	702	127	130
1892..	18,168	601	1,326	682	1,728	745	115	131
1893..	17,192	616	1,261	749	1,885	678	120	162
1894..	16,432	641	1,355	808	1,883	687	104	216
1895..	16,462	696	1,324	837	1,965	718	278	103
1896..	16,590	731	1,277	871	1,993	730	264	157
1897..	16,784	775	1,302	937	2,019	784	210	196
1898..	17,718	775	1,382	964	2,348	755	243	213
1899..	18,657	787	1,355	954	2,412	750	158	236
1900..	20,423	824	1,493	903	2,712	715	194	202

  

Year.	Duchy of Brunswick and province of Hanover.		Hessian districts (Duchy of Hesse and Province of Hesse-Nassau).		Lower Rhine district (Province of Rhineland).		German Empire.	
	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).	Average employees.	Product per employee (metric tons).
1891..	843	746	1,866	281	1,773	475	35,682	576
1892..	1,046	619	1,881	271	1,812	476	37,490	565
1893..	1,006	680	1,705	289	1,890	541	36,586	590
1894..	1,157	689	1,673	298	1,930	640	35,620	619
1895..	1,234	780	1,747	324	2,631	626	37,476	654
1896..	1,317	788	1,752	321	2,448	802	38,195	701
1897..	1,430	805	1,774	340	2,962	762	40,057	734
1898..	1,345	851	1,830	327	3,693	735	42,812	739
1899..	1,382	868	1,960	317	4,526	868	44,745	764
1900..	1,556	961	2,177	317	5,545	931	50,742	794

\* These figures do not agree with those in the tables on pages 299 and 307, but they are reproduced as found in the source quoted. It is probable they were preliminary at the time the original data were compiled.

In the German Empire as a whole 75.8 per cent of the coal mine employees were underground and 24.2 were surface workers in 1903. This relation between the number of underground and surface workers has remained almost the same for 13 years. It varies considerably, however, in the different States and provinces. There are no women employed below ground in Germany, and the number of women employed above ground has decreased considerably from 1891 to 1903, notwithstanding the large increase in the total number of employees. The following table shows, by sex, the number of employees below and above ground in each of the coal-mining States and in the German Empire as a whole from 1891 to 1903:

NUMBER OF EMPLOYEES BELOW AND ABOVE GROUND IN COAL MINES IN THE GERMAN EMPIRE, BY STATES, 1891 TO 1903.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I-XIII. Figures include salaried employees. Percentages were computed.]

State and year.	Employees.						Total.
	Below ground.		Above ground.				
	Number.	Per cent of total.	Males.	Females.	Both sexes.	Per cent of total.	
<b>Prussia:</b>							
1891.....	194,230	77.0	52,388	5,560	57,948	23.0	252,178
1892.....	198,266	76.8	54,809	5,323	60,132	23.2	258,198
1893.....	198,308	76.5	55,999	4,849	60,848	23.5	259,156
1894.....	205,663	76.7	57,913	4,473	62,386	23.3	268,049
1895.....	207,924	76.6	59,379	4,301	63,680	23.4	271,604
1896.....	216,531	76.3	62,861	4,226	67,086	23.7	283,620
1897.....	231,728	76.6	66,786	3,954	70,740	23.4	302,468
1898.....	248,685	76.9	70,741	3,991	74,732	23.1	323,417
1899.....	264,605	77.0	74,774	4,134	78,908	23.0	343,513
1900.....	288,929	76.8	83,136	4,299	87,435	23.2	376,364
1901.....	312,478	76.7	90,389	4,512	94,901	23.3	407,380
1902.....	313,026	76.3	92,530	4,748	97,278	23.7	410,304
1903.....	325,692	76.0	98,257	4,844	103,101	24.0	428,793
<b>Bavaria:</b>							
1891.....	3,558	76.4	959	141	1,100	23.6	4,658
1892.....	3,716	77.3	849	241	1,090	22.7	4,806
1893.....	3,859	78.0	900	190	1,090	22.0	4,949
1894.....	3,857	78.4	881	180	1,061	21.6	4,918
1895.....	4,055	77.4	1,007	176	1,183	22.6	5,238
1896.....	4,152	76.5	1,082	193	1,275	23.5	5,427
1897.....	4,415	76.2	1,116	261	1,377	23.8	5,792
1898.....	4,666	76.7	1,162	252	1,414	23.3	6,080
1899.....	4,791	76.5	1,188	288	1,474	23.5	6,265
1900.....	5,067	75.0	1,400	290	1,690	25.0	6,757
1901.....	5,282	74.2	1,529	307	1,836	25.8	7,118
1902.....	5,552	75.4	1,517	296	1,813	24.6	7,365
1903.....	5,945	76.0	1,569	306	1,875	24.0	7,820
<b>Saxony:</b>							
1891.....	15,858	74.6	4,866	534	5,400	25.4	21,258
1892.....	15,921	75.0	4,866	453	5,319	25.0	21,240
1893.....	15,896	74.8	5,019	350	5,369	25.2	21,267
1894.....	15,902	75.1	4,961	314	5,275	24.9	21,177
1895.....	15,983	74.9	5,058	294	5,352	25.1	21,335
1896.....	16,279	75.2	5,070	302	5,372	24.8	21,651
1897.....	16,468	74.8	5,218	330	5,546	25.2	22,014
1898.....	16,429	74.8	5,188	346	5,534	25.2	21,963
1899.....	16,900	75.2	5,204	367	5,571	24.8	22,471
1900.....	17,638	75.1	5,434	401	5,835	24.9	23,473
1901.....	19,405	75.2	6,012	282	6,294	24.8	25,700
1902.....	18,805	74.6	6,067	340	6,407	25.4	25,212
1903.....	18,278	74.1	6,056	318	6,374	25.9	24,652
<b>Baden:</b>							
1891.....	68	87.2	10	.....	10	12.8	78
1892.....	62	83.8	12	.....	12	16.2	74
1893.....	40	80.0	10	.....	10	20.0	50
1894.....	44	68.8	20	.....	20	31.2	64
1895.....	60	83.3	12	.....	12	16.7	72
1896.....	45	81.8	10	.....	10	18.2	55
1897.....	56	84.8	10	.....	10	15.2	66
1898.....	65	80.2	16	.....	16	19.8	81

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NUMBER OF EMPLOYEES BELOW AND ABOVE GROUND IN COAL MINES IN THE GERMAN EMPIRE, BY STATES, 1891 TO 1903—Continued.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I-XIII. Figures include salaried employees. Percentages were computed.]

State and year.	Employees.						Total.
	Below ground.		Above ground.				
	Number.	Per cent of total.	Males.	Females.	Both sexes.	Per cent of total.	
<b>Baden—Concluded.</b>							
1899.....	53	80.3	13	.....	13	19.7	66
1900.....	73	82.0	16	.....	16	18.0	89
1901.....	56	83.6	11	.....	11	16.4	67
1902.....	43	82.7	9	.....	9	17.3	52
1903.....	35	85.4	6	.....	6	14.6	41
<b>Oldenburg:</b>							
1891.....	1	50.0	1	.....	1	50.0	2
<b>Brunswick:</b>							
1900.....	12	46.2	14	.....	14	53.8	26
1901.....	25	67.6	12	.....	12	32.4	37
1902.....	20	57.1	15	.....	15	42.9	35
1903.....	20	83.3	4	.....	4	16.7	24
<b>Saxe-Weimar:</b>							
1891.....	2	100.0	.....	.....	.....	.....	2
1900.....	1	100.0	.....	.....	.....	.....	1
<b>Saxe-Meiningen:</b>							
1891.....	101	84.9	18	.....	18	15.1	119
1892.....	104	83.2	21	.....	21	16.8	125
1893.....	18	18.9	77	.....	77	81.1	95
1894.....	83	87.4	12	.....	12	12.6	95
1895.....	99	89.2	12	.....	12	10.8	111
1896.....	105	84.0	20	.....	20	16.0	125
1897.....	130	89.7	15	.....	15	10.3	145
1898.....	160	86.5	25	.....	25	13.5	185
1899.....	148	86.5	23	.....	23	13.5	171
1900.....	142	86.1	23	.....	23	13.9	165
1901.....	107	84.3	20	.....	20	15.7	127
1902.....	33	61.1	21	.....	21	38.9	54
1903.....	96	81.4	22	.....	22	18.6	118
<b>Saxe-Coburg-Gotha:</b>							
1891.....	16	100.0	.....	.....	.....	.....	16
1892.....	14	100.0	.....	.....	.....	.....	14
1893.....	16	100.0	.....	.....	.....	.....	16
1894.....	6	100.0	.....	.....	.....	.....	6
1895.....	9	100.0	.....	.....	.....	.....	9
1896.....	8	100.0	.....	.....	.....	.....	8
1897.....	3	100.0	.....	.....	.....	.....	3
1898.....	6	100.0	.....	.....	.....	.....	6
1899.....	4	100.0	.....	.....	.....	.....	4
1900.....	16	100.0	.....	.....	.....	.....	16
1901.....	3	100.0	.....	.....	.....	.....	3
1902.....	9	100.0	.....	.....	.....	.....	9
1903.....	15	100.0	.....	.....	.....	.....	15
<b>Schaumburg-Lippe:</b>							
1891.....	560	65.3	298	.....	298	34.7	858
1892.....	564	66.0	290	.....	290	34.0	854
1893.....	601	72.6	227	.....	227	27.4	828
1894.....	576	71.2	233	.....	233	28.8	809
1895.....	620	72.9	230	.....	230	27.1	850
1896.....	553	64.5	305	.....	305	35.5	858
1897.....	626	69.3	277	.....	277	30.7	903
1898.....	676	72.4	258	.....	258	27.6	934
1899.....	693	72.5	263	.....	263	27.5	956
1900.....	742	72.6	280	.....	280	27.4	1,022
1901.....	718	70.7	298	.....	298	29.3	1,016
1902.....	690	67.7	329	.....	329	32.3	1,019
1903.....	724	69.3	321	.....	321	30.7	1,045
<b>Alsace-Lorraine:</b>							
1891.....	3,020	74.4	1,002	36	1,038	25.6	4,058
1892.....	3,070	74.8	998	36	1,034	25.2	4,104
1893.....	3,226	75.5	1,015	30	1,045	24.5	4,271
1894.....	3,428	76.0	1,047	34	1,081	24.0	4,509
1895.....	3,570	75.7	1,116	32	1,148	24.3	4,718
1896.....	3,598	75.4	1,139	32	1,171	24.6	4,769
1897.....	3,566	74.6	1,181	36	1,217	25.4	4,783
1898.....	3,758	74.7	1,236	35	1,271	25.3	5,029
1899.....	3,867	73.8	1,333	39	1,372	26.2	5,229
1900.....	4,263	73.8	1,493	24	1,517	26.2	5,780
1901.....	4,742	73.2	1,718	14	1,732	26.8	6,474
1902.....	5,167	72.4	1,970	.....	1,970	27.6	7,137
1903.....	5,889	75.5	1,908	.....	1,908	24.5	7,797

<sup>a</sup> The figures for underground and surface workers should probably be transposed. They are reproduced as found in the source quoted.

## NUMBER OF EMPLOYEES BELOW AND ABOVE GROUND IN COAL MINES IN THE GERMAN EMPIRE, BY STATES, 1891 TO 1903—Concluded.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I-XIII. Figures include salaried employees. Percentages were computed.]

State and year.	Employees.						Total.
	Below ground.		Above ground.				
	Number.	Per cent of total.	Males.	Females.	Both sexes.	Per cent of total.	
<b>German Empire:</b>							
1891.....	217,414	76.8	59,542	6,271	65,813	23.2	283,227
1892.....	221,717	76.6	61,645	6,053	67,698	23.4	289,415
1893.....	221,966	76.4	63,247	5,419	68,666	23.6	290,632
1894.....	229,559	76.6	65,067	5,001	70,068	23.4	299,627
1895.....	232,320	76.4	66,814	4,803	71,617	23.6	303,937
1896.....	241,271	76.2	70,487	4,755	75,242	23.8	316,513
1897.....	256,992	76.4	74,601	4,581	79,182	23.6	336,174
1898.....	274,445	76.7	78,626	4,624	83,250	23.3	357,695
1899.....	290,951	76.9	82,796	4,828	87,624	23.1	378,575
1900.....	316,883	76.6	91,796	5,014	96,810	23.4	413,693
1901.....	342,816	76.5	99,969	5,215	105,184	23.5	448,000
1902.....	343,345	76.1	102,458	5,384	107,842	23.9	451,187
1903.....	356,694	75.8	108,143	5,468	113,611	24.2	470,305

In the lignite industry of the German Empire in 1903, 43 per cent of the employees were below ground and 57 per cent were surface workers. The number of females employed in lignite mining increased during the period, 1891 to 1903, but the increase was not so great in proportion as the increase in the number of males. The following table shows by sex the number of employees below and above ground in each of the lignite mining States of the German Empire from 1891 to 1903:

## NUMBER OF EMPLOYEES BELOW AND ABOVE GROUND IN LIGNITE MINES IN THE GERMAN EMPIRE, BY STATES, 1891 TO 1903.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I-XIII. Figures include salaried employees. Percentages were computed.]

State and year.	Employees.						Total.
	Below ground.		Above ground.				
	Number.	Per cent of total.	Males.	Females.	Both sexes.	Per cent of total.	
<b>Prussia:</b>							
1891.....	12,764	43.9	15,544	738	16,282	56.1	29,046
1892.....	13,118	43.1	16,553	745	17,298	56.9	30,416
1893.....	12,571	42.4	16,476	632	17,108	57.6	29,679
1894.....	12,120	42.2	15,990	590	16,580	57.8	28,700
1895.....	12,875	42.3	16,914	643	17,557	57.7	30,432
1896.....	13,025	41.7	17,573	660	18,233	58.3	31,258
1897.....	13,487	40.8	18,529	704	19,233	59.2	33,020
1898.....	15,901	45.3	19,465	799	20,264	54.7	35,135
1899.....	16,271	44.0	19,831	815	20,646	56.0	37,017
1900.....	18,391	43.4	22,079	910	22,989	56.6	42,350
1901.....	20,402	41.8	27,459	940	28,399	58.2	48,801
1902.....	18,237	41.1	25,313	792	26,105	58.9	44,342
1903.....	17,681	40.9	24,669	835	25,504	59.1	43,185
<b>Bavaria:</b>							
1891.....	61	48.0	60	6	66	52.0	127
1892.....	56	48.7	55	4	59	51.3	115
1893.....	66	55.0	48	6	54	45.0	120
1894.....	52	50.0	46	6	52	50.0	104
1895.....	158	56.8	115	5	120	43.2	278
1896.....	160	60.6	99	5	104	39.4	264
1897.....	146	69.5	51	13	64	30.5	210
1898.....	180	74.1	58	5	63	25.9	243
1899.....	106	67.1	47	5	52	32.9	158
1900.....	127	65.5	61	6	67	34.5	194
1901.....	105	66.0	53	1	54	34.0	159
1902.....	89	65.9	44	2	46	34.1	135
1903.....	43	33.1	85	2	87	66.9	130

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NUMBER OF EMPLOYEES BELOW AND ABOVE GROUND IN LIGNITE MINES IN THE GERMAN EMPIRE, BY STATES, 1891 TO 1903—Continued.

[Source: *Wirtschaftsjahreshefte zur Statistik des Deutschen Reichs*, Jahrg. I-XIII. Figures include salaried employees. Percentages were computed.]

State and year.	Employees.						Total.
	Below ground.		Above ground.				
	Number.	Per cent of total.	Males.	Females.	Both sexes.	Per cent of total.	
<b>Saxony:</b>							
1891.....	1,070	46.2	1,088	160	1,248	53.8	2,318
1892.....	1,155	46.8	1,157	158	1,315	53.2	2,470
1893.....	1,078	45.6	1,128	160	1,288	54.4	2,366
1894.....	1,023	46.4	1,036	145	1,181	53.6	2,204
1895.....	1,013	48.2	952	136	1,088	51.8	2,101
1896.....	968	48.9	890	131	1,021	51.1	1,979
1897.....	973	47.1	974	119	1,093	52.9	2,066
1898.....	989	43.0	1,179	130	1,309	57.0	2,298
1899.....	1,020	43.3	1,200	135	1,335	56.7	2,355
1900.....	1,231	47.2	1,252	127	1,379	52.8	2,610
1901.....	1,367	44.0	1,601	140	1,741	56.0	3,108
1902.....	1,483	47.4	1,523	123	1,646	52.6	3,129
1903.....	1,512	48.3	1,491	130	1,621	51.7	3,133
<b>Hesse:</b>							
1891.....	313	53.4	273	.....	273	46.6	586
1892.....	340	58.3	243	.....	243	41.7	583
1893.....	279	52.1	256	.....	256	47.9	535
1894.....	328	64.7	179	.....	179	35.3	507
1895.....	278	54.8	228	1	229	45.2	507
1896.....	253	53.0	223	1	224	47.0	477
1897.....	216	51.3	205	.....	205	48.7	421
1898.....	227	57.8	166	.....	166	42.2	393
1899.....	255	53.7	219	1	220	46.3	475
1900.....	291	57.6	213	1	214	42.4	505
1901.....	209	40.7	308	1	304	59.3	513
1902.....	235	51.9	272	1	273	48.1	508
1903.....	224	43.2	294	1	295	56.8	519
<b>Mecklenburg-Schwerin:</b>							
1891.....	26	86.7	4	.....	4	13.3	30
1892.....	25	92.6	2	.....	2	7.4	27
1893.....	18	90.0	2	.....	2	10.0	20
1894.....	9	56.3	7	.....	7	43.7	16
1895.....	13	81.3	3	.....	3	18.7	16
1896.....	10	71.4	4	.....	4	28.6	14
1897.....	8	72.7	3	.....	3	27.3	11
1898.....	7	58.3	5	.....	5	41.7	12
1899.....	4	30.8	9	.....	9	69.2	13
1900.....	11	73.3	4	.....	4	28.7	15
1901.....	11	64.7	6	.....	6	35.3	17
1902.....	5	31.2	11	.....	11	68.8	16
1903.....	12	60.0	8	.....	8	40.0	20
<b>Saxe-Weimar:</b>							
1891.....	29	100.0	.....	.....	.....	.....	29
1892.....	13	100.0	.....	.....	.....	.....	13
1893.....	23	100.0	.....	.....	.....	.....	23
1894.....	21	100.0	.....	.....	.....	.....	21
1895.....	11	100.0	.....	.....	.....	.....	11
1896.....	10	100.0	.....	.....	.....	.....	10
1897.....	12	100.0	.....	.....	.....	.....	12
1898.....	18	100.0	.....	.....	.....	.....	18
1899.....	16	100.0	.....	.....	.....	.....	16
1900.....	18	100.0	.....	.....	.....	.....	18
1901.....	4	100.0	.....	.....	.....	.....	4
1902.....	.....	.....	.....	.....	.....	.....	.....
1903.....	.....	.....	.....	.....	.....	.....	.....
<b>Brunswick:</b>							
1891.....	484	73.8	172	.....	172	26.2	656
1892.....	444	54.5	371	.....	371	45.5	815
1893.....	524	72.8	196	.....	196	27.2	720
1894.....	610	71.7	241	.....	241	28.3	851
1895.....	573	67.2	280	.....	280	32.8	853
1896.....	654	70.1	279	.....	279	29.9	933
1897.....	697	69.1	306	5	311	30.9	1,008
1898.....	673	67.2	324	4	328	32.8	1,001
1899.....	669	69.7	289	2	291	30.3	960
1900.....	748	72.5	284	.....	284	27.5	1,032
1901.....	938	73.7	334	.....	334	26.3	1,272
1902.....	867	70.4	364	.....	364	29.6	1,231
1903.....	810	67.7	387	.....	387	32.3	1,197



## NUMBER OF EMPLOYEES BELOW AND ABOVE GROUND IN LIGNITE MINES IN THE GERMAN EMPIRE, BY STATES, 1891 TO 1903—Concluded.

[Source: Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I-XIII. Figures include salaried employees. Percentages were computed.]

State and year.	Employees.						Total.
	Below ground.		Above ground.				
	Number.	Per cent of total.	Males.	Females.	Both sexes.	Per cent of total.	
<b>Saxe-Altenburg:</b>							
1891.....	678	43.1	727	167	894	56.9	1,572
1892.....	704	43.7	741	165	906	56.3	1,610
1893.....	799	45.4	792	169	961	54.6	1,760
1894.....	760	43.0	850	159	1,009	57.0	1,769
1895.....	792	42.8	884	173	1,057	57.2	1,849
1896.....	831	44.7	842	185	1,027	55.3	1,858
1897.....	837	45.6	837	161	998	54.4	1,835
1898.....	1,005	46.7	970	175	1,145	53.3	2,150
1899.....	1,044	47.2	967	170	1,167	52.8	2,211
1900.....	1,232	48.8	1,006	198	1,294	51.2	2,526
1901.....	1,505	50.0	1,285	220	1,505	50.0	3,010
1902.....	1,440	51.3	1,188	178	1,366	48.7	2,806
1903.....	1,378	48.7	1,246	204	1,450	51.3	2,828
<b>Anhalt:</b>							
1891.....	851	70.5	356	.....	356	29.5	1,207
1892.....	971	73.2	355	.....	355	26.8	1,326
1893.....	804	70.9	367	.....	367	29.1	1,261
1894.....	1,005	74.2	350	.....	350	25.8	1,355
1895.....	968	73.1	356	.....	356	26.9	1,324
1896.....	914	71.6	363	.....	363	28.4	1,277
1897.....	901	69.2	401	.....	401	30.8	1,302
1898.....	954	69.0	428	.....	428	31.0	1,382
1899.....	929	68.6	426	.....	426	31.4	1,355
1900.....	1,050	70.3	443	.....	443	29.7	1,493
1901.....	1,053	69.2	469	.....	469	30.8	1,522
1902.....	945	66.8	469	.....	469	33.2	1,414
1903.....	886	62.5	532	.....	532	37.5	1,418
<b>Schwarzburg-Rudolstadt:</b>							
1891.....	40	56.3	31	.....	31	43.7	71
1892.....	32	56.1	25	.....	25	43.9	57
1893.....	41	75.9	13	.....	13	24.1	54
1894.....	36	73.5	13	.....	13	26.5	49
1895.....	43	74.1	15	.....	15	25.9	58
1896.....	38	52.8	34	.....	34	47.2	72
1897.....	78	60.9	50	.....	50	39.1	128
1898.....	92	70.8	38	.....	38	29.2	130
1899.....	90	66.7	45	.....	45	33.3	135
1900.....	91	74.0	32	.....	32	26.0	123
1901.....	57	68.7	26	.....	26	31.3	83
1902.....	27	51.9	25	.....	25	48.1	52
1903.....	32	66.7	16	.....	16	33.3	48
<b>Reuss, J. L.:</b>							
1891.....	.....	.....	32	8	40	100.0	40
1892.....	.....	.....	42	6	48	100.0	48
1893.....	.....	.....	41	7	48	100.0	48
1894.....	.....	.....	40	4	44	100.0	44
1895.....	.....	.....	43	4	47	100.0	47
1896.....	4	7.5	42	7	49	92.5	53
1897.....	.....	.....	38	6	44	100.0	44
1898.....	.....	.....	42	8	50	100.0	50
1899.....	.....	.....	42	8	50	100.0	50
1900.....	.....	.....	39	6	45	100.0	45
1901.....	.....	.....	41	7	48	100.0	48
1902.....	.....	.....	40	7	47	100.0	47
1903.....	.....	.....	33	7	40	100.0	40
<b>German Empire:</b>							
1891.....	16,316	45.7	18,287	1,079	19,366	54.3	35,682
1892.....	16,858	45.0	19,544	1,078	20,622	55.0	37,480
1893.....	16,293	44.5	19,319	974	20,293	55.5	36,586
1894.....	15,964	44.8	18,752	904	19,656	55.2	35,620
1895.....	16,724	44.6	19,790	962	20,752	55.4	37,476
1896.....	16,967	44.2	20,339	989	21,328	55.8	38,195
1897.....	17,355	43.3	21,694	1,008	22,702	56.7	40,057
1898.....	20,046	46.8	21,675	1,091	22,766	53.2	42,812
1899.....	20,404	45.6	23,205	1,136	24,341	54.4	44,745
1900.....	23,160	45.5	26,503	1,248	27,751	54.5	50,911
1901.....	25,651	43.8	31,577	1,309	32,886	56.2	58,537
1902.....	23,388	43.5	29,249	1,103	30,352	56.5	53,740
1903.....	22,578	43.0	28,761	1,179	29,940	57.0	52,518

Statistics of employment and efficiency for the State of Prussia can be given for a much longer period than is covered by the preceding tables. The two tables which follow show for the coal and lignite industries, respectively, the number of persons employed and the quantity and value of the product per employee in Prussia from 1837 to 1903:

NUMBER OF EMPLOYEES, ANNUAL PRODUCT PER EMPLOYEE, AND VALUE OF ANNUAL PRODUCT PER EMPLOYEE IN COAL MINES IN PRUSSIA, 1837 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate. Statistischer Theil, Bände I-LII. Figures include salaried employees. The product per employee and the value of product per employee were computed from figures in this table and the table on page 289. A metric ton = 2,204.6 pounds.]

Year.	Em- ployees.	Product per em- ployee (metric tons).	Value of product per em- ployee.	Year.	Em- ployees.	Product per em- ployee (metric tons).	Value of product per em- ployee.
1837.....	16,218	128	\$165.98	1871.....	131,575	197	\$337.50
1838.....	17,884	129	172.35	1872.....	140,544	210	441.51
1839.....	19,370	126	176.92	1873.....	156,372	207	539.04
1840.....	21,149	121	167.17	1874.....	161,502	198	467.47
1841.....	21,950	127	178.46	1875.....	159,702	209	379.41
1842.....	23,606	126	173.54	1876.....	158,902	217	339.37
1843.....	22,888	124	166.27	1877.....	145,915	231	304.49
1844.....	24,160	129	171.81	1878.....	145,622	244	291.59
1845.....	26,096	133	175.07	1879.....	147,939	255	281.36
1846.....	27,244	134	184.76	1880.....	155,006	272	323.39
1847.....	28,870	133	183.88	1881.....	162,179	270	318.41
1848.....	27,723	127	173.40	1882.....	171,610	274	322.76
1849.....	28,465	128	172.72	1883.....	183,248	276	331.61
1850.....	29,907	139	191.42	1884.....	189,944	273	326.67
1851.....	33,442	136	178.53	1885.....	183,138	274	323.86
1852.....	36,444	142	174.25	1886.....	191,355	274	320.59
1853.....	42,087	136	174.02	1887.....	190,653	286	329.45
1854.....	48,573	140	205.33	1888.....	198,222	300	350.50
1855.....	56,015	145	245.74	1889.....	212,382	289	372.70
1856.....	62,037	143	251.76	1890.....	233,754	275	488.23
1857.....	64,754	146	259.69	1891.....	252,178	268	497.58
1858.....	69,352	150	264.15	1892.....	258,198	253	433.89
1859.....	65,029	149	240.06	1893.....	259,156	261	404.39
1860.....	64,682	165	237.08	1894.....	268,049	284	403.17
1861.....	68,229	180	230.14	1895.....	271,604	267	420.22
1862.....	69,468	188	236.77	1896.....	289,620	279	445.70
1863.....	71,592	200	237.72	1897.....	302,468	270	458.47
1864.....	80,175	206	250.38	1898.....	323,417	277	472.34
1865.....	89,152	200	270.07	1899.....	343,413	276	497.01
1866.....	90,647	206	289.26	1900.....	376,364	271	555.38
1867.....	102,773	205	277.72	1901.....	407,359	248	540.17
1868.....	106,213	214	286.18	1902.....	410,304	244	503.34
1869.....	111,325	213	293.34	1903.....	428,793	254	510.98
1870.....	107,782	216	311.39				

## NUMBER OF EMPLOYEES, ANNUAL PRODUCT PER EMPLOYEE, AND VALUE OF ANNUAL PRODUCT PER EMPLOYEE IN LIGNITE MINES IN PRUSSIA, 1837 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände I-LII. Figures include salaried employees. The product per employee and the value of product per employee were computed from figures in this table and the table on page 291. A metric ton = 2,204.6 pounds.]

Year.	Em- ployees.	Product per em- ployee (metric tons).	Value of product per em- ployee.	Year.	Em- ployees.	Product per em- ployee (metric tons).	Value of product per em- ployee.
1837	2,538	154	\$79.66	1871	16,863	408	\$301.14
1838	2,507	184	95.65	1872	17,447	427	293.32
1839	2,580	189	98.16	1873	18,068	442	366.93
1840	2,860	182	94.20	1874	18,645	468	393.81
1841	3,054	183	101.11	1875	18,538	450	379.58
1842	3,304	201	104.80	1876	19,322	465	388.00
1843	3,513	176	88.62	1877	18,741	461	372.06
1844	3,975	179	92.03	1878	18,302	453	364.00
1845	4,565	193	106.31	1879	18,593	499	368.60
1846	5,085	199	102.11	1880	19,757	500	363.39
1847	5,681	191	106.88	1881	19,959	522	372.87
1848	5,975	204	115.00	1882	20,108	537	350.00
1849	6,089	216	123.28	1883	21,197	558	356.60
1850	6,066	219	124.43	1884	21,614	558	351.62
1851	6,645	227	132.55	1885	22,300	555	345.48
1852	7,678	230	143.18	1886	23,484	535	324.43
1853	8,010	228	143.91	1887	23,266	546	326.04
1854	8,181	230	145.54	1888	23,408	554	328.98
1855	9,065	228	146.08	1889	24,612	577	341.63
1856	9,475	246	163.49	1890	25,634	581	356.29
1857	10,301	266	182.52	1891	29,046	576	356.99
1858	11,029	264	189.97	1892	30,416	566	372.87
1859	10,391	284	203.48	1893	29,679	591	356.48
1860	9,938	317	215.31	1894	28,700	620	348.72
1861	10,744	309	203.66	1895	30,432	661	360.62
1862	11,534	330	210.59	1896	31,258	703	371.43
1863	11,715	344	226.92	1897	33,020	734	384.15
1864	13,065	355	236.85	1898	35,135	741	400.52
1865	14,137	355	244.20	1899	37,017	768	408.31
1866	13,329	368	266.79	1900	42,350	803	451.04
1867	14,937	369	255.42	1901	48,801	768	441.00
1868	15,296	366	246.22	1902	44,342	817	448.04
1869	15,058	399	267.49	1903	43,185	801	481.24
1870	14,780	414	285.09				

In the following table the same kind of information is shown for the coal-mining district of Dortmund for each year from 1792 to 1903:

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NUMBER OF EMPLOYEES, ANNUAL PRODUCT PER EMPLOYEE, AND VALUE OF ANNUAL PRODUCT PER EMPLOYEE IN COAL MINES IN THE DISTRICT OF DORTMUND, PRUSSIA, 1792 TO 1903.

[Source: 1792 to 1890, Mittheilungen aus der Geschichte des königlichen Oberbergamtes zu Dortmund, etc., 1892; 1891 to 1903, Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XL-LII. Conversion of German into United States money was made on the basis of 1 mark = \$0.238. Figures include salaried employees. A metric ton = 2,204.6 pounds.]

Year.	Employees.	Product per employ- ee (metric tons).	Value of product per employ- ee.	Year.	Employees.	Product per employ- ee (metric tons).	Value of product per employ- ee.	Year.	Employees.	Product per employ- ee (metric tons).	Value of product per employ- ee.
1792..	1,357	130	\$119.91	1830.	4,457	126	\$179.82	1868.	50,817	225	\$273.03
1793..	1,495	121	114.45	1831.	4,743	132	183.93	1869.	52,209	230	287.97
1794..	1,345	119	114.82	1832.	5,164	131	184.82	1870.	51,391	230	313.19
1795..	1,368	118	113.15	1833.	5,383	141	199.53	1871.	63,043	202	337.76
1796..	1,487	132	126.70	1834.	5,412	142	201.54	1872.	69,491	206	423.12
1797..	1,473	136	130.95	1835.	5,933	132	199.67	1873.	84,085	195	510.54
1798..	1,667	126	134.58	1836.	6,770	110	160.04	1874.	84,150	185	483.62
1799..	1,699	134	143.62	1837.	7,523	115	164.61	1875.	83,832	203	350.35
1800..	1,546	149	159.95	1838.	8,135	122	174.47	1876.	83,453	215	313.64
1801..	1,304	154	176.75	1839.	8,275	122	185.53	1877.	73,983	240	282.93
1802..	1,385	151	177.25	1840.	8,945	111	170.19	1878.	74,988	256	274.06
1803..	1,551	130	152.64	1841.	9,215	118	182.41	1879.	77,096	264	280.47
1804..	3,057	124	128.76	1842.	9,434	120	184.39	1880.	80,152	281	305.71
1805..	3,063	128	135.08	1843.	9,442	114	170.75	1881.	83,221	284	309.56
1806..	2,840	124	131.87	1844.	10,058	119	174.64	1882.	89,718	298	315.11
1807..	3,086	110	119.20	1845.	10,472	121	178.30	1883.	97,922	285	321.45
1808..	2,902	117	140.69	1846.	10,352	124	183.55	1884.	101,013	281	317.98
1809..	2,892	121	136.60	1847.	11,388	121	184.51	1885.	101,829	284	318.34
1810..	3,117	118	132.74	1848.	11,473	117	175.04	1886.	99,787	286	319.00
1811..	3,110	112	131.60	1849.	12,084	115	169.21	1887.	99,534	303	334.85
1812..	3,207	107	126.83	1850.	12,741	131	193.99	1888.	105,428	315	359.97
1813..	2,492	116	134.52	1851.	14,399	126	178.52	1889.	115,499	293	381.19
1814..	3,215	103	127.39	1852.	15,312	129	163.14	1890.	127,794	278	526.01
1815..	3,062	127	147.12	1853.	17,162	127	168.67	1891.	138,739	270	536.56
1816..	3,444	124	145.41	1854.	19,977	136	219.94	1892.	142,247	259	454.53
1817..	3,336	126	148.89	1855.	23,343	139	275.44	1893.	146,440	264	402.34
1818..	3,251	130	158.98	1856.	28,512	125	268.53	1894.	152,656	266	403.56
1819..	3,272	123	167.22	1857.	30,256	123	261.05	1895.	154,702	266	421.43
1820..	3,556	120	152.54	1858.	32,656	123	258.06	1896.	161,870	277	446.98
1821..	3,446	119	151.23	1859.	30,077	129	242.35	1897.	176,102	275	460.28
1822..	3,384	110	146.24	1860.	29,320	149	227.73	1898.	191,847	266	462.76
1823..	3,014	109	140.06	1861.	31,477	176	215.77	1899.	205,106	266	485.47
1824..	3,728	109	141.36	1862.	32,917	190	217.13	1900.	226,902	263	533.68
1825..	3,334	114	156.46	1863.	33,350	206	214.13	1901.	243,026	240	499.74
1826..	3,074	115	154.26	1864.	38,666	211	228.26	1902.	243,963	238	474.88
1827..	4,123	113	157.94	1865.	43,052	215	257.65	1903.	255,992	253	498.03
1828..	4,363	117	162.50	1866.	43,036	212	260.83				
1829..	4,162	125	178.62	1867.	49,593	216	266.65				

## WAGES.

Statistics of wages of mine employees have not been published for the German Empire as a whole. The only complete statistics of the earnings of coal mine employees appear in the official publications of the Prussian government. By a ministerial decree dated July 22, 1872, the chief mining offices were authorized to require periodical reports of earnings from the mines within their districts, in accordance with section 79 of the general mining laws of June 24, 1865. In pursuance of this decree, statistics of mine workers' earnings have been compiled in the several chief mining offices, and since 1882 their most important results have been incorporated in the annual reports of the department of mines to the Prussian Chamber of Deputies (*Landtag*) and in the annual *Zeitschrift für das Berg-, Hütten- und*

Salinenwesen im Preussischen Staate. It was not until 1886, however, that the statistics of coal mine wages began to be compiled in such a manner as to be complete and comparable for the whole of Prussia.

In order to secure statistics which would admit of comparison, uniform rules for their compilation by the chief mining offices were adopted by the ministerial decree of October 28, 1887. The statistics for 1886 and subsequent years have been compiled in accordance with these rules.

As published, the statistics show for each district of Prussia the net earnings of mine employees after all deductions for association and sick-benefit dues, and for tools, powder, oil, etc., have been made. Statistics are shown for each of five principal groups of mine employees. Earnings are shown per year and per shift. The earnings per shift are not computed upon the basis of an artificial normal shift, but upon the actual number of shifts worked, the duration of which is also given. Upon these statistics are based the contributions made to the miners' relief associations and to the accident, invalidity, and old-age insurance funds.

As these statistics are probably as nearly complete and accurate as any statistics of miners' earnings that are published, they are given in detail in the following table, by districts, and by groups of mine employees, for the years 1886 to 1903.

NUMBER OF EMPLOYEES, SHIFTS WORKED, AND NET EARNINGS IN EACH OF THE FIVE PRINCIPAL COAL-MINING DISTRICTS AND IN ONE LIGNITE-MINING DISTRICT OF PRUSSIA, BY GROUPS OF MINE EMPLOYEES, 1886 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XXXVII-LII. Net earnings per shift and per employee were computed. Salaried employees are not included. Conversion of German into United States money was made on the basis of 1 mark=\$0.238.]

COAL MINES IN UPPER SILESIA DISTRICT.

Year.	Miners and trammers.					Other underground workers.				
	Number.	Shifts worked per employee.	Net earnings.			Number.	Shifts worked per employee.	Net earnings.		
			Total.	Average per employee.				Total.	Average per employee.	
				Per shift.	Per year.				Per shift.	Per year.
1886..	24, 573	264	\$3, 175, 496	\$0.48	\$127.67	5, 343	287	\$682, 790	\$0.45	\$127.79
1887..	24, 533	263	3, 136, 326	.49	127.84	5, 341	281	689, 298	.46	129.06
1888..	25, 010	273	3, 364, 496	.49	134.53	4, 749	263	630, 779	.45	132.82
1889..	26, 292	276	3, 989, 490	.55	151.74	5, 089	298	740, 540	.49	146.09
1890..	29, 394	276	5, 235, 322	.65	178.11	6, 090	296	1, 013, 563	.56	166.44
1891..	32, 312	273	5, 948, 996	.67	184.11	6, 811	298	1, 179, 469	.58	173.17
1892..	32, 200	265	5, 659, 518	.66	175.76	7, 147	293	1, 205, 316	.57	168.65
1893..	31, 504	265	5, 451, 637	.65	173.05	7, 158	290	1, 198, 560	.58	167.44
1894..	30, 887	262	5, 361, 357	.66	173.58	7, 203	290	1, 213, 630	.59	168.49
1895..	30, 831	266	5, 429, 800	.66	176.11	7, 343	289	1, 245, 432	.59	169.61
1896..	32, 270	273	5, 896, 715	.67	182.73	7, 593	292	1, 320, 701	.60	173.94
1897..	33, 234	273	6, 280, 252	.69	188.97	7, 890	293	1, 436, 004	.62	182.03
1898..	34, 845	277	7, 099, 092	.74	203.73	8, 195	296	1, 566, 668	.65	191.17
1899..	36, 490	274	7, 774, 161	.78	213.22	8, 763	289	1, 724, 645	.68	196.81
1900..	39, 783	275	9, 305, 407	.85	234.02	9, 746	292	2, 129, 179	.75	218.47
1901..	44, 152	275	10, 187, 488	.84	230.74	11, 018	290	2, 539, 785	.75	218.61
1902..	43, 794	269	9, 403, 810	.80	214.73	12, 379	285	2, 572, 289	.73	207.79
1903..	44, 719	274	9, 819, 947	.80	219.59	13, 131	285	2, 746, 491	.73	208.37

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NUMBER OF EMPLOYEES, SHIFTS WORKED, AND NET EARNINGS IN EACH OF THE FIVE PRINCIPAL COAL-MINING DISTRICTS AND IN ONE LIGNITE-MINING DISTRICT OF PRUSSIA, BY GROUPS OF MINE EMPLOYEES, 1886 TO 1903—Continued.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XXXVII-LII. Net earnings per shift and per year per employee were computed. Salaried employees are not included. Conversion of German into United States money was made on the basis of 1 mark = \$0.238.]

COAL MINES IN UPPER SILESIA DISTRICT—Concluded.

Year.	Male adult surface workers.					Female surface workers.				
	Num-ber.	Shifts worked per em- ployee.	Net earnings.			Num-ber.	Shifts worked per em- ployee.	Net earnings.		
			Total.	Average per employee.				Total.	Average per employee.	
				Per shift.	Per year.				Per shift.	Per year.
1886..	5,861	282	\$620,303	\$0.38	\$105.84	3,902	271	\$190,837	\$0.18	\$48.91
1887..	6,128	286	659,047	.38	107.55	3,852	272	188,844	.18	49.02
1888..	6,832	297	810,522	.40	118.64	4,129	277	209,107	.18	50.64
1889..	7,194	295	923,300	.43	128.34	4,439	279	242,476	.20	54.62
1890..	7,723	302	1,162,610	.50	150.54	4,710	282	281,995	.21	59.85
1891..	8,703	299	1,343,764	.52	154.40	5,055	281	307,185	.22	60.77
1892..	9,251	297	1,407,833	.51	152.18	4,817	273	279,109	.21	57.94
1893..	9,522	289	1,410,016	.51	148.08	4,471	267	251,907	.21	56.34
1894..	9,825	288	1,446,618	.51	147.24	4,123	265	231,533	.21	56.16
1895..	9,952	296	1,501,999	.51	150.92	3,986	269	228,215	.21	57.25
1896..	10,430	297	1,589,708	.51	152.42	3,929	274	230,156	.21	58.58
1897..	11,128	291	1,716,025	.53	154.21	3,669	273	220,191	.22	60.01
1898..	11,471	291	1,856,081	.56	161.81	3,682	277	236,778	.23	64.31
1899..	11,984	289	2,011,193	.58	167.82	3,815	275	253,285	.24	66.39
1900..	13,257	290	2,432,451	.63	183.48	3,969	279	293,768	.27	74.02
1901..	15,144	292	3,223,087	.64	186.42	4,149	281	317,223	.27	76.46
1902..	16,703	290	3,029,826	.63	181.39	4,372	277	318,416	.26	72.83
1903..	17,927	289	3,266,248	.63	182.20	4,457	278	325,235	.26	72.97

Year.	Males under 16 years of age.					All wageworkers.				
	Num-ber.	Shifts worked per em- ployee.	Net earnings.			Num-ber.	Shifts worked per em- ployee.	Net earnings.		
			Total.	Average per employee.				Total.	Average per employee.	
				Per shift.	Per year.				Per shift.	Per year.
1886..	114	238	\$4,493	\$0.17	\$39.41	40,093	270	\$4,673,889	\$0.43	\$116.58
1887..	119	258	5,178	.17	43.51	39,973	279	4,678,793	.43	117.05
1888..	150	259	6,483	.17	43.22	40,870	289	5,021,387	.44	122.86
1889..	189	265	9,086	.18	48.07	43,183	282	5,904,891	.48	136.74
1890..	404	268	24,596	.23	60.88	48,321	283	7,718,016	.56	159.72
1891..	612	270	40,523	.25	66.21	53,493	281	8,819,937	.59	164.88
1892..	490	256	28,599	.23	58.37	53,905	275	8,580,375	.58	159.18
1893..	323	242	16,021	.20	49.60	52,978	273	8,328,141	.58	157.20
1894..	262	234	12,270	.20	46.83	52,300	271	8,265,408	.58	158.04
1895..	276	248	13,546	.20	49.08	52,388	275	8,418,969	.58	160.70
1896..	361	250	18,455	.20	51.12	54,583	280	9,055,735	.59	165.91
1897..	456	261	24,928	.21	54.66	56,376	279	9,677,398	.61	171.66
1898..	610	269	36,728	.22	60.21	58,803	282	10,795,347	.65	183.58
1899..	967	270	59,574	.23	61.61	61,999	279	11,822,858	.68	190.73
1900..	1,690	272	118,120	.26	69.89	68,425	281	14,278,925	.74	208.68
1901..	2,120	276	152,451	.26	71.91	77,183	281	16,020,034	.74	207.56
1902..	1,931	273	133,044	.25	68.90	79,179	277	15,457,385	.71	195.22
1903..	1,929	271	127,292	.24	65.99	82,213	279	16,285,213	.71	198.09



NUMBER OF EMPLOYEES, SHIFTS WORKED, AND NET EARNINGS IN EACH OF THE FIVE PRINCIPAL COAL-MINING DISTRICTS AND IN ONE LIGNITE-MINING DISTRICT OF PRUSSIA, BY GROUPS OF MINE EMPLOYEES, 1886 TO 1903—Continued.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XXXVII-LII. Net earnings per shift and per year per employee were computed. Salaried employees are not included. Conversion of German into United States money was made on the basis of 1 mark=\$0.238.]

## COAL MINES IN LOWER SILESIA DISTRICT.

Year.	Miners and trammers.					Other underground workers.				
	Number.	Shifts worked per employee.	Net earnings.			Number.	Shifts worked per employee.	Net earnings.		
			Total.	Average per employee.				Total.	Average per employee.	
				Per shift.	Per year.				Per shift.	Per year.
1886..	7,713	290	\$1,129,015	\$0.50	\$146.38	1,924	291	\$282,572	\$0.50	\$146.87
1887..	7,978	280	1,355,617	.56	157.38	1,989	307	311,927	.51	156.83
1888..	8,066	306	1,390,076	.52	158.70	1,807	315	298,445	.51	159.85
1889..	8,377	303	1,451,675	.57	173.29	1,874	310	324,567	.56	173.09
1890..	9,138	297	1,722,278	.63	188.47	2,211	300	398,972	.60	180.45
1891..	9,459	301	1,855,375	.65	196.15	2,216	303	419,669	.61	185.32
1892..	9,612	301	1,841,738	.64	191.61	2,333	304	432,872	.61	185.54
1893..	9,649	296	1,779,333	.62	184.41	2,398	300	434,811	.61	181.47
1894..	9,553	299	1,756,505	.62	183.87	2,438	300	434,362	.59	178.16
1895..	9,799	302	1,855,978	.63	189.40	2,520	303	458,761	.60	182.05
1896..	10,064	304	1,952,612	.64	193.63	2,609	304	509,177	.62	188.65
1897..	10,330	303	2,037,785	.67	202.11	2,788	303	543,492	.64	195.08
1898..	10,578	303	2,205,950	.69	208.54	2,988	303	600,082	.66	200.97
1899..	10,894	301	2,374,683	.72	217.98	3,398	304	716,140	.69	210.88
1900..	11,772	303	2,776,119	.78	235.82	3,702	305	837,367	.74	226.19
1901..	12,234	297	2,725,599	.75	222.79	4,434	299	956,283	.72	215.67
1902..	12,161	291	2,453,804	.69	201.78	4,450	293	873,301	.67	196.25
1903..	12,203	300	2,580,354	.70	209.81	4,646	301	942,963	.68	202.94

  

Year.	Male adult surface workers.					Female surface workers.				
	Number.	Shifts worked per employee.	Net earnings.			Number.	Shifts worked per employee.	Net earnings.		
			Total.	Average per employee.				Total.	Average per employee.	
				Per shift.	Per year.				Per shift.	Per year.
1886..	2,811	304	\$375,830	\$0.44	\$133.70	444	298	\$34,361	\$0.26	\$77.39
1887..	2,840	311	397,596	.45	139.99	447	304	35,592	.26	79.62
1888..	3,213	315	454,312	.45	141.40	451	310	37,020	.26	82.08
1889..	3,322	312	501,062	.48	150.84	440	310	38,730	.28	88.02
1890..	3,621	308	579,503	.52	160.04	409	303	38,170	.31	93.33
1891..	4,045	310	664,476	.53	164.27	464	307	44,654	.31	96.24
1892..	4,353	310	717,519	.53	164.83	502	304	47,035	.31	93.70
1893..	4,350	311	711,096	.53	163.47	375	300	33,477	.30	89.27
1894..	4,538	307	723,526	.52	159.44	327	302	28,852	.29	88.23
1895..	4,770	306	758,966	.52	159.11	291	302	25,598	.29	87.97
1896..	4,991	307	797,869	.53	163.13	277	305	25,025	.30	91.34
1897..	4,993	307	842,800	.55	168.80	263	303	24,016	.30	91.32
1898..	5,184	307	904,924	.57	174.56	287	305	28,218	.32	96.32
1899..	5,277	305	953,017	.59	180.60	296	306	30,853	.34	104.23
1900..	5,644	305	1,090,035	.63	193.13	309	304	34,038	.36	110.16
1901..	6,303	302	1,214,339	.64	192.66	339	301	37,816	.37	111.55
1902..	6,392	296	1,159,260	.61	181.36	352	294	36,249	.35	102.96
1903..	6,655	303	1,243,797	.62	186.90	363	302	37,725	.34	103.93

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NUMBER OF EMPLOYEES, SHIFTS WORKED, AND NET EARNINGS IN EACH OF THE FIVE PRINCIPAL COAL-MINING DISTRICTS AND IN ONE LIGNITE-MINING DISTRICT OF PRUSSIA, BY GROUPS OF MINE EMPLOYEES, 1886 TO 1903—Continued.

[Source: *Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate*, Statistischer Theil, Bände XXXVII-LII. Net earnings per shift and per year per employee were computed. Salaried employees are not included. Conversion of German into United States money was made on the basis of 1 mark = \$0.238.]

COAL MINES IN LOWER SILESIA DISTRICT—Concluded.

Year.	Males under 16 years of age.					All wageworkers.				
	Number.	Shifts worked per employee.	Net earnings.			Number.	Shifts worked per employee.	Net earnings.		
			Total.	Average per employee.				Total.	Average per employee.	
				Per shift.	Per year.				Per shift.	Per year.
1886..	292	287	\$17,422	\$0.21	\$59.66	13,184	293	\$1,839,200	\$0.47	\$139.50
1887..	318	302	20,980	.22	65.97	13,572	292	2,021,682	.51	148.96
1888..	377	303	24,568	.22	65.17	13,974	309	2,094,421	.48	149.88
1889..	428	301	29,805	.23	69.64	14,441	306	2,345,659	.53	162.43
1890..	462	296	33,708	.25	72.96	15,841	300	2,772,629	.58	175.03
1891..	485	299	35,240	.24	72.66	16,669	304	3,010,414	.59	180.60
1892..	494	297	33,566	.23	67.95	17,294	304	3,072,790	.58	177.68
1893..	435	294	28,845	.23	66.31	17,205	301	2,987,562	.58	173.64
1894..	426	299	28,608	.22	67.15	17,282	301	2,971,853	.57	171.96
1895..	454	299	30,347	.22	66.84	17,834	303	3,129,650	.58	175.49
1896..	453	302	31,065	.23	68.58	18,404	305	3,315,748	.59	180.16
1897..	474	301	33,496	.23	70.67	18,846	304	3,531,589	.62	187.39
1898..	487	303	35,722	.24	73.35	19,522	304	3,774,806	.64	193.37
1899..	596	301	44,392	.25	74.48	20,459	303	4,119,085	.67	201.33
1900..	719	298	56,950	.27	79.21	22,146	304	4,794,509	.71	216.50
1901..	797	296	62,915	.27	78.94	24,107	299	4,996,952	.69	207.28
1902..	706	289	50,417	.25	71.41	24,061	293	4,573,031	.65	190.06
1903..	698	295	48,460	.24	70.64	24,553	301	4,833,199	.66	196.85

COAL MINES IN DORTMUND DISTRICT.

Year.	Miners and trammers.					Other underground workers.				
	Number.	Shifts worked per employee.	Net earnings.			Number.	Shifts worked per employee.	Net earnings.		
			Total.	Average per employee.				Total.	Average per employee.	
				Per shift.	Per year.				Per shift.	Per year.
1886..	55,763	290	\$11,252,075	\$0.70	\$201.78	23,221	307	\$3,681,695	\$0.52	\$158.55
1887..	54,698	302	11,530,479	.70	210.80	22,994	315	3,682,342	.51	160.14
1888..	65,967	316	14,603,029	.70	222.73	14,852	326	2,695,837	.56	181.51
1889..	72,254	301	17,673,619	.81	244.60	16,342	315	3,178,150	.62	194.48
1890..	78,226	297	22,031,736	.95	281.64	19,467	314	4,263,370	.70	219.06
1891..	82,719	298	23,952,436	.97	299.56	23,285	314	5,127,384	.70	220.20
1892..	75,616	289	20,147,817	.92	266.45	33,319	299	6,386,123	.64	191.67
1893..	75,336	292	19,439,144	.88	258.03	36,612	305	6,889,320	.62	188.17
1894..	77,945	295	20,445,949	.89	262.31	38,996	308	7,468,273	.62	191.51
1895..	78,091	297	20,694,091	.89	265.00	39,824	308	7,726,990	.63	194.03
1896..	81,927	308	23,448,270	.93	296.21	41,141	317	8,439,843	.65	205.14
1897..	88,930	307	28,111,222	1.03	316.11	45,327	322	9,986,340	.68	220.32
1898..	96,961	304	32,012,218	1.08	330.16	49,595	321	11,378,179	.71	229.42
1899..	103,707	308	36,803,000	1.15	354.88	53,347	325	13,034,689	.75	244.34
1900..	112,928	309	42,790,959	1.23	378.92	60,173	327	15,701,685	.80	260.94
1901..	119,130	291	41,031,123	1.19	344.42	67,267	306	16,388,352	.80	243.65
1902..	119,027	288	37,234,760	1.09	312.83	66,871	297	15,198,805	.77	227.29
1903..	123,629	304	41,531,044	1.11	335.93	70,498	311	17,070,211	.78	242.14

NUMBER OF EMPLOYEES, SHIFTS WORKED, AND NET EARNINGS IN EACH OF THE FIVE PRINCIPAL COAL-MINING DISTRICTS AND IN ONE LIGNITE-MINING DISTRICT OF PRUSSIA, BY GROUPS OF MINE EMPLOYEES, 1886 TO 1903—Continued.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XXXVII-LII. Net earnings per shift and per year per employee were computed. Salaried employees are not included. Conversion of German into United States money was made on the basis of 1 mark=\$0.238.]

COAL MINES IN DORTMUND DISTRICT—Concluded.

Year.	Male adult surface workers.					Males under 16 years of age.				
	Number.	Shifts worked per employee.	Net earnings.			Number.	Shifts worked per employee.	Net earnings.		
			Total.	Average per employee.				Total.	Average per employee.	
				Per shift.	Per year.				Per shift.	Per year.
1886..	17,822	324	\$3,230,086	\$0.56	\$181.24	3,146	276	\$206,996	\$0.24	\$65.80
1887..	17,001	326	3,232,865	.56	183.68	3,214	293	220,685	.23	68.63
1888..	17,548	337	3,326,850	.56	189.59	3,828	302	278,462	.24	72.74
1889..	19,188	334	3,914,813	.61	204.02	4,289	294	336,607	.27	78.48
1890..	21,438	333	4,778,353	.67	222.89	4,858	297	423,384	.29	87.15
1891..	23,153	334	5,237,160	.68	226.20	5,446	296	471,933	.29	86.66
1892..	24,169	325	5,168,129	.66	213.83	5,127	287	411,380	.28	80.24
1893..	25,576	325	5,345,331	.64	209.00	4,761	289	364,750	.26	76.61
1894..	26,008	327	5,632,676	.65	211.69	4,731	289	363,370	.27	76.81
1895..	27,462	326	5,825,913	.65	212.14	4,835	290	371,616	.27	76.86
1896..	28,912	333	6,428,332	.67	222.34	5,157	293	407,265	.27	78.97
1897..	31,159	335	7,361,365	.70	236.25	5,624	293	462,060	.28	82.16
1898..	33,379	337	8,118,729	.72	243.23	6,018	292	503,263	.29	83.63
1899..	35,513	339	9,090,383	.76	255.98	6,571	291	562,735	.29	85.64
1900..	39,671	339	10,597,847	.79	267.82	7,359	288	645,475	.30	87.71
1901..	42,390	325	10,867,948	.79	256.99	8,082	282	682,875	.30	84.49
1902..	42,624	322	10,624,137	.77	249.25	8,021	279	634,347	.28	79.09
1903..	45,560	332	11,862,445	.78	260.37	8,433	289	686,687	.28	81.43

Year.	All wageworkers.				
	Number.	Shifts worked per employee.	Net earnings.		
			Total.	Average per employee.	
			Per shift.	Per year.	
1886..	99,962	300	\$18,370,852	\$0.61	\$183.80
1887..	98,507	309	18,666,371	.61	189.49
1888..	102,195	321	20,994,178	.64	205.43
1889..	112,073	308	25,103,189	.73	223.99
1890..	123,984	306	31,496,743	.83	254.04
1891..	134,603	307	34,788,913	.84	258.46
1892..	138,231	298	32,113,449	.78	232.32
1893..	142,285	301	32,038,545	.75	225.17
1894..	148,280	304	33,910,268	.75	228.69
1895..	150,212	305	34,618,610	.76	230.47
1896..	157,137	315	38,723,610	.78	246.43
1897..	171,040	316	45,920,067	.85	268.48
1898..	185,953	314	52,012,389	.89	279.71
1899..	199,138	317	59,491,607	.94	298.75
1900..	220,031	318	69,735,966	1.00	316.94
1901..	236,769	301	68,970,298	.97	291.30
1902..	236,543	296	63,692,049	.91	269.26
1903..	248,120	311	71,150,387	.92	286.76

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NUMBER OF EMPLOYEES, SHIFTS WORKED, AND NET EARNINGS IN EACH OF THE FIVE PRINCIPAL COAL-MINING DISTRICTS AND IN ONE LIGNITE-MINING DISTRICT OF PRUSSIA, BY GROUPS OF MINE EMPLOYEES, 1886 TO 1903—Continued.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XXXVII-LII. Net earnings per shift and per year per employee were computed. Salaried employees are not included. Conversion of German into United States money was made on the basis of 1 mark=\$0.238.]

STATE COAL MINES IN SAARBRÜCK DISTRICT.(a)

Year.	Miners and trammers.					Other underground workers.				
	Num-ber.	Shifts worked per em-ployee.	Net earnings.			Num-ber.	Shifts worked per em-ployee.	Net earnings.		
			Total.	Average per em-ployee.				Total.	Average per em-ployee.	
				Per shift.	Per year.				Per shift.	Per year.
1887..	17,113	285	\$3,490,570	\$0.72	\$203.97	3,135	283	\$547,492	\$0.62	\$174.64
1888..	17,338	289	3,649,904	.73	210.51	3,010	302	562,521	.62	188.88
1889..	19,460	284	4,286,564	.82	232.21	3,194	306	667,905	.68	209.11
1890..	19,851	289	5,575,829	.97	280.88	3,574	314	861,768	.77	241.12
1891..	20,730	288	5,981,641	1.00	288.55	3,742	309	906,429	.79	242.38
1892..	17,767	276	4,935,580	1.01	277.79	7,370	293	1,521,701	.71	208.47
1893..	16,177	266	3,929,139	.91	242.88	6,826	286	1,290,668	.66	189.06
1894..	17,734	277	4,303,154	.87	242.65	7,410	298	1,394,304	.63	188.17
1895..	18,057	279	4,428,239	.88	245.24	7,475	296	1,415,260	.64	189.33
1896..	19,308	286	4,958,132	.89	256.79	7,774	307	1,518,623	.64	195.35
1897..	20,497	290	5,370,450	.90	262.01	8,035	311	1,602,182	.64	199.40
1898..	21,493	294	5,863,042	.93	272.79	8,392	316	1,705,736	.64	203.26
1899..	22,911	290	6,319,183	.95	275.81	8,687	310	1,738,686	.65	200.15
1900..	24,047	290	6,827,574	.98	283.93	9,607	295	1,914,020	.67	199.23
1901..	24,517	291	6,949,098	.97	283.44	10,322	296	2,100,911	.69	203.64
1902..	24,973	292	7,064,068	.97	282.87	10,017	297	2,071,081	.70	206.76
1903..	25,908	295	7,477,468	.98	288.62	10,589	299	2,213,065	.70	209.00

Year.	Male adult surface workers.					Males under 16 years of age.				
	Num-ber.	Shifts worked per em-ployee.	Net earnings.			Num-ber.	Shifts worked per em-ployee.	Net earnings.		
			Total.	Average per em-ployee.				Total.	Average per em-ployee.	
				Per shift.	Per year.				Per shift.	Per year.
1887..	3,910	275	\$649,498	\$0.60	\$166.11	82	286	\$6,897	\$0.29	\$84.11
1888..	3,949	279	668,616	.61	169.31	105	278	8,272	.28	78.78
1889..	3,853	286	731,340	.64	189.81	159	278	13,800	.31	86.79
1890..	3,930	304	947,495	.71	215.65	173	278	15,800	.33	91.33
1891..	4,228	301	913,876	.72	216.15	191	264	16,392	.33	85.82
1892..	4,448	292	919,744	.71	206.78	238	245	18,206	.31	76.50
1893..	4,261	286	823,409	.68	193.24	272	241	16,587	.25	60.98
1894..	4,488	291	865,384	.66	192.82	438	243	25,565	.24	58.37
1895..	4,563	285	886,913	.67	196.56	436	241	24,527	.23	56.25
1896..	4,795	289	942,849	.66	196.63	519	253	30,919	.23	59.57
1897..	5,129	286	1,001,130	.66	195.19	587	226	34,339	.26	58.50
1898..	5,261	288	1,050,401	.67	199.66	710	227	43,316	.27	61.01
1899..	5,507	286	1,109,200	.68	201.42	944	251	62,304	.26	66.00
1900..	5,368	307	1,176,024	.71	219.06	1,281	276	91,981	.26	71.90
1901..	5,610	309	1,240,475	.72	221.12	1,474	261	110,757	.27	75.14
1902..	5,935	309	1,312,886	.72	221.21	1,111	275	82,750	.27	74.48
1903..	6,073	309	1,356,408	.72	223.35	1,241	280	93,366	.27	75.22

a Detailed statistics for 1886 not available.

NUMBER OF EMPLOYEES, SHIFTS WORKED, AND NET EARNINGS IN EACH OF THE FIVE PRINCIPAL COAL-MINING DISTRICTS AND IN ONE LIGNITE-MINING DISTRICT OF PRUSSIA, BY GROUPS OF MINE EMPLOYEES, 1886 TO 1903—Continued.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XXXVII-LII. Net earnings per shift and per year per employee were computed. Salaried employees are not included. Conversion of German into United States money was made on the basis of 1 mark=\$0.238.]

## STATE COAL MINES IN SAARBRÜCK DISTRICT (a)—Concluded.

Year.	All wageworkers.				
	Number.	Shifts worked per employee.	Net earnings.		
			Total.	Average per employee.	
				Per shift.	Per year.
1886	24,714	284	\$4,755,440	\$0.68	\$192.43
1887	24,240	283	4,694,457	.68	193.67
1888	24,402	289	4,886,313	.69	200.37
1889	25,666	288	5,699,408	.77	222.07
1890	27,528	294	7,300,300	.90	265.22
1891	28,897	292	7,330,338	.93	270.63
1892	28,823	282	7,395,331	.88	247.97
1893	27,536	274	6,059,303	.80	220.07
1894	30,070	284	6,588,407	.77	219.10
1895	30,531	285	6,764,039	.78	221.58
1896	32,366	294	7,450,523	.78	229.98
1897	34,248	295	8,008,101	.79	233.83
1898	35,856	298	8,662,495	.81	241.59
1899	38,049	295	9,229,373	.82	242.57
1900	40,303	293	10,009,508	.85	248.36
1901	41,923	294	10,401,241	.84	248.10
1902	42,036	295	10,530,785	.85	250.52
1903	43,811	297	11,140,307	.86	254.28

<sup>a</sup> Detailed statistics for 1886 not available.

## COAL MINES IN AIX-LA-CHAPELLE DISTRICT. (a)

Year.	Miners and trammers.					Other underground workers.				
	Number.	Shifts worked per employee.	Net earnings.			Number.	Shifts worked per employee.	Net earnings.		
			Total.	Average per employee.				Total.	Average per employee.	
				Per shift.	Per year.				Per shift.	Per year.
1889	4,259	299	\$924,965	\$0.73	\$217.19	1,004	315	\$184,770	\$0.59	\$184.03
1890	4,449	290	1,097,009	.81	235.97	1,011	309	203,899	.65	201.68
1891	4,926	298	1,249,035	.85	252.67	1,034	319	215,850	.65	206.75
1892	4,775	290	1,080,727	.78	226.33	1,262	306	242,721	.63	192.33
1893	4,085	290	1,026,221	.76	219.04	1,541	303	280,103	.60	181.77
1894	4,716	294	1,038,771	.75	220.27	1,507	307	276,192	.60	183.27
1895	4,895	297	1,107,009	.76	226.27	1,511	311	283,172	.60	187.41
1896	5,006	300	1,180,985	.79	235.96	1,472	311	282,455	.62	191.89
1897	5,381	299	1,367,990	.85	254.23	1,450	308	293,190	.66	202.20
1898	5,738	300	1,532,097	.89	267.01	1,453	313	304,631	.67	209.66
1899	6,138	301	1,731,632	.94	282.15	1,483	314	333,154	.71	224.65
1900	6,368	302	2,040,144	1.06	320.37	1,512	319	361,361	.79	252.24
1901	6,979	299	2,154,921	1.03	308.77	1,769	311	439,518	.80	248.46
1902	7,384	293	2,169,592	1.00	293.82	1,903	305	453,676	.78	238.40
1903	7,970	297	2,400,110	1.01	301.14	2,006	311	489,529	.79	244.03

<sup>a</sup> Statistics for 1886, 1887, and 1888 not available.

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NUMBER OF EMPLOYEES, SHIFTS WORKED, AND NET EARNINGS IN EACH OF THE FIVE PRINCIPAL COAL-MINING DISTRICTS AND IN ONE LIGNITE-MINING DISTRICT OF PRUSSIA, BY GROUPS OF MINE EMPLOYEES, 1886 TO 1903—Continued.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staats, Statistischer Theil, Bände XXXVII-LII. Net earnings per shift and per year per employee were computed. Salaried employees are not included. Conversion of German into United States money was made on the basis of 1 mark=\$0.238.]

COAL MINES IN AIX-LA-CHAPELLE DISTRICT (c)—Concluded.

Year.	Male adult surface workers.					Female surface workers.				
	Num-ber.	Shifts worked per em- ployee.	Net earnings.			Num-ber.	Shifts worked per em- ployee.	Net earnings.		
			Total.	Average per em- ployee.				Total.	Average per em- ployee.	
				Per shift.	Per year.				Per shift.	Per year.
1889	1,823	206	\$267,483	\$0.56	\$164.81	42	293	\$3,620	\$0.29	\$86.19
1890	1,666	327	328,280	.60	197.05	39	305	3,778	.32	96.87
1891	1,639	324	314,964	.69	192.18	39	299	3,400	.29	87.41
1892	1,781	317	329,905	.69	185.24	2	355	3,100	.30	105.00
1893	1,733	326	327,705	.68	189.10	2	406	235	.29	117.60
1894	1,682	327	319,434	.68	189.91	21	148	894	.29	42.67
1895	1,851	323	355,155	.69	191.87	20	299	1,763	.29	88.15
1896	1,915	329	379,961	.60	198.41	19	275	1,552	.30	81.68
1897	1,972	326	369,593	.62	202.63	18	283	1,560	.30	86.11
1898	1,979	331	426,836	.65	215.68	18	277	1,569	.31	87.17
1899	2,007	337	453,362	.67	225.89	19	277	1,772	.34	93.26
1900	2,179	342	522,231	.72	239.67	21	269	2,221	.39	105.76
1901	2,502	331	611,908	.74	244.53	24	286	2,868	.42	119.50
1902	2,585	323	629,938	.75	242.75	24	280	2,737	.41	114.04
1903	2,697	326	679,560	.77	251.97	24	279	2,693	.40	112.21

Year.	Males under 16 years of age.					All wageworkers.				
	Num-ber.	Shifts worked per em- ployee.	Net earnings.			Num-ber.	Shifts worked per em- ployee.	Net earnings.		
			Total.	Average per em- ployee.				Total.	Average per em- ployee.	
				Per shift.	Per year.				Per shift.	Per year.
1889	279	285	\$20,216	\$0.25	\$72.46	7,207	300	\$1,401,084	\$0.65	\$194.41
1890	347	275	26,560	.28	76.54	7,712	300	1,659,528	.72	215.19
1891	385	296	31,657	.28	82.23	8,023	306	1,810,535	.74	225.67
1892	330	296	25,207	.27	76.38	8,150	298	1,678,770	.69	205.98
1893	296	289	20,873	.24	70.04	8,259	300	1,655,137	.67	200.40
1894	261	290	17,891	.24	68.55	8,187	302	1,653,182	.67	201.93
1895	274	283	18,664	.24	68.12	8,551	305	1,766,363	.68	206.57
1896	308	289	21,572	.24	70.04	8,719	308	1,866,535	.70	214.08
1897	355	289	25,631	.25	72.20	9,176	306	2,067,954	.74	227.56
1898	374	288	28,432	.26	76.02	9,562	308	2,293,565	.78	239.86
1899	367	283	28,797	.28	78.47	10,014	310	2,548,917	.82	254.55
1900	406	283	33,953	.30	83.63	10,486	310	2,979,940	.92	284.18
1901	472	287	38,894	.29	82.40	11,746	307	3,248,009	.90	276.52
1902	455	296	36,309	.28	79.80	12,361	301	3,292,252	.89	266.34
1903	481	286	38,444	.28	79.93	13,178	303	3,610,336	.90	273.97

\* Statistics for 1886, 1887, and 1888 not available.



NUMBER OF EMPLOYEES, SHIFTS WORKED, AND NET EARNINGS IN EACH OF THE FIVE PRINCIPAL COAL-MINING DISTRICTS AND IN ONE LIGNITE-MINING DISTRICT OF PRUSSIA, BY GROUPS OF MINE EMPLOYEES, 1886 TO 1903—Continued.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XXXVII-LII. Net earnings per shift and per year per employee were computed. Salaried employees are not included. Conversion of German into United States money was made on the basis of 1 mark—\$0.238.]

## LIGNITE MINES IN HALLE DISTRICT.

Year.	Miners and trammers.					Other underground workers.				
	Number.	Shifts worked per employee.	Net earnings.			Number.	Shifts worked per employee.	Net earnings.		
			Total.	Average per employee.				Total.	Average per employee.	
				Per shift.	Per year.				Per shift.	Per year.
1886(a)	10,348	304	\$1,757,850	\$0.56	\$169.87	726	304	\$113,922	\$0.52	\$156.92
1887	8,306	294	1,373,219	.56	165.33	802	302	122,564	.51	152.56
1888	7,833	294	1,343,455	.58	171.51	853	294	126,166	.50	147.91
1889	7,918	294	1,441,303	.62	182.02	896	299	145,507	.54	162.40
1890	8,640	290	1,690,714	.68	195.68	908	300	157,947	.58	173.84
1891	9,226	293	1,861,138	.69	201.73	983	307	170,443	.58	173.39
1892	8,989	298	1,838,733	.69	204.55	1,318	302	239,738	.60	181.90
1893	8,620	298	1,733,022	.67	201.05	1,338	298	237,350	.59	177.40
1894	8,381	298	1,657,132	.66	197.72	1,306	297	230,450	.59	176.45
1895	8,648	299	1,755,906	.68	203.03	1,372	299	244,148	.60	177.96
1896	8,823	301	1,876,317	.70	210.27	1,419	304	260,159	.60	183.34
1897	9,273	304	2,051,128	.73	221.19	1,611	304	303,943	.62	188.67
1898	9,683	304	2,202,017	.75	227.48	1,634	305	314,779	.63	192.64
1899	9,887	302	2,292,917	.79	239.17	1,661	303	330,825	.66	199.17
1900	10,503	303	2,710,179	.85	258.04	1,752	305	378,907	.71	216.27
1901	11,086	301	2,853,134	.85	255.56	2,328	302	502,613	.71	215.90
1902	10,275	302	2,485,020	.80	241.85	2,279	303	478,762	.69	210.08
1903	10,072	303	2,471,699	.81	245.88	2,344	304	490,206	.69	209.13

Year.	Male adult surface workers.					Female surface workers.				
	Number.	Shifts worked per employee.	Net earnings.			Number.	Shifts worked per employee.	Net earnings.		
			Total.	Average per employee.				Total.	Average per employee.	
				Per shift.	Per year.				Per shift.	Per year.
1886(a)	6,597	307	\$997,461	\$0.49	\$151.20	227	286	\$19,999	\$0.31	\$88.10
1887	9,047	296	1,346,337	.47	139.56	367	260	28,916	.30	73.79
1888	9,904	294	1,473,141	.51	148.74	483	264	40,137	.31	83.10
1889	10,046	293	1,627,050	.52	152.83	542	280	49,407	.33	91.16
1890	11,888	294	1,858,875	.56	163.23	611	284	57,813	.33	94.62
1891	12,310	296	2,069,100	.57	168.08	638	286	62,209	.34	97.51
1892	13,494	299	2,293,018	.57	169.93	652	284	65,890	.36	101.04
1893	13,282	300	2,212,835	.56	166.60	548	287	54,073	.34	98.67
1894	12,659	300	2,074,571	.55	163.88	506	284	47,894	.33	94.65
1895	13,134	301	2,193,015	.56	166.97	564	281	52,979	.33	93.93
1896	13,650	303	2,346,520	.57	171.91	582	293	57,022	.33	97.98
1897	14,150	305	2,517,918	.58	177.94	603	300	62,013	.34	102.84
1898	14,864	304	2,758,002	.61	185.59	680	300	74,705	.37	109.86
1899	15,007	305	3,048,456	.64	195.33	716	298	79,686	.37	111.29
1900	18,164	305	3,789,584	.68	208.63	826	297	97,457	.40	117.99
1901	21,622	304	4,545,454	.69	210.22	866	298	103,211	.40	119.18
1902	19,945	303	4,030,704	.67	202.09	721	299	84,242	.39	116.84
1903	19,424	305	4,013,506	.68	206.63	767	300	91,675	.40	119.52

\* Fiscal year ending September 30.

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NUMBER OF EMPLOYEES, SHIFTS WORKED, AND NET EARNINGS IN EACH OF THE FIVE PRINCIPAL COAL-MINING DISTRICTS AND IN ONE LIGNITE-MINING DISTRICT OF PRUSSIA, BY GROUPS OF MINE EMPLOYEES, 1886 TO 1903—Concluded.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staats, Statistischer Theil, Bände XXXVII-LII. Net earnings per shift and per year per employee were computed. Salaried employees are not included. Conversion of German into United States money was made on the basis of 1 mark = \$0.238.]

LIGNITE MINES IN HALLE DISTRICT—Concluded.

Year.	Males under 16 years of age.					All wageworkers.				
	Num-ber.	Shifts worked per em-ployee.	Net earnings.			Num-ber.	Shifts worked per em-ployee.	Net earnings.		
			Total.	Average per em-ployee.				Total.	Average per em-ployee.	
				Per shift.	Per year.				Per shift.	Per year.
1886(a)	150	300	\$12,501	\$0.28	\$83.34	18,048	305	\$2,901,733	\$0.53	\$160.78
1887 . .	202	284	16,462	.29	81.50	19,324	295	2,887,288	.51	149.41
1888 . .	217	273	17,002	.29	78.35	19,290	293	2,999,901	.53	155.52
1889 . .	222	285	18,888	.30	85.08	20,224	293	3,282,055	.55	162.29
1890 . .	272	289	25,018	.32	91.98	21,819	292	3,790,267	.59	173.71
1891 . .	321	285	29,699	.33	92.52	23,478	294	4,192,580	.61	178.58
1892 . .	287	282	25,921	.32	90.32	24,740	298	4,463,290	.61	180.41
1893 . .	229	285	19,948	.30	87.11	24,017	299	4,257,233	.59	177.26
1894 . .	191	289	16,147	.29	84.54	23,043	299	4,026,194	.59	174.73
1895 . .	187	288	16,411	.30	87.76	23,905	299	4,262,359	.60	178.30
1896 . .	222	296	20,532	.31	92.49	24,796	302	4,560,450	.61	183.92
1897 . .	250	295	23,853	.32	95.41	25,887	304	4,958,855	.63	191.56
1898 . .	290	295	28,058	.33	96.75	27,151	304	5,378,797	.65	198.11
1899 . .	363	295	36,608	.34	100.85	27,934	304	5,788,491	.68	207.22
1900 . .	447	297	49,513	.37	110.77	31,692	304	7,025,640	.73	221.68
1901 . .	485	296	53,489	.37	110.29	36,387	303	8,037,901	.73	220.90
1902 . .	456	295	47,943	.36	105.14	33,676	302	7,126,671	.70	211.62
1903 . .	429	293	44,402	.35	103.50	33,016	304	7,111,388	.71	215.39

<sup>a</sup> Fiscal year ending September 30.

In the year 1903 the net earnings per employee of coal mine workers were highest in the Dortmund district, where over one-half of the entire Prussian coal output is produced, and lowest in Lower Silesia. There was an upward movement during the period in the average earnings of employees in each of the groups of mine employees. With the exception of Saarbrück, the earnings show a decline in each district in 1902, which, however, was partly recovered in 1903. The increase of yearly earnings is, in general, less marked in the case of children than in that of adults. In the State mines of Saarbrück the earnings of children show a decrease during the period from 1887 to 1903. The earnings per wageworker in the Government mines of Saarbrück are lower than those in the districts of Dortmund and Aix-la-Chapelle, but higher than those in Upper and Lower Silesia. The increase in the yearly earnings of wage-workers during the period was less marked in these State mines than in any of the other coal-mining districts. In 1903 the average yearly net earnings of miners and trammers in Dortmund were \$335.93; of other underground workers, \$242.14; of male adult surface workers, \$260.37, and of boys under 16 years of age, \$81.43. No females were employed in this district. In Lower Silesia, where the lowest wages are paid, the average yearly earnings of miners and trammers were

\$209.81; of other underground workers, \$202.94; of male adult surface workers, \$186.90; of female surface workers, \$103.93, and of boys under 16 years of age, \$70.64. In the Government mines of Saarbrück miners and trammers earned an average of \$288.62; other underground workers, \$209; male adult surface workers, \$223.35, and boys under 16 years of age, \$75.23, no women being employed.

In the Prussian lignite mines of Halle the earnings of wageworkers are lower than in the coal mines of all but the Silesian districts. In this industry there was likewise an upward movement of the earnings in each of the different classes of occupations until the year 1901, when there was a slight decrease, which decrease was continued in 1902 with a partial recovery in 1903.

The number of shifts worked per employee per year in coal mines varies with the occupation, being usually less in the case of miners and trammers and women and children than in the other classes of coal mine employees. In the Dortmund district the average number of shifts worked per employee per year during the 18-year period has generally been higher than in the other mine districts, varying from 288 in 1902 to 316 in 1888, in the case of miners and trammers, and from 296 in 1902 to 321 in 1888, in the case of all wageworkers. The number of shifts per employee per year has usually been lowest in Upper Silesia, varying from 262 in 1894 to 277 in 1898, in the case of miners and trammers, and from 270 in 1886 and 1887 to 283 in 1890, in the case of all coal-mine workers.

It will be seen that during the period from 1886 to 1903 the average number of shifts worked per employee in all groups of mine employees in any mining district of Prussia was never below 270 and has been as high as 321 shifts in one year. The number of shifts worked per employee per year in the Government mines is below the general average for Prussia.

In the lignite mines of Halle the employees worked an average of about 300 shifts per year each, and there was but little difference between the number of shifts worked below and above ground. The women and boys worked fewer shifts than the men.

The hours of labor per shift in the coal and lignite mines likewise varied considerably with the occupation and the mining district. In Dortmund, where the yearly earnings per employee were highest, the hours per shift were shortest, while in Lower Silesia, where the earnings were much smaller, the hours of labor were much longer. In the lignite mines of Halle the hours per shift were longer than in the Prussian coal mines. The table following shows, for groups of mine employees, by districts, the average number of hours per shift worked in the coal and lignite mines of Prussia from 1891 to 1903.

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HOURS OF LABOR PER SHIFT (INCLUDING TIME OCCUPIED IN GOING TO AND RETURNING FROM MINES AND FOR MEALS) OF THE VARIOUS GROUPS OF MINE EMPLOYEES IN EACH OF THE FIVE PRINCIPAL COAL-MINING DISTRICTS AND IN ONE LIGNITE-MINING DISTRICT OF PRUSSIA, 1891 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XL-LII. Salaried employees are not included.]

Year.	Miners and trammers.						Other underground workers.					
	Coal mines.					Lignite mines, Halle.	Coal mines.					Lignite mines, Halle.
	Upper Silesia.	Lower Silesia.	Dortmund.	Saarbrück. (a)	Aix-la-Chapelle.		Upper Silesia.	Lower Silesia.	Dortmund.	Saarbrück. (a)	Aix-la-Chapelle.	
1891..	8-12	8-10	6-12	b8	9.6	11.4	8-12	8-12	6-9 <sup>1</sup>	b8	9.7	11.5
1892..	8-12	8-10	6-9	b8	9.2	11.4	8-12	8-12	6-9 <sup>1</sup>	b8	9.1	11.5
1893..	8-12	8-12	6-9	b8	9.5	11.4	8-12	8-12	6-9	b8	9.5	11.5
1894..	8-12	8-12	6-9	b8	9.2	11.3	8-12	8-12	6-9 <sup>1</sup>	b8	9.2	11.5
1895..	8-12	8-12	6-9	b8	9.3	11.5	8-12	8-12	6-9	b8	9.3	11.6
1896..	8-12	8-12	6-9	9	9.5	11.5	8-12	8-12	6-10	9	9.5	11.6
1897..	8-12	8-12	6-9	9	9.5	11.6	8-12	8-12	6-9	9	9.5	11.6
1898..	8-12	8-12	6-9	9	9.5	11.4	8-12	8-12	6-9	9	9.5	11.5
1899..	8-12	8-12	8-9	9	9.5	11.5	8-12	8-12	8-9	9	9.5	11.5
1900..	8-12	8-12	8-9	9	9.5	11.7	8-12	8-12	8-9	9	9.5	11.7
1901..	8-12	8-12	8-9	9	9.4	11.4	8-12	8-12	8-9	9	9.5	11.4
1902..	8-12	8-10	8-9	9	9.3	11.3	8-12	8-12	8-9	9	9.4	11.3
1903..	8-12	8-12	8-9	8.5	9.3	11.1	8-12	8-12	8-9	8.5	9.4	11.1

  

Year.	Male adult surface workers.						Males under 16 years of age.					
	Coal mines.					Lignite mines, Halle.	Coal mines.					Lignite mines, Halle.
	Upper Silesia.	Lower Silesia.	Dortmund.	Saarbrück. (a)	Aix-la-Chapelle.		Upper Silesia.	Lower Silesia.	Dortmund.	Saarbrück. (a)	Aix-la-Chapelle.	
1891..	8-12	8-12	8-12	9.5	10.2	11.5	8-12	8-12	7-12	9.5	9.1	10.7
1892..	8-12	8-12	8-12	9.5	10.6	11.7	8-12	8-12	6-12	9.5	9.7	10.6
1893..	8-12	8-12	6-12	9.5	10.5	11.7	8-12	8-12	6-12	9.5	9	11.4
1894..	8-12	8-12	6-12	9.5	10.5	11.4	8-12	8-12	6-12	9.5	9	11.6
1895..	8-12	8-12	6-12	9.5	10.6	11.7	8-12	8-12	6-12	9.5	9.1	11.2
1896..	8-12	8-12	6-12	9.5	10.7	11.8	8-12	8-12	6-12	9.5	9.2	11.1
1897..	8-12	8-12	6-12	9.5	10.7	11.8	8-12	8-12	6-12	9.5	9.2	11.4
1898..	8-12	8-12	6-12	9.5	10.7	11.8	8-12	8-12	6-12	9.5	9.2	11.4
1899..	8-12	8-12	8-12	9.5	10.6	11.9	8-12	8-12	6-12	9.5	9.7	11.4
1900..	8-12	8-12	8-12	9.5	10.6	11.9	8-12	8-12	6-12	7	9.6	11.4
1901..	8-12	8-12	8-12	9.5	10.5	11.9	8-12	8-12	6-12	7	9.6	11
1902..	8-12	8-12	8-12	9.5	10.5	11.8	8-12	8-12	6-12	7	9.4	11
1903..	8-12	8-12	8-12	9.5	10.9	11.7	8-12	8-12	6-12	7	9.1	11.1

  

Year.	Female surface workers.						All employees.					
	Coal mines.					Lignite mines, Halle.	Coal mines.					Lignite mines, Halle.
	Upper Silesia.	Lower Silesia.	Dortmund.	Saarbrück. (a)	Aix-la-Chapelle.		Upper Silesia.	Lower Silesia.	Dortmund.	Saarbrück. (a)	Aix-la-Chapelle.	
1891..	8-12	8-12	.....	.....	11.6	11.7	8-12	8-12	6-12	8.2	9.7	11.5
1892..	8-12	8-12	.....	.....	12	11.8	8-12	8-12	6-12	8.2	9.5	11.6
1893..	8-12	8-12	.....	.....	12	11.6	8-12	8-12	6-12	8.3	9.7	11.6
1894..	8-12	8-12	.....	.....	10.7	11.7	8-12	8-12	6-12	8.2	9.5	11.4
1895..	8-12	8-12	.....	.....	10.6	11.5	8-12	8-12	6-12	8.1	9.6	11.6
1896..	8-12	8-12	.....	.....	11.2	11.6	8-12	8-12	6-12	9.1	9.8	11.6
1897..	8-12	8-12	.....	.....	11	11.6	8-12	8-12	6-12	9.1	9.8	11.7
1898..	8-12	8-12	.....	.....	10.9	11.7	8-12	8-12	6-12	9.1	9.8	11.6
1899..	8-12	8-12	.....	.....	10.9	11.5	8-12	8-12	6-12	9.2	9.7	11.7
1900..	8-12	8-12	.....	.....	11	11.7	8-12	8-12	6-12	9	9.8	11.8
1901..	8-12	8-12	.....	.....	10.5	11.6	8-12	8-12	6-12	9	9.7	11.7
1902..	8-12	8-12	.....	.....	11	11.3	8-12	8-12	6-12	9	9.7	11.5
1903..	8-12	8-12	.....	.....	10.8	11.6	8-12	8-12	6-12	8.5	9.7	11.5

a State mines.

b Exclusive of time occupied in going to and returning from work.

As above mentioned, the statistics of the earnings of wageworkers represent the actual net receipts of the working people, after mak-

ing deductions for the various benefit funds, tools, implements, lamps, oil, and lighting material furnished. On the other hand, in many mines, particularly in Silesia and Aix-la-Chapelle, extra allowances in the form of free lands, dwellings, supplies, etc., are made, which are not counted in the earnings.

The following table shows the amounts deducted for each cause and the estimated value of extra allowances granted in each mining district for which these facts have been reported:

AVERAGE AMOUNTS PER SHIFT DEDUCTED FROM GROSS EARNINGS OF MINE EMPLOYEES, AND ESTIMATED VALUE PER SHIFT OF EXTRA ALLOWANCES (LANDS, DWELLINGS, SUPPLIES, ETC.) IN THE FIVE PRINCIPAL COAL-MINING DISTRICTS OF PRUSSIA, 1887 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XL-LII. Conversion of German into United States money was made on the basis of 1 mark=\$0.238.]

Year.	Deductions for—									
	Sickness, old age, invalidity, and death benefit insurance.					Tools and implements furnished and repaired.				
	Upper Silesia.	Lower Silesia.	Dortmund.	Saarbrück. (a)	Aix-la-Chapelle.	Upper Silesia.	Lower Silesia.	Dortmund.	Saarbrück. (a)	Aix-la-Chapelle.
1887.....	\$0.019	\$0.019	{ \$0.021 .029 }	\$0.043	(b)	\$0.033	\$0.010	{ \$0.017 .021 }	\$0.010	(b)
1888.....	.019	.019	.029	.043	(b)	.033	.010	.024	.010	(b)
1889.....	.021	.019	.031	.043	\$0.025	.036	.010	.019	.005	\$0.019
1890.....	.021	.019	.031	.043	.025	.036	.010	.021	.005	.017
1891.....	.028	.024	.038	.057	.025	.039	.011	.024	.004	.017
1892.....	.030	.024	.043	.055	.037	.041	.012	.026	.004	.008
1893.....	.030	.024	.040	.067	.038	.039	.011	.029	.004	.003
1894.....	.031	.024	.038	.059	.035	.037	.011	.029	.004	.004
1895.....	.030	.024	.038	.057	.036	.036	.011	.026	.004	.003
1896.....	.030	.025	.038	.059	.035	.038	.011	.029	.004	.003
1897.....	.030	.027	.038	.059	.035	.038	.013	.029	.004	.003
1898.....	.030	.027	.038	.059	.035	.038	.014	.029	.004	.003
1899.....	.031	.028	.043	.059	.036	.039	.014	.031	.004	.002
1900.....	.037	.029	.045	.060	.036	.039	.015	.031	.005	.002
1901.....	.036	.029	.048	.063	.033	.038	.015	.033	.004	.004
1902.....	.038	.029	.048	.065	.035	.039	.016	.033	.004	.004
1903.....	.039	.029	.048	.069	.035	.038	.016	.033	.005	.004

Year.	Deductions for—					Estimated value of extra allowances of free lands, dwellings, supplies, etc.		
	Lamps, oil, and lighting materials.					Upper Silesia.	Lower Silesia.	Aix-la-Chapelle.
	Upper Silesia.	Lower Silesia.	Dortmund.	Saarbrück. (a)	Aix-la-Chapelle.			
1887.....	c \$0.013	c \$0.013	\$0.021	\$0.021	\$0.021	\$0.010	\$0.012	(b)
1888.....	c .012	c .012	.021	.021	.021	.010	.012	(b)
1889.....	.019	.010	.017	.011	.018	.010	.012	\$0.013
1890.....	.019	.010	.017	.010	.017	.014	.012	.014
1891.....	.017	.009	.014	.010	.017	.015	.016	.014
1892.....	.017	.007	.017	.010	.003	.016	.016	.018
1893.....	.015	.006	.014	.010	.004	.015	.017	.018
1894.....	.015	.005	.014	.010	.009	.015	.017	.016
1895.....	.016	.005	.014	.010	.006	.015	.018	.017
1896.....	.014	.005	.014	.010	.005	.014	.017	.017
1897.....	.016	.005	.014	.010	.001	.014	.017	.016
1898.....	.016	.005	.014	.010	.....	.015	.016	.016
1899.....	.015	.004	.014	.010	.....	.015	.016	.016
1900.....	.015	.003	.014	.010	.....	.018	.016	.017
1901.....	.016	.001	.014	.010	.....	.021	.022	.016
1902.....	.015	.002	.014	.010	.....	.022	.024	.016
1903.....	.014	.002	.014	.010	.001	.023	.023	.016

a State mines.

b Not reported.

c Average for Upper and Lower Silesia.



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The following table is a summary of the number of coal mine employees, exclusive of salaried persons, the quantity and value of product and net earnings per wageworker, and the value of coal per ton at the mine in each of the four leading mine districts for the years 1886 to 1903:

NUMBER OF EMPLOYEES IN COAL MINES, QUANTITY AND VALUE OF PRODUCT PER EMPLOYEE, NET EARNINGS PER EMPLOYEE, AND VALUE OF PRODUCT PER METRIC TON IN FOUR OF THE PRINCIPAL COAL-MINING DISTRICTS OF PRUSSIA, 1886 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XXXVI, XXXVII, L-LII. Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. I, X. Salaried employees are not included. Value of product per employee, net earnings per employee, and value of product per metric ton were computed. Conversion of German into United States money was made on the basis of 1 mark = \$0.238. A metric ton = 2,204.6 pounds.]

Year.	Upper Silesia.					Lower Silesia.				
	Total employ-ees.	Product per employ-ee.		Net earnings per employ-ee.	Value of product per metric ton.	Total employ-ees.	Product per employ-ee.		Net earnings per employ-ee.	Value of product per metric ton.
		Quan-tity.	Value.				Quan-tity.	Value.		
1886	40,093	325	\$300.96	\$116.58	\$0.93	13,184	226	\$318.40	\$139.50	\$1.31
1887	39,973	328	295.32	117.05	.90	13,572	228	318.31	148.96	1.40
1888	40,870	354	317.14	122.86	.90	13,974	228	315.95	149.88	1.38
1889	43,183	365	340.75	136.76	.93	14,441	225	340.63	162.43	1.51
1890	48,321	349	416.93	159.72	1.19	15,841	202	384.10	175.03	1.90
1891	53,493	331	443.70	164.97	1.34	16,669	203	399.84	180.60	1.97
1892	53,905	305	409.12	159.18	1.34	17,294	197	368.96	177.68	1.87
1893	52,978	323	430.37	157.20	1.33	17,205	209	369.26	173.64	1.76
1894	52,300	329	426.91	158.04	1.30	17,282	213	358.65	171.96	1.68
1895	52,388	345	448.92	160.70	1.30	17,834	217	363.98	175.49	1.67
1896	54,583	359	470.35	165.91	1.31	18,404	221	367.71	180.16	1.66
1897	56,376	366	467.05	171.66	1.33	18,846	220	369.30	187.39	1.68
1898	58,303	382	531.43	183.58	1.39	19,522	224	385.05	193.37	1.72
1899	61,889	379	560.92	190.72	1.48	20,459	219	400.05	201.33	1.82
1900	68,325	363	642.04	208.68	1.75	22,146	215	470.98	216.50	2.19
1901	77,183	327	656.97	207.56	2.01	24,107	195	476.37	207.28	2.44
1902	79,179	309	587.10	195.22	1.90	24,061	190	414.81	190.06	2.18
1903	82,213	307	563.60	198.09	1.83	24,553	200	390.19	196.85	1.95

  

Year.	Dortmund district.					State mines in Saarbrück district.				
	Total employ-ees.	Product per employ-ee.		Net earnings per employ-ee.	Value of product per metric ton.	Total employ-ees.	Product per employ-ee.		Net earnings per employ-ee.	Value of product per metric ton.
		Quan-tity.	Value.				Quan-tity.	Value.		
1886	99,952	285	\$318.47	\$183.79	\$1.11	24,714	236	\$411.04	\$192.43	\$1.74
1887	98,507	306	338.34	189.49	1.10	24,240	246	418.83	193.67	1.70
1888	102,195	325	371.36	205.43	1.14	24,402	256	439.62	200.37	1.72
1889	112,073	302	392.81	223.99	1.30	25,666	237	451.19	222.07	1.90
1890	123,984	286	542.18	254.04	1.89	27,528	226	583.00	265.22	2.58
1891	134,003	278	553.05	258.46	1.98	28,897	221	551.26	270.63	2.49
1892	138,251	267	497.74	232.32	1.75	29,823	210	496.17	247.97	2.36
1893	142,285	271	414.09	225.17	1.52	27,536	214	462.36	220.07	2.16
1894	148,280	274	415.47	226.69	1.51	30,070	219	459.62	219.10	2.10
1895	150,212	274	434.03	230.47	1.58	30,531	226	475.37	221.58	2.11
1896	157,137	286	460.45	246.43	1.61	32,396	238	507.37	229.98	2.13
1897	171,040	283	473.90	248.48	1.67	34,248	241	530.64	233.83	2.20
1898	185,953	274	477.45	279.71	1.74	35,856	245	548.76	241.59	2.24
1899	199,138	274	500.02	298.75	1.82	38,049	237	569.30	242.57	2.40
1900	220,031	271	550.35	316.04	2.03	40,303	233	645.36	248.36	2.77
1901	226,769	247	514.85	291.30	2.09	41,923	224	673.31	248.10	3.01
1902	236,543	245	489.77	269.26	2.00	42,036	226	(b)	250.52	(b)
1903	248,120	261	513.83	286.76	1.97	43,811	230	(b)	254.28	(b)

<sup>a</sup> Figures computed.

<sup>b</sup> Not reported.



It will be observed that in each district the fluctuations of the yearly earnings follow more or less closely those of the value of product per wage-earner, although the variations in the former are much less marked than in the latter.

Comparing the figures for 1886 with those for the last year of the period, it is found that the value of the yearly product per employee increased 61.3 per cent in the Dortmund district, 22.5 per cent in Lower Silesia, and 87.3 per cent in Upper Silesia. In the State mines in Saarbrück district the increase in 1901, the last year reported, over 1886 was 64 per cent. The yearly net earnings per wageworker increased 56 per cent in Dortmund, 41.1 per cent in Lower Silesia, 69.8 per cent in Upper Silesia, and 32.1 per cent in the State mines in Saarbrück district. In each district except Lower Silesia, therefore, the relative increase in the value of the product per wageworker during the period has been greater than the relative increase in the average annual earnings. The greatest difference between the increase in the value of product per wageworker and the increase in the yearly earnings occurs in the State mines in Saarbrück district, where the former increased 64 per cent and the latter only 32.1 per cent. The value per ton of coal at the pit's mouth has increased considerably in each district during the period. The production per employee in each of the districts was lower in 1903 than in 1886.

## ACCIDENTS.

Statistics of accidents in the coal mines of the German Empire, as a whole, have not been published. Those for Prussia, however, are fairly complete for the period from 1852 to 1903. The following table shows for each year of that period the number of employees, the number of employees killed, and the number killed per thousand persons employed in coal, lignite, ore, and other mines coming under the supervision of the mine authorities of Prussia:

NUMBER AND RATE PER 1,000 OF EMPLOYEES KILLED IN COAL, LIGNITE, ORE, AND OTHER MINES IN PRUSSIA, 1852 TO 1903.

[Source: 1852 to 1861, Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate Statistischer Theil, Zusammenstellung, Von Althaus, 1852-1861; 1862 to 1903, Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XI-XV, XL-LII. The statistics relate to all persons employed in and about mines under the supervision of the Prussian mine authorities. The rate per 1,000 was computed.]

Year.	Coal mines.			Lignite mines.		
	Number of employees.	Employees killed.		Number of employees.	Employees killed.	
		Number.	Per 1,000 employed.		Number.	Per 1,000 employed.
1852.....	36,029	59	1.64	7,599	19	2.50
1853.....	41,308	89	2.15	7,929	10	1.26
1854.....	47,983	80	1.67	8,063	13	1.61
1855.....	55,644	112	2.02	9,030	12	1.33
1856.....	61,555	145	2.36	9,410	26	2.76
1857.....	64,296	135	2.10	10,298	22	2.14
1858.....	69,352	113	1.63	11,029	20	1.81
1859.....	64,454	154	2.39	10,391	15	1.44
1860.....	64,185	150	2.34	9,938	19	1.91
1861.....	67,720	167	2.47	10,744	23	2.14
1862.....	68,902	168	2.44	11,534	19	1.65
1863.....	70,961	160	2.25	11,715	21	1.79
1864.....	79,609	245	3.08	13,065	22	1.68
1865.....	88,514	246	2.78	14,137	48	3.40
1866.....	90,085	251	2.79	13,329	36	2.70
1867.....	103,276	293	2.84	14,937	51	3.41
1868.....	105,959	372	3.51	15,296	25	1.63
1869.....	111,179	319	2.87	15,058	38	2.52
1870.....	107,703	339	3.15	14,780	41	2.77
1871.....	131,337	403	3.07	16,863	65	3.85
1872.....	139,858	383	2.74	17,447	53	3.04
1873.....	159,562	450	2.82	18,068	50	2.77
1874.....	161,993	484	2.99	18,597	38	2.04
1875.....	160,462	454	2.83	18,448	43	2.33
1876.....	159,960	451	2.82	19,322	48	2.48
1877.....	147,024	406	2.76	18,827	33	1.75
1878.....	146,319	401	2.74	18,302	38	2.08
1879.....	149,552	444	2.97	18,627	40	2.15
1880.....	156,125	503	3.22	19,767	42	2.12
1881.....	162,951	507	3.11	19,959	49	2.46
1882.....	172,397	587	3.41	20,108	44	2.19
1883.....	184,099	601	3.26	21,197	40	1.89
1884.....	190,707	567	2.97	21,614	49	2.27
1885.....	193,948	695	3.58	22,300	53	2.38
1886.....	192,080	490	2.55	23,484	47	2.00
1887.....	191,379	513	2.68	23,266	58	2.49
1888.....	198,963	544	2.73	23,408	50	2.14
1889.....	213,158	553	2.59	24,612	62	2.52
1890.....	234,572	618	2.63	26,634	46	1.73
1891.....	253,035	731	2.89	29,046	53	1.82
1892.....	259,051	572	2.21	30,416	52	1.71
1893.....	259,984	681	2.62	29,679	62	2.09
1894.....	268,858	594	2.21	28,700	57	1.99
1895.....	272,453	692	2.54	30,432	64	2.10
1896.....	284,477	735	2.58	31,258	52	1.66
1897.....	303,370	714	2.35	33,020	78	2.36
1898.....	324,351	929	2.86	35,135	70	1.99
1899.....	344,368	797	2.31	37,017	72	1.95
1900.....	372,385	848	2.25	42,350	100	2.36
1901.....	408,375	956	2.34	48,801	122	2.50
1902.....	411,323	818	1.98	44,342	96	2.16
1903.....	429,837	826	1.92	43,211	83	1.92

NUMBER AND RATE PER 1,000 OF EMPLOYEES KILLED IN COAL, LIGNITE, ORE, AND OTHER MINES IN PRUSSIA, 1852 TO 1903—Concluded.

[Source: 1852 to 1861, *Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Zusammenstellung*, Von Althaus, 1852-1861; 1862 to 1903, *Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XI-XV, XL-LII*. The statistics relate to all persons employed in and about mines under the supervision of the Prussian mine authorities. The rate per 1,000 was computed.]

Year.	Ore mines.			Other mines.			All mines.		
	Number of employees.	Employees killed.		Number of employees.	Employees killed.		Number of employees.	Employees killed.	
		Number.	Per 1,000 employed.		Number.	Per 1,000 employed.		Number.	Per 1,000 employed.
1852.....	18,366	18	0.98	2,394	8	3.34	63,388	104	1.64
1853.....	24,509	27	1.10	2,653	8	2.98	76,519	134	1.75
1854.....	28,258	31	1.31	2,772	3	1.08	87,101	133	1.53
1855.....	28,698	41	1.43	3,467	7	2.02	96,734	172	1.78
1856.....	30,552	43	1.41	2,868	5	1.74	104,385	219	2.10
1857.....	32,913	45	1.37	3,675	12	3.27	111,182	214	1.92
1858.....	31,603	49	1.55	3,621	8	2.21	115,605	190	1.64
1859.....	29,328	35	1.19	3,576	3	1.84	107,749	207	1.92
1860.....	30,977	30	1.07	3,801	9	2.37	108,901	211	1.94
1861.....	33,347	30	0.90	4,068	8	1.96	115,989	228	1.97
1862.....	36,390	43	1.18	4,644	7	1.51	121,470	237	1.95
1863.....	37,922	42	1.11	4,980	11	2.22	125,538	234	1.86
1864.....	39,658	65	1.64	4,970	7	1.44	137,352	339	2.47
1865.....	41,606	43	1.03	4,870	7	1.44	149,130	344	2.31
1866.....	41,115	50	1.22	3,626	9	2.48	148,155	348	2.34
1867.....	37,671	73	1.97	5,719	3	1.52	151,503	420	2.31
1868.....	57,782	85	1.47	5,870	8	1.36	186,907	490	2.62
1869.....	59,633	81	1.35	6,120	12	1.96	192,280	450	2.34
1870.....	55,044	79	1.44	6,005	10	1.67	183,532	469	2.56
1871.....	58,786	81	1.38	6,190	13	2.10	213,156	562	2.64
1872.....	63,493	110	1.73	6,722	18	2.68	227,520	564	2.48
1873.....	62,266	98	1.57	7,698	22	2.86	247,594	620	2.50
1874.....	55,468	60	1.08	7,097	9	1.27	243,155	591	2.43
1875.....	52,773	79	1.50	8,039	11	1.37	239,722	587	2.45
1876.....	53,657	91	1.70	8,226	10	1.22	240,665	600	2.49
1877.....	56,758	78	1.34	8,508	19	2.23	231,117	534	2.31
1878.....	59,848	92	1.54	7,595	11	1.45	232,084	542	2.34
1879.....	60,166	82	1.36	7,272	9	1.24	235,617	575	2.44
1880.....	67,174	97	1.44	7,228	8	1.11	250,294	650	2.60
1881.....	69,984	107	1.53	7,885	17	2.16	280,779	680	2.61
1882.....	71,644	87	1.22	8,208	22	2.68	272,357	740	2.72
1883.....	72,347	97	1.34	8,560	14	1.63	286,233	752	2.63
1884.....	70,513	83	1.18	9,067	16	1.76	291,901	715	2.45
1885.....	67,332	81	1.20	9,133	12	1.31	292,713	841	2.87
1886.....	62,780	90	1.43	9,546	20	2.10	287,860	647	2.25
1887.....	63,660	70	1.10	10,069	22	2.18	288,394	663	2.30
1888.....	66,193	77	1.16	10,566	25	2.37	299,130	696	2.33
1889.....	68,136	74	1.09	11,176	23	2.06	317,082	712	2.25
1890.....	69,113	88	1.27	11,585	16	1.38	341,904	768	2.25
1891.....	67,642	70	1.03	11,789	12	1.02	361,512	866	2.40
1892.....	66,635	72	1.08	11,243	25	2.22	367,345	721	1.96
1893.....	64,244	51	0.79	11,751	27	2.30	365,658	821	2.25
1894.....	61,703	62	1.00	11,882	23	1.94	371,143	736	1.98
1895.....	62,887	63	1.00	11,995	23	1.92	377,767	842	2.23
1896.....	63,307	72	1.14	12,732	21	1.65	391,774	878	2.24
1897.....	64,971	68	1.05	14,277	23	1.61	415,638	883	2.12
1898.....	65,491	65	0.99	15,335	30	1.96	440,312	1,094	2.48
1899.....	67,458	94	1.39	16,242	20	1.23	465,085	968	2.11
1900.....	69,868	78	1.12	17,561	27	1.54	507,164	1,063	2.08
1901.....	69,132	81	1.17	18,351	50	2.72	544,659	1,209	2.22
1902.....	66,853	60	0.90	18,445	31	1.68	540,963	1,005	1.86
1903.....	65,766	68	1.03	19,338	29	1.50	558,162	1,005	1.80

\* This total is 1,000 less than the sum of the items. The figures are reproduced as given in the original.

The highest average death rate for the period as a whole has been in the coal mines. Next in order are lignite mines; mines other than coal, lignite, and ore mines, and, lastly, ore mines.

Owing to the annual fluctuations in the death rate the movement can better be traced by considering the death rate by 5-year periods. If such a comparison is made for the whole series of years it will be found that in the coal, lignite, and ore mines the death rate increased with the increase in mining operations until about the middle of the last half century, after which there is a well-marked tendency to decrease. Thus, in coal mining the maximum average death rate was reached during the period from 1881 to 1885, after which there is a steady and rapid decline in the death rate. In the lignite industry the maximum was reached during the period from 1871 to 1875, and in the ore-mining industry during the period from 1876 to 1880, after which, in each case, there is a decline in the death rate, although not so steady as in the case of the coal mines.

The next two tables show the deaths from accidents in coal and lignite mines, respectively, by principal causes for each year from 1852 to 1903:

## EMPLOYEES KILLED IN COAL MINES IN PRUSSIA, BY PRINCIPAL CAUSES, 1852 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände II-LIII. The statistics relate to all persons employed in and about coal mines under the supervision of the Prussian mine authorities.]

Year.	Number of employees.	Employees killed.										Total.	
		By explosives.	By falls of earth.	On inclined plane.	By shaft accidents.	In haulage.	By explosion of fire damp or coal dust.	By suffocation by natural gases.	By machinery.	By irruption of water.	By other causes.		On surface.
1852..	36,029	(a)	29	(a)	12	(a)	(a)	8	7	(a)	3	(a)	59
1853..	41,398	(a)	26	(a)	18	(a)	(a)	18	15	(a)	2	(a)	89
1854..	47,983	(a)	49	(a)	10	(a)	(a)	9	10	(a)	2	(a)	80
1855..	55,544	(a)	53	(a)	17	(a)	(a)	13	21	(a)	8	(a)	112
1856..	61,555	(a)	63	(a)	36	(a)	(a)	14	21	(a)	11	(a)	145
1857..	64,296	(a)	55	(a)	44	(a)	(a)	7	22	(a)	7	(a)	135
1858..	69,352	(a)	55	(a)	27	(a)	(a)	9	17	(a)	5	(a)	113
1859..	64,454	(a)	56	(a)	50	(a)	(a)	29	14	(a)	5	(a)	154
1860..	64,185	(a)	50	(a)	34	(a)	(a)	27	26	(a)	13	(a)	150
1861..	67,720	(a)	55	(a)	23	(a)	(a)	46	7	(a)	36	(a)	167
1862..	68,902	(a)	62	(a)	55	(a)	(a)	18	31	(a)	2	(a)	168
1863..	70,961	(a)	74	(a)	29	(a)	(a)	11	35	(a)	11	(a)	160
1864..	79,609	(a)	96	(a)	45	(a)	(a)	54	37	(a)	13	(a)	245
1865..	88,514	(a)	103	(a)	39	(a)	(a)	34	2	(a)	68	(a)	246
1866..	90,085	(a)	116	(a)	56	(a)	(a)	23	3	(a)	53	(a)	251
1867..	103,276	8	106	38	65	7	39	9	4	5	7	5	293
1868..	105,959	18	126	23	59	14	91	5	12	.....	9	15	372
1869..	111,179	7	131	41	51	15	23	11	10	1	15	14	319
1870..	107,703	7	116	42	70	8	60	9	12	.....	5	10	339
1871..	131,337	13	142	53	71	14	60	9	8	1	10	22	403
1872..	139,858	11	144	50	86	11	34	15	12	2	7	11	383
1873..	159,562	21	158	63	89	17	41	6	3	4	19	29	450
1874..	161,993	29	183	59	102	21	35	14	7	.....	10	24	484
1875..	160,462	25	155	62	99	15	28	2	13	2	9	44	454
1876..	159,660	27	182	56	76	11	27	16	9	7	11	29	451
1877..	147,024	26	156	52	59	11	22	18	9	1	13	37	406
1878..	146,319	20	149	50	58	12	45	10	14	3	11	29	401
1879..	149,552	22	176	47	54	18	52	7	9	13	17	29	444
1880..	154,125	13	188	54	46	14	90	36	12	.....	10	40	503
1881..	162,951	26	195	81	51	12	61	11	9	2	18	41	507
1882..	172,397	21	176	81	80	17	122	15	10	1	18	46	587
1883..	184,999	24	239	81	59	17	89	11	9	1	19	52	601
1884..	190,707	27	204	91	69	16	75	17	11	3	12	42	567
1885..	193,948	32	200	63	37	28	248	27	6	1	12	41	695
1886..	192,960	34	180	64	31	21	96	7	5	4	16	32	490
1887..	191,379	23	203	57	43	16	88	7	8	10	14	44	513
1888..	198,963	26	217	57	54	29	71	13	10	.....	11	56	544
1889..	213,158	23	242	65	51	18	68	10	11	.....	16	49	553
1890..	234,572	17	231	84	56	37	78	16	8	.....	20	71	618
1891..	253,035	25	263	83	71	41	132	12	11	.....	27	66	731
1892..	259,051	37	204	82	67	24	53	21	9	2	21	52	572
1893..	259,984	38	238	61	77	20	127	12	8	9	32	59	681
1894..	268,858	28	250	88	57	32	26	16	13	1	28	55	594
1895..	272,453	30	254	74	75	22	94	33	10	.....	47	53	692
1896..	284,477	23	247	95	71	25	b 38	120	10	3	28	73	733
1897..	303,370	32	244	105	106	48	64	21	9	.....	29	56	714
1898..	324,351	33	318	114	121	39	145	14	14	.....	68	63	929
1899..	344,368	30	332	140	77	34	b 26	30	1	3	32	92	797
1900..	377,385	49	335	145	73	40	b 20	25	6	1	28	126	848
1901..	408,375	49	356	140	81	49	59	48	2	2	45	125	956
1902..	411,323	26	340	136	95	42	c 10	4	.....	1	54	110	818
1903..	429,837	43	333	112	83	46	37	10	2	2	54	104	826

a Not separately reported.

b Including 1 death from explosion of gas other than fire damp.

c Including 2 deaths from explosion of gas other than fire damp.

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EMPLOYEES KILLED IN LIGNITE MINES IN PRUSSIA, BY PRINCIPAL CAUSES, 1862 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände II-LIII. (The statistics relate to all persons employed in and about lignite mines under the supervision of the Prussian mine authorities.)]

Year.	Number of employees.	Employees killed.										Total.	
		By falls of earth.	On inclined plane.	By shaft accidents.	In haulage.	By explosion of fire damp or coal dust.	By suffocation by natural gases.	By machinery.	By irruption of water.	By other causes.	On surface.		
1862.....	7,599	16	(a)	2	(a)	(a)	1	.....	(a)	.....	(a)	19	
1863.....	7,929	6	(a)	3	(a)	(a)	.....	1	(a)	.....	(a)	10	
1864.....	8,063	8	(a)	1	(a)	(a)	1	2	(a)	.....	(a)	13	
1865.....	9,030	8	(a)	1	(a)	(a)	1	1	(a)	1	(a)	12	
1866.....	9,410	12	(a)	10	(a)	(a)	3	1	(a)	.....	(a)	26	
1867.....	10,298	13	(a)	5	(a)	(a)	3	1	(a)	.....	(a)	22	
1868.....	11,029	7	(a)	5	(a)	(a)	7	.....	(a)	1	(a)	20	
1869.....	10,391	7	(a)	4	(a)	(a)	.....	3	1	(a)	.....	15	
1870.....	9,938	11	(a)	4	(a)	(a)	.....	.....	(a)	.....	4	19	
1871.....	10,744	11	(a)	4	(a)	(a)	.....	1	(a)	6	(a)	23	
1872.....	11,534	11	(a)	5	(a)	(a)	2	.....	(a)	1	(a)	19	
1873.....	11,715	13	(a)	1	(a)	(a)	5	2	(a)	.....	(a)	21	
1874.....	13,085	15	(a)	4	(a)	(a)	1	1	(a)	.....	1	22	
1875.....	14,137	19	(a)	5	(a)	(a)	.....	1	(a)	2	(a)	48	
1876.....	13,329	17	(a)	7	(a)	(a)	1	.....	(a)	11	(a)	36	
1877.....	14,937	35	.....	5	1	.....	4	1	.....	.....	5	51	
1878.....	15,296	12	.....	7	.....	.....	3	.....	.....	.....	3	25	
1879.....	15,068	20	.....	6	.....	2	2	3	.....	.....	5	38	
1870.....	14,780	25	.....	9	.....	.....	3	1	1	.....	2	41	
1871.....	16,863	34	.....	16	.....	.....	7	3	3	.....	2	65	
1872.....	17,447	21	2	13	1	.....	1	1	.....	6	7	53	
1873.....	18,068	26	1	7	1	.....	8	2	.....	3	2	50	
1874.....	18,597	12	.....	6	3	.....	4	3	.....	2	8	38	
1875.....	18,448	16	.....	14	.....	.....	3	3	1	1	7	43	
1876.....	19,322	27	.....	5	1	.....	6	3	1	.....	5	48	
1877.....	18,827	17	.....	6	1	.....	6	.....	.....	1	2	33	
1878.....	18,302	22	.....	8	1	.....	2	2	1	.....	2	38	
1879.....	18,627	27	.....	5	.....	.....	1	1	5	.....	1	40	
1880.....	19,767	21	3	9	.....	.....	.....	1	5	1	.....	42	
1881.....	19,969	23	1	6	1	.....	3	.....	11	.....	5	49	
1882.....	20,108	22	1	8	.....	.....	1	3	.....	1	7	44	
1883.....	21,197	20	.....	3	2	.....	2	3	1	2	7	49	
1884.....	21,614	30	.....	9	1	.....	1	3	.....	2	3	49	
1885.....	22,300	29	1	9	1	.....	.....	2	.....	9	2	53	
1886.....	23,484	25	.....	5	1	.....	2	3	.....	.....	11	47	
1887.....	23,266	26	.....	6	.....	.....	4	1	1	.....	20	58	
1888.....	23,408	24	1	4	.....	.....	.....	1	1	.....	18	50	
1889.....	24,612	33	.....	4	3	.....	5	4	.....	5	8	62	
1890.....	26,634	27	.....	4	.....	.....	1	2	2	.....	1	9	46
1891.....	29,046	23	1	8	.....	.....	.....	6	3	2	10	53	
1892.....	30,416	19	1	4	.....	.....	7	6	6	.....	9	53	
1893.....	29,679	30	.....	8	.....	.....	6	5	.....	4	9	62	
1894.....	28,700	23	.....	3	.....	.....	5	4	2	.....	1	19	57
1895.....	30,432	29	.....	.....	4	.....	3	5	.....	3	20	64	
1896.....	31,258	17	.....	7	.....	.....	5	5	.....	1	15	52	
1897.....	33,020	22	.....	14	2	.....	8	1	12	3	16	78	
1898.....	35,136	22	1	12	2	.....	1	2	.....	4	26	70	
1899.....	37,017	37	2	2	2	.....	3	1	.....	6	19	72	
1900.....	42,350	39	2	6	4	.....	9	.....	6	4	30	100	
1901.....	48,801	39	3	14	7	.....	5	.....	2	11	41	122	
1902.....	44,342	36	.....	11	8	.....	3	1	.....	6	30	96	
1903.....	43,211	29	.....	9	6	.....	6	.....	2	5	28	83	

a Not separately reported.



The cause which resulted in the largest number of deaths was the fall of earth, rock, etc., in mines. The deaths from this cause have increased almost steadily from 29 in 1852 to 333 in 1903. In 1903, 46.1 per cent of all accidental deaths underground were due to this cause. Next in order were accidental deaths occurring in the course of work on the inclined plane, 112 out of a total of 722 underground fatalities in 1903 having occurred from this cause. The deaths from this cause likewise show an almost steady increase from year to year. On the other hand, deaths caused by fire-damp or coal-dust explosions and by machinery show a tendency to decrease in number. The death rate from other causes does not show a marked tendency either way.

Deaths in lignite mines fluctuated considerably from year to year. More deaths occurred in the lignite, as in the coal mines, from falls of earth, etc., than from any other cause. Shaft accidents are next in order in causing the death of employees. While deaths from shaft accidents showed a tendency to increase during the earlier years of the period, the death rate during the last 25 years, although varying considerably from year to year, does not show a tendency in either direction. Deaths caused by machinery seem to be decreasing in number, especially in recent years. Only 2 cases of deaths from fire-damp explosions are reported since 1866.

Prior to the year 1899 statistics of employment in mines under the supervision of the mine authorities were not published separately for persons employed above and below ground, hence it is not possible to show the death rate, by causes, of persons killed in coal and lignite mines before that year. For the years 1899 to 1903, however, these figures are available. The two following tables show the number of persons employed, and the number killed, and the accident death rate per 1,000, above and below ground and in open works, in coal and lignite mines from 1899 to 1903:

EMPLOYEES BELOW AND ABOVE GROUND IN THE COAL AND LIGNITE MINES  
UNDER THE SUPERVISION OF THE PRUSSIAN MINE AUTHORITIES, 1899 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XLVIII-LII.]

Year.	Employees in coal mines.				Employees in lignite mines.			
	Below ground.	Above ground.	Open-works.	Total.	Below ground.	Above ground.	Open-works.	Total.
1899 .....	265,198	79,165	5	344,368	14,312	13,975	8,730	37,017
1900 .....	289,670	87,715	.....	377,385	15,360	16,175	10,815	42,350
1901 .....	313,196	95,179	.....	408,375	16,697	20,148	11,956	48,801
1902 .....	313,716	97,607	.....	411,323	15,591	17,402	11,349	44,342
1903 .....	326,415	103,422	.....	429,837	15,162	17,334	10,715	43,211

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EMPLOYEES KILLED BELOW AND ABOVE GROUND IN COAL AND IN LIGNITE MINES IN PRUSSIA, BY PRINCIPAL CAUSES, 1899 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XLVIII-LII. (The statistics relate to all persons employed in and about mines under the supervision of the Prussian mine authorities.)]

Employees killed below ground.											
Year.	By explosives.	By falls of earth.	On inclined plane.	By shaft accidents.	In haulage.	By explosion of fire damp or coal dust.	By suffocation by natural gases.	By machinery.	By irruption of water.	By other causes.	Total.
<b>COAL MINES.</b>											
1899.....	30	332	140	77	34	a 26	30	1	3	32	705
1900.....	49	335	145	73	40	a 20	25	6	1	28	722
1901.....	49	356	140	81	49	59	48	2	2	45	831
1902.....	26	340	136	95	42	b 10	4	.....	1	54	708
1903.....	43	333	112	83	46	37	10	2	2	54	722
<b>LIGNITE MINES.</b>											
1899.....	.....	28	2	2	.....	.....	3	1	.....	2	38
1900.....	.....	29	2	6	2	.....	9	.....	6	1	55
1901.....	.....	24	3	14	4	.....	5	.....	2	5	57
1902.....	.....	26	.....	11	4	.....	3	1	1	4	50
1903.....	.....	23	.....	9	2	.....	6	.....	2	2	44

  

Year.	Employees killed above ground.				Employees killed in open works.					Total from all causes.
	By machinery.	By railway cars or locomotives.	By other causes.	Total.	By falls of earth.	In haulage.	By explosives.	By other causes.	Total.	
<b>COAL MINES.</b>										
1899.....	34	22	36	92	.....	.....	.....	.....	.....	797
1900.....	29	36	61	126	.....	.....	.....	.....	.....	848
1901.....	28	41	56	125	.....	.....	.....	.....	.....	956
1902.....	22	31	57	110	.....	.....	.....	.....	.....	818
1903.....	27	17	60	104	.....	.....	.....	.....	.....	826
<b>LIGNITE MINES.</b>										
1899.....	4	3	12	19	9	2	.....	4	15	72
1900.....	4	11	15	30	10	2	.....	3	15	100
1901.....	13	9	19	41	15	3	1	5	24	122
1902.....	5	9	16	30	10	4	.....	2	16	96
1903.....	5	4	17	26	6	4	.....	3	13	83

a Including 1 death from explosion of gas other than fire damp.  
 b Including 2 deaths from explosion of gas other than fire damp.

## DEATH RATE PER 1,000 EMPLOYED BELOW AND ABOVE GROUND IN COAL AND IN LIGNITE MINES IN PRUSSIA, BY PRINCIPAL CAUSES, 1899 TO 1903.

[Computed from figures in preceding tables. The figures relate to all persons employed in and about mines under the supervision of the Prussian mine authorities.]

Year.	Number killed per 1,000 below ground.										Total.
	By ex- plo- sives.	By falls of earth.	On in- clined plane.	By shaft acci- dents.	In haul- age.	By explo- sion of fire damp or coal dust.	By suf- foca- tion by natu- ral gases.	By ma- chin- ery.	By ir- rup- tion of water.	By other causes.	
<b>COAL MINES.</b>											
1899.....	0.113	1.252	0.528	0.290	0.128	0.098	0.113	0.004	0.011	0.121	2.658
1900.....	.169	1.156	.501	.252	.138	.069	.098	.021	.003	.097	2.492
1901.....	.157	1.137	.447	.258	.157	.188	.153	.006	.006	.144	2.653
1902.....	.083	1.064	.433	.303	.134	.032	.013	.....	.003	.172	2.257
1903.....	.132	1.020	.343	.254	.141	.113	.031	.006	.006	.166	2.212
<b>LIGNITE MINES.</b>											
1899.....	.....	1.956	.140	.140	.....	.....	.209	.070	.....	.140	2.655
1900.....	.....	1.888	.130	.391	.130	.....	.586	.....	.391	.065	3.581
1901.....	.....	1.438	.180	.838	.240	.....	.299	.....	.120	.299	3.414
1902.....	.....	1.668	.....	.705	.257	.....	.192	.064	.064	.257	3.207
1903.....	.....	1.517	.....	.593	.132	.....	.396	.....	.132	.132	2.902

  

Year.	Number killed per 1,000 above ground.				Number killed per 1,000 in open works.					Total from all causes.
	By ma- chinery.	By rail- way cars or loco- motives.	By other causes.	Total.	By falls of earth.	In haul- age.	By ex- plo- sives.	By other causes.	Total.	
<b>COAL MINES.</b>										
1899.....	0.429	0.278	0.455	1.162	.....	.....	.....	.....	.....	2.314
1900.....	.331	.410	.695	1.436	.....	.....	.....	.....	.....	2.247
1901.....	.294	.431	.588	1.313	.....	.....	.....	.....	.....	2.341
1902.....	.225	.318	.584	1.127	.....	.....	.....	.....	.....	1.989
1903.....	.261	.165	.580	1.006	.....	.....	.....	.....	.....	1.922
<b>LIGNITE MINES.</b>										
1899.....	.286	.215	.859	1.360	1.031	0.229	.....	0.458	1.718	1.945
1900.....	.247	.690	.928	1.855	.925	.185	.....	.277	1.387	2.361
1901.....	.645	.447	.943	2.035	1.254	.251	0.084	.418	2.007	2.500
1902.....	.287	.517	.920	1.724	.881	.353	.....	.176	1.410	2.165
1903.....	.288	.231	.981	1.500	.560	.373	.....	.280	1.213	1.921

The next table gives more detailed figures regarding fire-damp explosions in coal mines for the period from 1861 to 1881 and for each year from 1882 to 1903. The first part of the table shows the results of all fire-damp explosions that caused fatalities. The second part shows results for all such explosions, whether resulting in deaths or not.

334 SPECIAL REPORT OF THE COMMISSIONER OF LABOR.

FIRE-DAMP EXPLOSIONS IN COAL MINES IN PRUSSIA, 1861 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XXXI-XXXVIII, XLVIII, L-LII. All the statistics reproduced in this table relate to the coal mines under the supervision of the Prussian mine authorities, and the figures relating to production and persons employed therefore do not agree with the figures given in the other sections. A metric ton=2,204.6 pounds.]

Year.	Production (metric tons).	Number of persons employed.	Fatal explosion of fire damp.							
			Number.	Number of mines affected.	Number of persons—				Persons killed per—	
					Killed.	Severely injured.	Slightly injured.	Total killed and injured.	Million metric tons produced. (c)	1,000 employes. (a)
1861-1881 (b)	(c)	122,321	16.2	5.2	40.3	d 22.2	(e)	62.5	1.49	0.33
1882	47,203,217	172,397	36	27	122	27	26	175	2.58	.71
1883	50,721,779	184,100	34	24	94	16	6	116	1.87	.51
1884	51,965,166	190,707	27	24	75	19	16	110	1.44	.39
1885	52,977,163	193,948	30	23	247	16	13	276	4.66	1.27
1886	52,580,092	192,080	21	21	96	13	21	130	1.83	.60
1887	54,647,642	191,379	18	17	88	16	11	115	1.61	.46
1888	59,583,049	198,963	19	15	71	6	16	93	1.19	.36
1889	61,555,086	213,158	26	19	68	14	26	108	1.10	.32
1890	64,499,456	234,572	32	26	78	8	17	103	1.21	.33
1891	67,661,199	253,035	26	21	132	23	43	198	1.95	.53
1892	65,567,803	259,051	24	18	53	15	9	77	.81	.20
1893	67,778,279	259,964	21	19	127	12	42	181	1.87	.49
1894	70,762,091	268,858	12	11	26	8	11	45	.37	.10
1895	72,751,865	272,454	20	17	94	18	27	139	1.29	.35
1896	79,129,544	284,478	10	8	37	8	3	48	.47	.13
1897	84,393,355	303,370	18	17	64	9	10	83	.76	.21
1898	89,713,741	324,351	12	12	145	21	9	175	1.62	.45
1899	94,800,582	344,368	12	11	25	3	2	30	.26	.07
1900	102,135,484	377,385	13	12	19	10	24	53	.19	.05
1901	101,361,911	408,375	15	15	59	16	20	95	.58	.14
1902	100,272,833	411,323	3	3	9	3	7	19	.09	.02
1903	108,982,919	429,837	9	9	14	2	6	22	.13	.03

Year.	Fatal and nonfatal explosions of fire damp.							
	Number.	Number of mines affected.	Number of persons—				Persons killed or injured per—	
			Killed.	Severely injured.	Slightly injured.	Total killed and injured.	Million metric tons produced. (c)	1,000 employes. (a)
1861-1881 (b)	(c)	(c)	40.3	(c)	(c)	(c)	(c)	(c)
1882	146	76	122	94	122	338	7.16	1.96
1883	150	80	94	61	129	284	5.60	1.54
1884	130	74	75	96	96	257	4.95	1.35
1885	126	78	247	82	88	417	7.87	2.15
1886	134	88	96	23	169	288	5.48	1.50
1887	79	59	88	66	53	207	3.79	1.08
1888	88	57	71	54	64	189	3.17	.95
1889	77	49	68	27	89	184	2.99	.86
1890	116	79	78	35	116	229	3.55	.98
1891	102	65	132	46	138	318	4.67	1.26
1892	96	58	53	48	97	198	3.02	.76
1893	88	61	127	30	119	276	4.07	1.06
1894	71	52	26	25	86	137	1.94	.51
1895	66	51	94	31	81	206	2.83	.76
1896	54	43	37	24	60	121	1.53	.43
1897	68	54	64	24	69	157	1.86	.52
1898	53	49	145	32	48	225	2.51	.69
1899	48	43	25	7	45	77	.81	.22
1900	59	46	19	24	72	115	1.13	.30
1901	40	37	59	19	51	129	1.27	.32
1902	22	22	9	9	27	45	.45	.11
1903	30	25	14	7	32	53	.49	.12

a Computed.  
 b Average for 21 years.  
 c Not reported.  
 d Including persons slightly injured.

e Included with persons severely injured.  
 / These figures do not agree with those in the table on pages 326 and 329. They are reproduced as given in the source quoted.

It will be observed that during the last 22 years there has been a decided decrease in the frequency of fire-damp explosions as well as in the number of persons killed and injured by such accidents. The number of persons killed or injured per 1,000 from this cause decreased from 1.96 in 1882 to 0.12 in 1903. Measured by the quantity of coal produced, it is shown that while 7.16 persons were killed or injured from this cause for each million metric tons of coal produced in 1882, the rate was only 0.49 in 1903.

### MINERS' RELIEF FUNDS.

Miners' provident associations, or societies for mutual aid in case of sickness, accident, or death, were in existence in Prussia and other German States in the eighteenth century. In the case of the Prussian societies, funds were secured both from the workmen, who gave up a certain proportion of their wages, and from the mine owners, who contributed the product of a specified section of the mine workings. The benefits consisted of a sick wage, burial money, and a pension for widows. That these societies were an efficient means of providing relief may be inferred from the fact that in 1854 the Prussian government made membership in them compulsory for miners and for workmen in similar industries, such as the smelting and salt works. This requirement was still in force when the compulsory sick-insurance law of 1883 for the whole Empire was passed by the Imperial Parliament. This and the other compulsory insurance laws passed in the next few years purposely made but few changes in the miners' relief societies. The law of 1883 required the societies to offer a specified minimum of benefits; it fixed the contribution of the employers at not less than 50 per cent of the amount paid by the employees, and applied to the relief societies the general requirements specified for the class of sick funds organized for the employees of one establishment (*Betriebskassen*). The greater part of the miners' provident societies, therefore, are organizations established by state laws and controlled partly by state laws and partly by imperial laws, which bring the system into harmony with the imperial insurance system.

As at present organized the miners' relief societies administer the sick insurance, the mine-owners' mutual trade association (*Die Knappschafts-Berufsgenossenschaft*) administers the accident insurance, while the old-age and invalidity insurance is in some cases carried on by the miners' societies and in others turned over by them to separate corporations. The details of the various parts of the insurance system are given separately in the pages which follow.

**SICK INSURANCE.**

Sick relief usually calls for pecuniary aid in small sums at frequent intervals of time, but to be effective such aid must be rendered promptly. To lessen the opportunities for simulation the insured persons should be personally acquainted with each other and each member should feel that he has a personal interest in protecting the funds of the organization. The miners' relief societies attempt to meet these requirements for sick insurance by organizing the miners of each mining district into local societies, thus bringing together the men in the same occupation in one locality. These societies may be composed of the employees of only one mine or may include the employees of several mines.

To form a miners' relief society in Prussia, where most of these societies are located, a committee representing the miners meets a similar committee of the employers and the two draw up a constitution in conformity with the law on the subject. This constitution must be approved by the State mining office, which also settles any question in dispute between the two parties. The approval of the constitution gives the organization the rights of a legal entity.

The general meeting of the society's members then elects a committee known as the committee of seniors (*Knappschaftsältesten*). This body selects from its own members or from the mining officials the representatives of the miners on the executive board, which is composed of an equal number of representatives of the mine owners and of the miners. The executive board determines the policy of the society; conducts the election of the committee of seniors; selects the officials, physicians, and apothecaries of the society, administers the funds, and conducts the general affairs of the organization.

The State mining office appoints for each society a commissioner who acts as a general inspector and has the right to attend all meetings.

The territory covered by the society is usually divided into circuits. The members in each circuit elect a senior, who represents their interests on the committee of seniors and in general acts as an intermediary between the executive board and the members of the society.

The membership of the society is restricted to employees and is divided into two classes—first, the "permanent" members, who may receive the full benefits, and second, the "transient" members, who may receive only the minimum benefits. The latter class is designed to serve as a preliminary or probationary stage through which new members are required to pass before becoming entitled to full benefits. The amount of the dues paid is somewhat smaller than that



for the permanent members, though in proportion to the benefits received the transient members pay a higher rate. The period of transient membership is usually not less than one year. Such membership is acquired whenever a person accepts employment in a mine. The minimum benefits to which the transient member is entitled in case of sickness are as follows:

First. Free medical attendance, free medicine, and supplies of the smaller sort, such as eyeglasses, bandages, etc., from the beginning of the sickness.

Second. In case the sickness prevents him from earning wages he is entitled to a sick benefit equal to one-half of the wage which was used as a basis for calculating his dues. Such benefits begin on the third day of the sickness and may continue for 13 weeks. In place of this a member may receive free treatment in a hospital, in which case one-half of the sick benefit is paid to his dependents.<sup>(a)</sup>

Third. Female members are entitled to a similar sick wage for at least four weeks during confinement.

Fourth. A death benefit equal to twenty times the average daily wage of the member.

While the imperial law carefully specifies the minimum benefits which the societies must pay, no maximum limit is placed on the benefits which they may see fit to offer their members. In connection with the sick insurance, increases over the minimum benefits for the permanent members usually take the form of more expensive medical service, such as massage treatment, visits to health resorts, the supplying of artificial limbs, etc. The time during which the sick wage is paid is frequently increased from 13 weeks to 1 year.<sup>(a)</sup> The members of the family of the miner often receive free medical treatment. In some instances the death benefit has been increased.

Neither the imperial nor the state laws make any specifications in regard to the amount of the dues to be paid by the members, though the financial status of the Prussian societies is subject to the supervision of the State mining officials. The dues of the miners' societies are naturally higher than the dues of most of the sick funds, since the benefits are also higher. In 1903 the average annual dues paid by the members of the Prussian societies were 45.38 marks (\$10.80); the average dues per mine worker paid by the employers were 36.98 marks (\$8.97). The amount paid by the employers, it will

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<sup>a</sup> The law of May 25, 1903, increased the period for which benefits are paid from 13 to 26 weeks and provided that the benefits for the dependents of a member receiving treatment in a hospital could be increased from one-half of the sick benefit to one-half of the member's average daily wage. The imperial order of November 2, 1903, postponed the application of this law to the miners' societies. An imperial order of November 7, 1904, however, provided that the application of this law to the miners' societies in Prussia should take effect on January 1, 1905.

be noticed, is considerably in excess of the 50 per cent of the employees' contribution which the law requires. These figures include the returns of the relief societies for persons employed in mines other than coal mines, as is explained below.

The dues of the members are deducted from their wages by the employers and turned over by the latter to the society when paying their own assessments. These dues constitute a prior lien on the property of the mine. On the other hand, the claims of a member against the society can not be transferred to a third person, nor can these claims be seized by legal process in the interest of a third person.

The miners' societies are required to accumulate a reserve fund, in order to assure the payment of future claims. The amount of this reserve is not specified in the law; in practice the amount is fixed after taking into consideration the possible exhaustion of the mine, instead of basing it solely on the capitalization of the claims against the society. In the past cases have arisen in which the exhaustion of a mine has left a small miners' society with claims outstanding which could not be paid, but at present no apprehension seems to be felt on this score.

The membership of the miners' relief societies includes persons engaged in the mining of coal, salt, iron, etc.; in the smelting of iron, zinc, lead, etc.; in salt works; in quarries, and in establishments engaged in the production of alum, vitriol, tar, paraffin, and similar articles. The most important of these industries, however, is coal mining, in which it is estimated that not less than 70 per cent of all members of the relief societies are employed. A statement of the relative importance of the different industries is not possible, because the statistics of the sick insurance of the miners' relief societies published by the imperial insurance office show the data by geographical divisions only, without classifying the figures by industries.

The source of the following statistics is an investigation into the conditions of the miners' relief societies made by the imperial statistical office in connection with the German exhibit at the Paris Exposition of 1900. The investigation covered the year 1897 in some detail and included a summary of the expenditures for sickness during the years 1885 to 1897. Since 1897 comparable statistics on the same subject have been published annually. The following table shows the changes in the membership and the sick relief of the miners' relief societies in all industries mentioned for the whole Empire from 1885 to 1902:

## MEMBERSHIP, CASES OF SICKNESS, EXTENT OF SICKNESS, AND EXPENDITURES FOR SICKNESS OF THE MINERS' RELIEF SOCIETIES IN THE GERMAN EMPIRE, 1885 TO 1902.

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[Source: 1885 to 1897, Statistik der Krankenversicherung im Jahre 1897; 1898 to 1902, Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. IX, XII. Conversion of German into United States money was made on the basis of 1 mark=\$0.238.]

Year.	Average membership.	Number of cases of sickness for which benefits were paid.	Number of days for which sick benefits were paid.	Expenditures. (a)		
				For sickness.	Other expenses. (b)	Total.
1885.....	371,745	151,806	2,563,048	\$1,275,394	\$19,873	\$1,295,267
1886.....	373,917	161,648	2,681,490	1,419,385	18,540	1,437,925
1887.....	383,061	156,134	2,477,749	1,431,065	35,498	1,467,151
1888.....	404,107	161,034	2,587,740	1,512,752	20,158	1,532,910
1889.....	437,321	169,535	2,727,003	1,579,082	24,062	1,603,144
1890.....	459,111	204,774	2,829,146	1,831,029	29,036	1,860,065
1891.....	481,611	218,607	3,150,333	2,087,879	30,131	2,118,010
1892.....	480,424	220,854	3,649,448	2,314,550	34,224	2,348,774
1893.....	466,435	243,345	3,920,146	2,414,129	38,227	2,442,356
1894.....	472,624	226,866	3,694,090	2,302,745	24,371	2,327,116
1895.....	480,124	239,527	3,831,617	2,430,551	24,252	2,454,803
1896.....	496,946	237,927	3,853,425	2,422,174	26,251	2,448,425
1897.....	528,566	255,865	4,083,304	2,672,169	29,369	2,701,538
1898.....	555,665	259,601	4,146,820	2,849,364	35,695	2,885,059
1899.....	586,677	304,744	4,791,788	3,366,811	77,343	3,444,154
1900.....	638,392	344,136	5,230,164	3,842,954	78,298	3,921,252
1901.....	677,822	366,876	5,793,458	4,594,080	93,812	4,618,792
1902.....	671,094	352,229	5,747,472	4,341,357	100,574	4,441,931

<sup>a</sup> Not including cost of administration.

<sup>b</sup> This category includes transportation of sick persons, interest, stamp taxes for documents, other expenses connected with the purchase of securities, etc.

The average number of members (including both permanent and transient) has increased from 371,745 in 1885 to 671,094 in 1902, an increase of 80.5 per cent; the number of days of sickness for which benefits were paid has increased from 2,563,048 to 5,747,472, an increase of 124.2 per cent; the expenditures for sickness have increased from 5,358,800 marks (\$1,275,394) to 18,240,997 marks (\$4,341,357), a growth of 240.4 per cent. In connection with these figures it should be kept in mind that the policy of the relief societies has been to increase the benefits as much as possible, and to furnish the most liberal medical assistance that the funds of the organization would permit.

The total income of the societies for the thirteen years, 1885 to 1897, averaged approximately 10,000,000 marks (\$2,380,000) per year; during this period the average annual contribution of the workmen was 5,417,900 marks (\$1,289,460); that of the employers was 4,273,131 marks (\$1,017,005). In 1902 the contribution of the workmen was 10,415,920 marks (\$2,478,989), that of the employers was 8,047,646 marks (\$1,915,340), while the total income was 20,552,118 marks (\$4,891,404). The reserve fund has doubled in amount since 1897.

The report shows the following facts for all the relief societies in Germany for the year 1897. The amount of the sick relief benefit ranged from 50 per cent to 66.67 per cent of the members' wages, the

average of all the relief societies being 53 per cent. The average amount of money received by the members as sick benefits was 10.94 marks (\$2.60) per member; the total expenditures for the relief of sickness (including sick money, medical attention, medicine, hospital support, etc.), were 21.24 marks (\$5.06) per member. The dues of employer and employee together were estimated to be equal to 2.6 per cent of the members' wages. In conclusion, the report states that while the expenditures for sickness averaged 21.24 marks (\$5.06) per member, the amount of dues paid by the members (not including the dues of the employer), averaged 14.08 marks (\$3.35) per member, so that 7.16 marks (\$1.71) per member was received by the societies in excess of the amount paid in by members. The cost of administration was estimated to be 3.3 per cent of the total amount expended for sick insurance.

The following table shows for all the relief societies in the empire, the growth of the income since 1897 as well as the sum of the income for the thirteen years, 1885 to 1897.

## INCOME OF MINERS' RELIEF SOCIETIES IN GERMANY, 1885 TO 1902.

[Source: 1885 to 1897, Statistik der Krankenversicherung im Jahre 1897; 1898 to 1902, Vierteljahrshefte zur Statistik des Deutschen Reichs, Jahrg. IX, XII. Conversion of German into United States money was made on the basis of 1 mark = \$0.238.]

Years.	Dues and fines from workmen.	Dues and fines from employers.	Interest and other sources of income.	Total income.	Amount of reserve fund at the close of each year. (a)
1885-1897 inclusive.....	\$16,762,983	\$13,221,067	\$609,564	\$30,593,614	(b)
1897.....	1,771,875	1,361,299	119,724	3,252,898	\$3,062,757
1898.....	1,895,847	1,465,690	124,137	3,485,674	3,294,643
1899.....	1,994,323	1,533,210	334,905	3,862,438	4,219,672
1900.....	2,272,689	1,747,574	424,519	4,444,782	4,808,853
1901.....	2,460,390	1,891,225	480,914	4,832,529	5,624,424
1902.....	2,478,989	1,915,340	497,075	4,891,404	6,182,326

<sup>a</sup> The amount of the reserve at the close of any year does not equal the excess of receipts over expenditures for that year plus the reserve on hand at the close of the preceding year. No explanation is given.

<sup>b</sup> Not reported.

Since 1897 the membership has increased 27.2 per cent; the dues, etc., of the workmen and of the employers have increased 39.9 per cent and 40.9 per cent, respectively, while the total income has increased 50.4 per cent.

The preceding tables show the data for the relief societies of the whole Empire; the statistics for the relief societies in the State of Prussia are more complete because the State government requires elaborate annual reports from the societies and publishes the data each year in the official mining periodical *Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate*. The following tables are compiled from this source and refer to Prussia only.

The following table shows the number of members of the miners' relief societies for the years 1861 to 1903. It will be remembered that the membership includes persons engaged in quarrying and smelting, in salt works, etc., in addition to those employed in coal and other mines:

NUMBER OF MINERS' RELIEF SOCIETIES, AFFILIATED ESTABLISHMENTS, AND PERMANENT AND TRANSIENT MEMBERS IN PRUSSIA, 1861 TO 1903

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XII-LII.]

Year.	Number of societies.	Number of establishments affiliated with societies.	Number of full members in regular standing on December 31 of each year.			Year.	Number of societies.	Number of establishments affiliated with societies.	Number of full members in regular standing on December 31 of each year.		
			Perman-ent.	Trans-ient.	Total.				Perman-ent.	Trans-ient.	Total.
1861....	71	2,651	61,199	57,857	119,056	1883...	83	2,135	175,363	144,656	320,019
1862....	77	2,880	64,118	62,392	126,510	1884....	83	2,071	180,509	154,584	335,093
1863....	77	3,229	65,245	67,004	132,249	1885....	81	1,974	180,902	153,651	334,553
1864....	77	3,228	67,543	73,504	141,047	1886....	75	1,876	185,371	143,362	328,733
1865....	77	2,917	71,215	83,565	154,780	1887....	77	1,846	195,662	140,359	336,021
1866....	77	2,810	71,805	88,850	160,655	1888....	77	1,944	201,545	153,521	355,066
1867....	85	2,284	79,023	95,256	174,279	1889....	77	1,994	205,656	172,613	378,169
1868....	85	2,245	84,071	97,411	181,482	1890....	75	2,036	211,061	186,745	398,406
1869....	85	2,622	94,645	98,734	193,379	1891....	74	2,036	242,242	175,995	418,237
1870....	91	2,646	97,992	98,013	196,005	1892....	74	1,971	248,308	169,156	417,464
1871....	91	2,646	109,783	117,013	226,796	1893....	74	1,948	259,003	159,002	415,005
1872....	89	2,820	123,499	118,274	241,756	1894....	74	1,754	270,250	155,708	425,958
1873....	88	2,927	132,555	129,498	262,053	1895....	74	1,688	274,748	160,217	434,965
1874....	87	2,771	140,478	122,063	262,561	1896....	73	1,741	283,420	174,254	457,674
1875....	86	2,601	141,604	118,504	260,108	1897....	73	1,811	290,633	198,143	488,976
1876....	87	2,466	142,528	114,051	256,579	1898....	73	1,831	299,619	212,902	512,521
1877....	84	2,263	146,060	106,080	252,740	1899....	73	1,937	319,616	226,362	545,878
1878....	84	2,221	151,181	103,115	254,293	1900....	73	2,026	333,008	266,018	599,626
1879....	84	2,146	155,161	104,457	259,618	1901....	73	1,903	349,371	271,604	620,875
1880....	84	2,186	162,239	117,049	279,288	1902....	73	1,810	376,947	238,927	615,874
1881....	83	2,196	165,714	123,663	289,377	1903....	73	1,812	392,489	250,657	643,146
1882....	83	2,189	168,851	134,846	303,697						

\* The sum of the two classes of members does not produce the number given in the total. The figures are reproduced as found in the source quoted.

As shown in the above table, there was an increase in the number of societies from 1861 to 1870, while since 1871 there has been a decrease. The number of establishments whose employees were insured in the societies increased up to 1864, but after that time decreased. The decrease in these two items was accompanied by a growth in the total number of members from 119,056 in 1861 to 643,146 in 1903. The greater part of this increase was due to the rapid growth in the number of permanent members, though the increase in the number of transient members has also been large. In 1861 the permanent class of members formed 51.4 per cent of the total membership; in 1903 this proportion had increased to 61.0 per cent.

The main sources of income and the proportion derived from each are shown in the table following.



# 342 SPECIAL REPORT OF THE COMMISSIONER OF LABOR.

## RECEIPTS OF MINERS' RELIEF SOCIETIES IN PRUSSIA, 1861 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XII-LII. Conversion of Prussian into United States money was made on the basis of 1 North German silver thaler—\$0.72 in 1861; \$0.7289 from 1862 to 1865; and of 1 mark—\$0.238 from 1866 to 1903. [www.libtool.com.cn](http://www.libtool.com.cn)

Year.	Current contributions—				Interest on capital.		Other receipts, including entrance fees, fines, etc.		Total receipts.
	Of members.		Of employers.		Amount.	Percent.	Amount.	Percent.	
	Amount.	Percent.	Amount.	Percent.					
1861...	\$383,765	49.15	\$302,538	38.75	\$71,413	9.15	\$23,031	2.95	\$780,747
1862...	416,062	49.38	330,021	39.17	67,209	7.98	29,262	3.47	842,554
1863...	445,763	49.79	345,237	38.57	71,942	8.04	32,228	3.60	895,170
1864...	475,518	49.72	365,245	38.19	78,705	8.23	36,866	3.86	956,334
1865...	522,197	49.03	424,061	39.82	76,765	7.21	41,973	3.94	1,064,996
1866...	524,921	49.27	419,357	39.37	78,382	7.36	42,647	4.00	1,065,307
1867...	589,493	49.85	462,234	39.08	79,849	6.75	51,126	4.32	1,182,702
1868...	635,635	50.77	492,289	39.32	81,874	6.54	42,268	3.37	1,252,066
1869...	688,985	50.60	531,530	39.03	93,671	6.88	47,553	3.49	1,361,739
1870...	743,692	50.97	555,249	38.05	117,648	8.06	42,656	2.92	1,459,245
1871...	806,005	49.85	607,947	37.60	121,522	7.51	81,470	5.04	1,616,944
1872...	977,845	49.12	826,471	41.52	123,503	6.21	62,747	3.15	1,990,566
1873...	1,203,027	49.29	1,036,359	42.46	135,975	5.57	65,266	2.68	2,440,627
1874...	1,333,867	48.73	1,174,034	42.93	152,761	5.58	75,626	2.76	2,737,188
1875...	1,344,485	48.54	1,186,409	42.84	166,937	6.03	71,878	2.59	2,769,709
1876...	1,370,961	47.90	1,239,904	43.32	171,296	5.98	80,077	2.80	2,862,238
1877...	1,340,975	47.91	1,206,288	43.10	172,836	6.18	78,784	2.81	2,798,881
1878...	1,388,600	48.17	1,251,594	43.42	174,655	6.06	67,847	2.35	2,882,696
1879...	1,453,832	48.25	1,302,278	43.22	174,666	5.80	82,446	2.73	3,013,222
1880...	1,512,909	48.50	1,356,271	43.47	173,704	5.57	76,823	2.46	3,119,707
1881...	1,598,794	47.82	1,467,038	43.67	177,801	5.32	99,907	2.99	3,343,540
1882...	1,688,698	48.10	1,553,716	44.26	186,299	5.31	82,007	2.33	3,510,720
1883...	1,783,128	48.10	1,640,402	44.25	197,324	5.32	86,395	2.33	3,707,249
1884...	1,836,461	47.81	1,696,402	44.16	209,355	5.45	98,899	2.58	3,841,017
1885...	1,927,995	47.34	1,791,440	43.98	212,429	5.22	141,096	3.46	4,073,060
1886...	2,152,036	48.28	1,945,337	43.64	216,734	4.86	143,226	3.22	4,457,233
1887...	2,467,450	49.14	2,203,607	43.89	210,839	4.20	139,193	2.77	5,020,942
1888...	2,567,338	49.37	2,252,816	43.33	226,790	4.36	152,787	2.94	5,199,731
1889...	2,752,332	49.33	2,413,947	43.26	243,580	4.36	170,018	3.05	5,579,877
1890...	3,055,485	50.00	2,632,219	43.07	261,232	4.27	162,253	2.66	6,111,189
1891...	3,355,339	49.81	2,906,983	43.16	290,860	4.32	182,601	2.71	6,735,783
1892...	3,484,824	50.28	2,942,566	42.45	333,804	4.82	170,163	2.45	6,931,357
1893...	3,548,171	50.04	2,975,099	41.06	372,844	5.28	194,497	2.74	7,090,611
1894...	3,690,021	50.91	3,037,336	41.90	308,672	5.50	122,684	1.69	7,248,813
1895...	3,755,950	50.80	3,093,015	41.85	423,967	5.73	119,442	1.62	7,393,274
1896...	3,934,440	50.78	3,240,370	41.82	452,447	5.84	121,260	1.58	7,748,617
1897...	4,215,359	50.84	3,473,333	41.89	477,048	5.75	125,701	1.52	8,292,041
1898...	4,506,963	50.88	3,717,934	41.98	494,739	5.59	137,529	1.55	8,857,165
1899...	5,141,363	51.23	4,210,064	41.95	545,132	5.43	139,506	1.39	10,036,797
1900...	5,940,305	51.28	4,907,445	42.36	608,692	5.25	128,295	1.11	11,585,137
1901...	6,445,077	50.99	5,348,439	42.31	713,224	5.64	133,572	1.06	12,640,312
1902...	6,439,089	50.66	5,352,059	42.10	780,131	6.14	139,373	1.10	12,711,252
1903...	6,777,456	48.86	5,627,492	40.57	889,828	6.41	577,536	4.16	13,872,312

The receipts of the Prussian societies show a regular increase since 1861. The proportion derived from the dues of the workmen and from those of the employers has remained practically the same during this period.

The largest item of expenditure is that of pensions for invalids, widows, and orphans, which in 1903 absorbed 53.94 per cent of the entire expenditure. This item is of course not a part of the sick insurance proper, the pensions for invalids being an extension of the scope of the imperial invalidity insurance either in the shape of invalidity pensions for members who are incapacitated for work in mines only, or as an increase in the amount of the pensions granted under the imperial insurance laws. The system of pensions for widows and orphans also represents a distinct advance toward the solution of the problems of workmen's insurance. In 1903 the amount of the pensions paid to widows and orphans was 20.78 per cent of



the total expenditure of the Prussian societies, while in previous years it has been as high as 30.54 per cent of the total expenditure.

The expenditure for sick relief has increased since 1885, when the influence of the imperial insurance law is evident. In that year it was 26.02 per cent, while in 1903 it was 36.29 per cent of the total expenditure. The amount expended for sick relief in 1903 was over four times that of 1885. The development of this class of expenditure is shown more clearly by the table on page 345, which shows, among other things, the expenditure per member for various items.

The proportion of the total expenditure required for administration compares favorably with the results secured by other insurance organizations. This item shows a tendency to increase in the last five years.

The following table shows the expenditures of the societies during each year of the period from 1861 to 1903:

EXPENDITURES OF MINERS' RELIEF SOCIETIES IN PRUSSIA, 1861 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XII-LII. Conversion of Prussian into United States money was made on the basis of 1 North German silver thaler = \$0.72 in 1861; \$0.7289 from 1862 to 1865; and of 1 mark = \$0.238 from 1866 to 1903.]

Year.	Pensions to—							
	Invalids.		Widows.		Orphans.		All classes.	
	Amount.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.
1861.....	\$149,104	20.56	\$122,575	16.90	\$40,249	5.55	\$311,928	43.01
1862.....	186,764	21.39	123,053	16.93	46,740	5.99	345,557	44.31
1863.....	187,986	22.62	143,137	17.22	51,921	6.25	383,054	46.09
1864.....	207,115	22.79	154,675	17.02	57,492	6.33	419,282	46.14
1865.....	220,930	22.47	161,392	16.41	65,064	6.62	447,386	45.50
1866.....	227,901	22.03	174,399	16.86	67,244	6.50	469,504	45.39
1867.....	245,335	19.74	193,158	15.55	78,372	6.31	516,865	41.60
1868.....	266,170	21.47	206,899	16.68	86,956	7.01	560,025	45.16
1869.....	291,832	22.70	218,915	17.02	100,506	7.82	611,253	47.54
1870.....	340,105	22.96	255,259	17.23	117,831	7.96	713,195	48.15
1871.....	356,045	22.35	270,701	17.00	129,404	8.13	756,150	47.48
1872.....	391,906	21.24	310,842	16.88	165,967	9.01	868,015	47.13
1873.....	511,140	24.23	369,980	17.54	197,659	9.37	1,078,779	51.14
1874.....	643,359	26.03	436,334	17.66	233,947	9.47	1,313,540	53.16
1875.....	713,301	26.72	463,317	17.36	251,563	9.43	1,428,081	53.51
1876.....	774,797	28.81	477,204	17.75	253,064	9.41	1,505,065	55.97
1877.....	842,148	30.01	494,007	17.59	268,939	9.58	1,605,094	57.18
1878.....	907,085	31.31	517,901	17.88	286,548	9.89	1,711,534	59.08
1879.....	969,618	32.41	541,400	18.08	305,013	10.20	1,815,718	60.69
1880.....	1,009,018	33.60	572,724	19.05	299,827	9.98	1,882,469	62.63
1881.....	1,057,741	33.79	605,855	19.35	309,799	9.90	1,973,395	63.04
1882.....	1,105,379	33.73	633,809	19.34	319,636	9.75	2,058,824	62.82
1883.....	1,155,784	33.83	674,265	19.73	332,206	9.72	2,162,255	63.28
1884.....	1,244,491	33.59	714,077	19.27	359,632	9.71	2,318,200	62.57
1885.....	1,387,016	33.35	771,954	18.55	498,849	11.99	2,658,419	63.89
1886.....	1,452,127	33.18	795,317	18.17	437,856	10.00	2,685,905	61.35
1887.....	1,589,317	35.24	814,775	18.06	445,320	9.87	2,849,412	63.17
1888.....	1,705,485	36.40	840,291	17.94	456,176	9.74	3,001,952	64.08
1889.....	1,816,067	37.47	871,062	17.97	455,996	9.40	3,143,725	64.84
1890.....	1,861,305	35.56	925,822	17.69	458,132	8.75	3,245,759	62.00
1891.....	1,919,120	34.16	950,280	16.91	456,519	8.13	3,325,019	59.20
1892.....	2,018,862	33.77	994,893	16.64	460,530	7.70	3,474,285	58.11
1893.....	2,220,384	35.01	1,027,842	16.20	467,870	7.38	3,716,096	58.59
1894.....	2,352,421	36.06	1,071,701	16.44	480,862	7.38	3,904,984	59.90
1895.....	2,427,326	36.34	1,105,959	16.56	483,106	7.23	4,016,391	60.13
1896.....	2,492,108	36.55	1,140,739	16.73	493,361	7.23	4,126,208	60.51
1897.....	2,592,380	34.76	1,197,640	16.05	705,420	9.46	4,495,440	60.27
1898.....	2,680,338	34.99	1,242,998	16.22	597,770	7.80	4,521,906	59.01
1899.....	2,994,763	34.82	1,316,127	15.30	598,912	6.96	4,909,802	57.08
1900.....	3,270,181	34.58	1,397,081	14.77	623,885	6.60	5,291,147	55.95
1901.....	3,398,133	33.27	1,454,194	14.24	651,675	6.38	5,504,002	53.89
1902.....	3,674,578	35.55	1,544,736	14.94	641,207	6.20	5,860,521	56.69
1903.....	4,001,997	33.16	1,693,454	14.03	814,483	6.75	6,509,934	53.94

\* Computed.

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EXPENDITURES OF MINERS' RELIEF SOCIETIES IN PRUSSIA, 1861 TO 1903—Concluded.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XII-LII. Conversion of Prussian into United States money was made on the basis of 1 North German silver thaler=\$0.72 in 1861; \$0.7289 from 1862 to 1865; and of 1 mark=\$0.233 from 1866 to 1903.]

Year.	Physicians' services, medicine, and sick benefits.		Cost of administration.		Other expenditures, including burial, education, etc.		Total expenditures.
	Amount.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.	
1861.....	\$299,760	a 41.34	\$43,548	a 6.01	\$69,894	a 9.64	b \$732,674
1862.....	314,221	a 40.29	47,137	a 6.05	72,921	a 9.35	b 786,657
1863.....	321,706	a 38.71	48,936	a 5.89	77,322	a 9.31	b 839,098
1864.....	351,957	a 38.73	47,708	a 5.25	89,761	a 9.88	908,709
1865.....	382,632	38.92	50,166	5.10	103,022	10.48	983,206
1866.....	367,278	38.41	52,526	5.08	115,046	11.12	1,034,254
1867.....	430,290	34.63	57,764	4.65	237,576	19.12	1,242,496
1868.....	451,358	36.64	58,223	4.70	167,360	13.50	1,239,966
1869.....	483,090	37.57	62,234	4.84	129,153	10.05	1,285,732
1870.....	503,917	34.02	70,022	4.73	194,014	13.10	1,481,148
1871.....	572,621	35.95	73,923	4.64	190,053	11.93	1,592,747
1872.....	669,542	36.36	91,146	4.95	212,927	11.56	1,841,630
1873.....	739,232	35.04	98,965	4.69	192,614	9.13	2,109,590
1874.....	817,462	33.06	98,612	3.99	241,328	9.77	2,470,942
1875.....	900,584	33.75	102,231	3.83	237,890	8.91	2,668,786
1876.....	857,703	31.90	101,136	3.76	224,971	8.37	2,688,875
1877.....	889,794	31.58	102,019	3.63	213,497	7.61	2,807,904
1878.....	886,419	30.60	105,301	3.63	193,782	6.69	2,897,036
1879.....	873,893	29.21	102,097	3.42	199,907	6.68	2,991,615
1880.....	828,689	27.57	103,218	3.44	191,245	6.36	3,005,621
1881.....	851,795	27.21	107,904	3.45	197,318	6.30	3,130,412
1882.....	878,895	26.82	107,060	3.27	232,282	7.09	3,277,061
1883.....	917,397	26.85	109,524	3.21	227,545	6.66	3,416,720
1884.....	1,015,133	27.40	113,516	3.06	258,041	6.97	3,704,890
1885.....	1,082,705	26.02	120,930	2.91	298,601	7.18	4,160,655
1886.....	1,241,771	28.36	125,194	2.86	325,418	7.43	4,378,278
1887.....	1,227,790	27.22	133,299	2.96	300,160	6.65	4,510,661
1888.....	1,303,660	27.83	129,516	2.76	249,872	5.33	4,685,000
1889.....	1,336,490	27.56	131,008	2.70	237,469	4.90	4,848,682
1890.....	1,578,024	30.14	144,351	2.76	266,824	5.10	5,234,958
1891.....	1,795,000	31.97	158,018	2.81	338,236	6.02	5,618,073
1892.....	2,065,334	34.54	142,280	2.38	297,059	4.97	5,978,958
1893.....	2,119,726	33.42	152,021	2.40	354,398	5.59	6,342,241
1894.....	2,043,164	31.34	154,089	2.37	416,703	6.39	6,518,940
1895.....	2,140,357	32.05	159,102	2.38	363,420	5.44	6,679,470
1896.....	2,132,973	31.28	162,080	2.38	397,831	5.83	6,819,092
1897.....	2,363,343	31.69	168,888	2.27	430,563	5.77	7,458,234
1898.....	2,548,894	33.27	174,639	2.28	416,676	5.44	7,661,815
1899.....	3,026,179	35.18	198,881	2.31	466,618	5.43	8,601,480
1900.....	3,483,814	36.84	245,326	2.59	437,240	4.62	9,457,527
1901.....	4,036,612	39.52	273,504	2.68	399,167	3.91	10,213,185
1902.....	3,693,641	35.73	352,213	3.41	430,836	4.17	10,337,511
1903.....	4,380,001	36.29	441,897	3.66	737,334	6.11	12,069,166

a Computed.

b Total expenditures for the years 1861, 1862, and 1863 include, respectively, \$7,554, \$6,821, and \$8,080—expenditures of the "Dillinger Verein 1-7" having a membership of 710 in 1861, 767 in 1862, and 1,033 in 1863; but the different items of expenditure are not reported for these societies for the three years. The percentages are based on these totals less the amounts mentioned.

The following table, which shows the assets, liabilities, receipts, and expenditures per member, brings out clearly the marked increase in the work undertaken by the Prussian societies.

ASSETS, LIABILITIES, RECEIPTS, AND EXPENDITURES PER MEMBER, OF THE MINERS' RELIEF SOCIETIES IN PRUSSIA, 1861 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistische Theil, Bände XII-LII. Conversion of Prussian into United States money was made on the basis of 1 North German silver thaler—\$0.72 in 1861; \$0.7289 from 1862 to 1865; and of 1 mark—\$0.238 from 1866 to 1903.]

Year.	Assets.	Liabilities.	Contributions of—		Regular receipts. (a)	Expenditure for—				
			Members.	Employers.		Sick benefits, etc.	Regular assist-ance.	Admin-istra-tion.	Other pur-poses. (b)	All pur-poses.
1861	\$31.07	(c)	\$3.22	\$2.54	\$6.56	d \$2.53	d \$2.64	d \$0.37	(e)	f \$6.13
1862	31.88	(c)	3.29	2.61	6.66	d 2.56	d 2.70	d .38	(e)	f 6.16
1863	32.44	(c)	3.37	2.61	6.77	d 2.45	d 2.92	d .37	(e)	f 6.33
1864	33.12	(c)	3.37	2.59	6.78	2.49	2.97	.34	\$0.64	6.44
1865	32.88	(c)	3.37	2.74	6.88	2.47	2.89	.32	.67	6.35
1866	33.25	(c)	3.33	2.66	6.77	2.53	2.98	.33	.73	6.57
1867	32.34	\$ .24	3.06	2.78	7.12	2.59	3.11	.35	1.43	7.48
1868	31.08	.25	3.70	2.86	7.28	2.64	3.26	.34	.97	7.21
1869	29.82	.20	3.74	2.88	7.38	2.62	3.31	.34	.70	6.97
1870	33.30	.31	3.85	2.88	7.56	2.61	3.70	.36	1.00	7.67
1871	31.78	.57	3.95	2.98	7.93	2.81	3.71	.36	.93	7.81
1872	30.12	.17	4.30	3.65	8.78	2.95	3.83	.40	.94	8.12
1873	30.56	.11	4.69	4.06	9.54	2.89	4.22	.39	.76	8.26
1874	30.93	.13	5.15	4.54	10.57	3.16	5.08	.38	.93	9.55
1875	32.54	.20	5.23	4.61	10.78	3.50	5.56	.40	.92	10.38
1876	32.87	(c)	5.36	4.85	11.20	3.36	5.89	.39	.88	10.52
1877	32.97	.15	5.32	4.79	11.11	3.52	6.37	.40	.85	11.14
1878	32.17	.25	5.50	4.96	11.42	3.51	6.78	.42	.77	11.48
1879	31.61	.11	5.73	5.14	11.90	3.45	7.17	.40	.79	11.81
1880	31.09	.10	5.66	5.07	11.67	3.10	7.04	.39	.71	11.25
1881	32.25	.08	5.69	5.22	11.90	3.03	7.03	.38	.70	11.14
1882	33.29	.09	5.74	5.28	11.94	2.99	7.00	.37	.79	11.15
1883	33.84	.09	5.78	5.32	12.03	2.98	7.01	.55	.74	11.08
1884	34.29	.11	5.74	5.30	12.00	3.17	7.25	.35	.81	11.58
1885	34.19	.10	5.81	5.40	12.28	3.27	8.02	.36	.90	12.55
1886	34.40	.05	6.59	5.96	13.66	3.81	8.23	.38	1.00	13.42
1887	35.73	.06	7.45	6.65	15.16	3.71	8.60	.40	.91	13.62
1888	37.44	.08	7.47	6.57	15.16	3.80	8.76	.38	.72	13.66
1889	40.14	.06	7.58	6.64	15.36	3.68	8.65	.36	.65	13.34
1890	42.81	.07	7.85	6.77	15.71	4.06	8.34	.37	.69	13.46
1891	42.70	.10	8.17	7.07	16.39	4.37	8.09	.38	.83	13.67
1892	46.35	.09	8.31	7.02	16.53	4.92	8.29	.34	.71	14.26
1893	48.86	.40	8.54	7.16	17.06	5.10	8.94	.37	.85	15.26
1894	49.63	.09	8.73	7.19	17.16	4.84	9.24	.36	.99	15.43
1895	52.28	.04	8.77	7.23	17.27	5.00	9.38	.37	.85	15.60
1896	54.64	.03	8.85	7.29	17.42	4.80	9.28	.36	.89	15.33
1897	57.04	.11	8.92	7.35	17.54	5.00	9.51	.36	.91	15.78
1898	60.01	.13	9.02	7.44	17.72	5.10	9.04	.35	.83	15.32
1899	61.49	.07	9.72	7.96	18.97	5.72	9.28	.38	.88	16.26
1900	66.26	.08	10.31	8.52	20.12	6.05	9.19	.42	.76	16.42
1901	70.90	.04	10.51	8.72	20.62	6.58	9.98	.45	.65	16.66
1902	72.54	.04	10.59	8.80	20.90	6.07	9.64	.58	.71	17.00
1903	74.65	.04	10.80	8.97	22.11	6.98	10.37	.70	1.18	19.23

a Not including capital refunded, proceeds from sale of real estate, and special donations.

b Computed.

c Data not available.

d Not including expenditure of one society not reported.

e No computation could be made for reasons stated in notes d and f.

f Including expenditures of one society whose expenditures were not reported in detail.

The figures in the column marked "assets" practically mean the reserve fund and the cash on hand for current operations, though they also include the value of buildings, hospitals, etc. The liabilities are so small as to be negligible.

The reserve fund or assets, the receipts, and the expenditures have each more than doubled in the last thirty years.

In 1903 the amount paid as dues by the members of the Prussian miners' societies was 45.38 marks (\$10.80) per member. The amount received directly by them in sick benefits and pensions was 72.92 marks (\$17.35) per member, which is 27.54 marks (\$6.55) per member in excess of what they had contributed. The total expenditure of the societies was 80.81 marks (\$19.23) per member, or 35.43 marks (\$8.43) per member in excess of the workingmen's contribution. The system of pensions for widows and orphans necessitates a higher rate of dues than that prevailing in the other sick insurance organizations.

The number of members receiving pensions from the societies is shown in the following tables:

NUMBER OF DISABLED MEMBERS OF THE PRUSSIAN MINERS' RELIEF SOCIETIES AT THE BEGINNING OF EACH YEAR, 1861 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil. Bände XII-LII.]

Year.	Totally disabled members.	Partially disabled members.	Total number of disabled members. (a)	Year.	Totally disabled members.	Partially disabled members.	Total number of disabled members. (a)
1861.....	4,242	153	4,395	1883.....	20,857	840	21,697
1862.....	4,661	236	4,897	1884.....	21,573	841	22,414
1863.....	5,000	262	5,262	1885.....	22,728	875	23,603
1864.....	5,243	317	5,560	1886.....	24,917	862	25,779
1865.....	5,617	299	5,916	1887.....	27,112	871	27,983
1866.....	5,921	387	6,308	1888.....	29,189	973	30,162
1867.....	6,256	333	6,589	1889.....	32,228	1,072	33,300
1868.....	6,968	88	7,056	1890.....	33,689	2,116	35,805
1869.....	7,602	104	7,706	1891.....	33,946	2,120	36,066
1870.....	8,664	245	8,909	1892.....	35,406	2,192	37,598
1871.....	9,267	277	9,544	1893.....	37,255	2,052	39,307
1872.....	9,638	321	9,959	1894.....	39,794	2,108	41,902
1873.....	10,241	411	10,652	1895.....	42,351	2,420	44,771
1874.....	11,278	422	11,700	1896.....	43,691	2,667	46,358
1875.....	12,447	512	12,959	1897.....	45,572	2,726	48,298
1876.....	13,910	539	14,449	1898.....	47,508	2,799	50,307
1877.....	15,074	636	15,710	1899.....	49,442	2,814	52,256
1878.....	16,454	646	17,100	1900.....	51,991	2,146	54,137
1879.....	17,532	698	18,230	1901.....	55,461	2,144	57,605
1880.....	18,665	798	19,463	1902.....	58,856	2,262	61,118
1881.....	19,252	865	20,117	1903.....	62,611	2,350	64,961
1882.....	20,080	871	20,951				

<sup>a</sup> Computed.

NUMBER OF TOTALLY AND PARTIALLY DISABLED MEMBERS OF THE MINERS' RELIEF SOCIETIES AT THE BEGINNING OF EACH YEAR, AND NUMBER ADDED AND WITHDRAWN AND WHO DIED DURING EACH YEAR IN PRUSSIA, 1861 TO 1903.

[Source: Zeitschrift für das Berg-, Hütten- und Salinenwesen im Preussischen Staate, Statistischer Theil, Bände XII-LII.]

Year.	Totally disabled members—					Partially disabled members—				
	At begin- ning of the year. (a)	Added during the year.	With- drawn during the year.	Died during the year.		At begin- ning of the year. (a)	Added during the year.	With- drawn during the year.	Died during the year.	
				Num- ber.	Per cent. (b)				Num- ber.	Per cent. (b)
1861.....	4,242	843	26	382	7.55	153	140	88	15	7.32
1862.....	4,661	843	95	409	7.56	236	225	179	20	7.09
1863.....	5,000	706	29	474	8.35	262	259	161	12	3.33
1864.....	5,243	876	28	474	7.78	317	276	248	46	13.33
1865.....	5,617	866	31	528	8.18	299	231	106	37	8.73
1866.....	5,921	822	39	602	8.98	387	273	172	36	7.39
1867.....	6,256	1,207	72	635	8.59	333	240	222	36	10.26
1868.....	6,968	1,290	73	630	7.71	88	62	43	14	13.08
1869.....	7,602	1,446	73	765	8.52	104	109	46	12	7.19
1870.....	8,664	1,539	119	817	8.10	245	106	51	23	7.67
1871.....	9,267	1,418	118	933	8.83	277	128	140	32	12.08
1872.....	9,638	1,582	109	892	8.03	321	131	45	33	8.11
1873.....	10,241	2,119	117	971	7.93	411	104	57	36	7.86
1874.....	11,278	2,391	153	1,024	7.58	422	169	56	23	4.29
1875.....	12,447	2,762	248	1,051	7.02	512	150	83	40	6.91
1876.....	13,910	2,692	375	1,157	7.13	539	197	60	36	5.33
1877.....	15,074	3,004	394	1,230	6.96	636	162	114	38	5.56
1878.....	16,454	2,858	399	1,381	7.30	646	166	68	46	6.18
1879.....	17,532	3,060	476	1,451	7.21	698	251	122	34	4.11
1880.....	18,665	2,326	376	1,363	6.61	798	235	124	44	4.84
1881.....	19,252	2,639	291	1,520	7.04	865	179	136	37	4.07
1882.....	20,080	2,735	455	1,505	6.72	871	161	143	49	5.51
1883.....	20,857	2,844	369	1,759	7.54	840	183	128	54	6.03
1884.....	21,573	3,186	348	1,662	6.89	841	203	130	39	4.27
1885.....	22,728	4,319	327	1,803	6.75	875	211	181	43	4.75
1886.....	24,917	5,204	1,128	1,980	6.69	862	318	263	26	2.90
1887.....	27,112	4,741	615	2,049	6.56	871	278	143	33	3.28
1888.....	29,189	4,263	528	2,013	6.11	973	269	145	31	2.83
1889.....	32,226	4,582	967	2,164	6.04	1,072	556	199	34	2.37
1890.....	33,699	3,169	552	2,360	6.50	2,116	331	271	56	2.57
1891.....	35,946	4,640	894	2,296	6.08	2,120	414	264	58	2.58
1892.....	35,406	4,752	489	2,414	6.09	2,192	420	465	95	4.42
1893.....	37,255	5,355	520	2,296	5.45	2,052	562	425	81	3.70
1894.....	39,794	6,480	1,004	2,919	6.45	2,108	756	356	88	3.51
1895.....	42,351	4,669	592	2,767	5.96	2,420	699	390	62	2.57
1896.....	43,691	4,893	362	2,650	5.50	2,667	426	324	43	1.55
1897.....	45,572	5,322	436	2,950	5.85	2,726	505	384	48	1.69
1898.....	47,508	5,428	538	2,974	5.68	2,799	459	389	55	1.92
1899.....	49,442	6,458	577	3,330	6.02	2,814	377	990	55	2.50
1900.....	51,991	7,269	443	3,398	5.75	2,146	337	300	39	1.79
1901.....	55,461	7,418	556	3,383	5.43	2,144	382	311	40	1.81
1902.....	58,856	8,181	849	3,577	5.40	2,262	417	286	43	1.80
1903.....	62,611	7,598	1,524	3,679	5.36	2,350	397	376	46	1.94

\* The total number at the beginning of the year is not always the same as at the close of the previous year, since transfers from the totally disabled to the partially disabled list or vice versa seem to be made frequently at that period, and new associations are added and old ones discontinued from time to time, the change taking effect on the first of the year.

<sup>b</sup> Computed, the base being the number at the beginning of the year, plus the number added during the year, minus the number that withdrew during the year.

## ACCIDENT INSURANCE.

The general accident insurance laws of 1884 and of 1900 compel all mine owners to insure their workmen, technical experts, and subordinate officials against accidents in mining. This insurance includes all classes of workmen—native, foreign, male, female, young persons, adults, masters, journeymen, apprentices, whether working for or without wages, whether temporarily or permanently employed.

The insurance consists of a compensation for damages resulting from bodily injuries or from death caused by accident in the mine. This compensation is in the form of an accident benefit beginning with the fourteenth week after the date of the accident (the sick insurance benefits provide for the first thirteen weeks) and continuing as long as the disability lasts. In case of total inability to work, the benefit consists of a pension equal to two-thirds of the average wage earned during the year preceding the accident, though when the daily wage exceeds 5 marks (\$1.19) only one-third of the excess is considered when the pension is calculated. If the disability is only partial the pension consists of a fraction of the above, rated according to the degree of disability. From the beginning of the fifth week after the accident the miners' relief society is required to increase its sick benefit from one-half to two-thirds of the wage earned by the miner, for which increase the society is later reimbursed by the mine owner.

In case the accident results in death the benefits consist of: First, a burial benefit equal to one-fifteenth of the yearly earnings of the miner, this amount, however, not to be less than 50 marks (\$11.90); second, pensions for the dependents of the deceased, as follows:

(a) For the widow, a pension for life, or until remarriage, equal to 20 per cent of the average daily wage of the deceased; for each child, a pension until the sixteenth year of age is reached equal to 20 per cent of the father's wage. The sum of the pensions of the widow and children, however, may not exceed 60 per cent of the wages of the deceased.

(b) For the dependent parents of the deceased, a pension for life equal to 20 per cent of his average wage. But such a pension may be paid only in case the claims of the widow and children do not absorb the maximum of 60 per cent of the miner's wage.

The cost of the accident insurance is defrayed entirely by the mine owners, who for the purpose of administering the insurance are organized into a mutual trade association (*Die Knappschafts-Berufsgenossenschaft*) composed of all mine owners in the Empire. This association is a corporation possessing all the rights and duties of a legal person. It was created by the Bundesrath in 1885 and is the largest of the mutual trade associations. In addition to coal mines, this



association includes owners of iron, salt, and other mines, as well as smelting, etc., establishments, though by far the greater part of the workmen insured by the association are coal mine workers. While the membership is composed exclusively of mine owners, the workmen have representatives on certain important committees.

An accident to a miner which is likely to cause death or disability for more than 3 days must be reported to the local mining officials within 2 days. It is the duty of these officials to make an investigation and to report to the executive board of the trade association on all cases which may cause death or a disability of more than 13 weeks. The miners' relief society, the mine owner, and the trade association may each have a representative present during investigations by the mining officials. The latter's report is sent to the executive committee of the trade association, which decides upon the facts in the case and fixes the amount of the compensation. If filed within 4 weeks, an appeal against this decision may be made to the arbitration committee of the trade association.

For administrative purposes the Empire is divided into 8 mining districts or sections, for each of which there is an arbitration committee composed of the following persons: An official named by the minister of mines, two persons appointed by the trade association, and two persons appointed by the miners' relief society. The expense of the arbitration committee is borne by the trade association.

All benefits, pensions, etc., are paid through the post-office, which is reimbursed by the trade association at specified intervals. The cost of the pensions, benefits, etc., is divided so that one-half is paid by the trade association and one-half is paid by the section of the association in whose territory the accident occurred. The assessments of each member of the trade association are fixed at the end of each year according to the number of employees, amount of wages paid, and danger rate of his mine.

The sections of the trade association have the right to prescribe for their district or for portions of the same, or for certain establishments, what precautions shall be taken for the safety of those employed in the mine, under penalty of having the establishment classed at a higher danger rate, or in case of violation of such precautions by employees, under penalty of fine not exceeding 6 marks (\$1.43). Because of the efficiency of the State regulations, the association has not yet found it necessary to make use of its rights in this connection.

The employers' liability for accident is not entirely removed because of the system of accident insurance, but comes into play when a person not in the employ of the establishment or a person not subject to the insurance regulation is injured. Persons injured while

under the protection of the accident insurance law have no claim under the liability law unless a court decides that the employer, or a person in charge, has purposely caused the accident.

The Mine Owners' Mutual Trade Association (*Die Knappschafts-Berufsgenossenschaft*) was organized in 1885 and began operations in the last quarter of that year. In 1885 the number of establishments included in the association was 1,587, with 348,219 employees insured. The number of establishments has varied since 1885, at first showing a tendency to increase, but later tending to decrease, while the number of employees has almost constantly increased since 1885. In 1903 the number of establishments was 1,938, having 619,798 employees insured. The total amount of wages paid to these employees has increased from 250,795,617 marks (\$59,689,357) in 1886 to 713,575,434 marks (\$169,830,953) in 1903. The number of persons receiving compensation has increased steadily. During 1903, compensation was granted to 56,091 persons. The annual expenses have shown an almost uninterrupted growth since the date of organization, and in 1903 had reached the sum of 20,277,718 marks (\$4,826,097). The income of the association is largely derived from the assessments, which are adjusted so that the income will cover the expenses by a safe margin. In 1903 the reserve fund amounted to 35,521,213 marks (\$8,454,049).

Naturally the most important item of expenditure is that of payments for pensions and other accident relief. In 1903 this item amounted to 76.5 per cent of the total expenditure. In 1903 the amounts expended for the different parts of the accident insurance system were as follows: For pensions and other compensation for accidents, 15,511,080 marks (\$3,691,637); for investigation of accidents, 216,116 marks (\$51,436); for courts to decide disputes in regard to compensation, 96,259 marks (\$22,910); for measures to prevent accidents, 4,026 marks (\$958); for administration, 564,197 marks (\$134,278). The amount added to the reserve fund was 3,229,201 marks (\$768,550).

The two tables which follow give a summary of the statistics of the miners' accident insurance system for the years 1885 to 1903:

## COST OF THE MINERS' ACCIDENT INSURANCE SYSTEM IN THE GERMAN EMPIRE, 1885 TO 1903.

[Source: Amtliche Nachrichten des Reichs-Versicherungsamts, Jahrg. III-XXI. Conversion of German into United States money was made on the basis of 1 mark = \$0.238.]

Year.	Pensions and other compensation for accidents.	Cost of accident investigation.	Cost of courts for deciding questions of compensation.	Cost of preventive measures against accidents.	Cost of administration.	Addition to the reserve fund.	Total cost.
1885 (a)		\$43	\$82		\$11,494		\$11,619
1886	\$122,578	2,142	2,682	\$127	2,36,712	\$367,732	531,973
1887	289,138	2,973	6,332	431	48,167	578,276	925,317
1888	421,860	6,764	7,002	1,812	51,976	632,804	1,122,727
1889	566,131	9,744	8,315	1,706	56,795	566,131	1,208,822
1890	728,190	19,121	8,048	3,501	51,955	582,552	1,383,367
1891	905,823	25,736	10,030	5,830	58,232	543,493	1,549,144
1892	1,085,347	23,155	11,287	7,700	66,588	542,674	1,736,751
1893	1,266,243	21,139	13,167	13,361	75,556	506,497	1,895,963
1894	1,414,544	22,214	14,314	22,125	103,863	424,362	2,001,422
1895	1,581,912	22,961	15,132	28,021	108,585	316,382	2,072,993
1896	1,765,259	23,174	15,727	31,729	105,329	176,526	2,117,744
1897	1,935,169	26,515	15,773	32,942	99,805		2,110,204
1898	2,152,030	26,661	16,184	35,626	96,588		2,327,099
1899	2,345,971	28,837	16,588	29,672	108,039		2,529,107
1900	2,581,010	32,735	17,236	44,486	108,750		2,784,217
1901	2,935,561	34,525	4,386	47,291	125,644	635,165	3,782,572
1902	3,191,681	40,049	25,321	40,980	121,791	696,682	4,118,504
1903	3,691,637	51,436	22,910	958	280,606	768,550	4,826,097

a Report for last quarter of 1885.

b Including cost of first organization.

c Including \$156,327 for hospitals, convalescent institutes, etc.

## GENERAL STATISTICS OF THE MINERS' ACCIDENT INSURANCE SYSTEM IN THE GERMAN EMPIRE, 1885 TO 1903.

[Source: Amtliche Nachrichten des Reichs-Versicherungsamts, Jahrg. III-XXI. Conversion of German into United States money was made on the basis of 1 mark = \$0.238.]

Year.	Number of establishments.	Total working-men, etc., insured.	Wages of the insured persons.	Injured persons receiving compensation.		Expenditures.	Income. (a)	Reserve fund at close of year. (b)
				Number from previous year.	Number added in current year.			
1885 (c)	1,587	348,219	\$15,612,747		96	\$11,619	\$164	
1886	1,658	343,707	59,689,357	43	2,121	531,973	593,557	\$1,063,101
1887	1,717	346,146	61,077,267	1,349	2,872	925,317	1,015,249	956,549
1888	1,742	357,822	66,191,221	3,001	2,749	1,122,227	1,212,452	1,616,031
1889	1,886	375,410	73,807,168	4,772	3,163	1,208,822	1,299,063	2,212,685
1890	1,992	398,380	85,434,513	7,016	3,403	1,393,367	1,512,599	2,888,061
1891	2,075	421,137	92,589,346	9,250	4,005	1,549,144	1,667,818	3,528,305
1892	1,992	424,440	90,339,736	11,739	4,182	1,736,751	1,876,580	4,206,578
1893	2,215	421,124	88,073,445	14,445	4,464	1,895,963	2,037,014	4,856,782
1894	1,853	426,555	89,894,074	16,991	4,779	2,001,422	2,122,791	5,450,368
1895	1,765	430,320	91,665,009	19,971	4,396	2,072,993	2,213,275	5,962,618
1896	1,822	446,442	99,159,499	23,070	5,385	2,117,744	2,268,034	6,355,335
1897	1,838	468,953	108,896,427	26,064	5,670	2,110,304	2,252,818	6,355,900
1898	1,937	495,686	118,290,302	29,014	6,323	2,327,099	2,473,148	6,355,695
1899	2,010	521,352	128,803,706	32,373	6,306	2,529,107	2,673,874	6,355,695
1900	2,094	565,660	148,889,252	34,972	6,890	2,784,217	2,926,253	6,361,652
1901	1,929	607,367	168,203,393	38,714	7,931	3,782,572	3,923,797	6,986,817
1902	1,835	601,132	158,403,618	43,089	8,132	4,118,504	4,260,456	7,685,499
1903	1,938	619,798	169,830,953	47,048	9,043	4,826,097	4,971,804	8,454,049

a The surplus of receipts over expenditures in each year is included in the income of the following year.

b For the years preceding 1897, the "reserve fund" included the amount of the fund at the close of the previous year plus the delayed deposits of the previous year, the interest, and the deposits of the current year. In some years the variations in the market value of the securities in which the fund is invested also affect the total amount.

c Report for last quarter of 1885.

## INVALIDITY AND OLD-AGE INSURANCE.

The invalidity insurance of the miners' societies is now regulated by the imperial laws of 1889 and 1899. The first of these laws introduced compulsory invalidity and old-age insurance for those engaged in mining whose earnings were less than 2,000 marks (\$476) per year. Previous to 1889, the miners' invalidity insurance had been administered by the relief societies; the new law provided that the invalidity insurance should be administered by an organization in each State or part of a State, known as an "insurance institute" (*Versicherungsanstalt*), which should include all persons subject to the law in that district. The financial soundness of the institutes is guaranteed by the State or local governments of the district in which they are located. The law also provides that, with the consent of the Federal Council (*Bundesrat*), in addition to the insurance institutes, two other classes of organizations known as "fund establishments" (*Kasseneinrichtungen*) and "auxiliary funds" (*Zuschusskassen*) may engage in this branch of workingmen's insurance. The first of these, the fund establishments, are substitutes for the insurance institutes and have all the rights and duties of the latter. The question of permitting a society to act as a fund establishment is decided by the Federal Council principally from the standpoint of the security offered that the society will be able to meet future obligations. For this reason the Federal Council has recognized, first, organizations of workmen of whom the State is the sole employer, such as organizations of State railway employees, and, second, associations of persons engaged in those industries which there is good reason to believe will be continued for many years to come, such as coal and iron mining. The miners' societies had successfully conducted a system of invalidity pensions for many years previous to the introduction of the national system.

The scope of the "auxiliary funds" is limited and consists for the most part in making additional grants to the amounts paid by the insurance institutes. The miners' relief societies frequently adopt this form of organization when they engage in invalidity insurance, as it simplifies the administration of the insurance and enables the societies without much difficulty to increase the benefits to such amounts as they desire.

The Federal Council has given permission to four miners' organizations to engage in invalidity insurance in the capacity of "fund establishments." The largest of these is the "General Miners' Relief Society of Bochum" (*Allgemeiner Knappschafts-Verein zu Bochum*) which has over 150,000 members. As this society offers its members the national invalidity insurance and provides a system of additional relief, a description of its operations will give an idea of the invalidity insurance which the miners' relief societies endeavor to provide for their members.

The General Miners' Relief Society of Bochum offers its members two classes of invalidity insurance: First, a relief in case of total invalidity; and second, a relief in case of "occupation invalidity." The first of these consists of the benefits of the national system of insurance against invalidity and old age as provided by the laws of 1889 and 1899. This relief is granted to persons whose earning capacity has been reduced to less than one-third as a result of disability due to age, sickness, or other weakness. Article 5 of the law of 1899 defines this condition more closely by stating that it exists when a member is no longer able to earn one-third of that amount which a physically and mentally healthy person of the same class is accustomed to earn in the same locality. In deciding this question due regard must be given to the member's education and former position.

In the invalidity insurance system, wages are divided into five classes with different grades of dues and of benefits. The rates of wages received by miners place practically all of them in the fourth and fifth classes; the fourth class includes wages ranging from 850 to 1,150 marks (\$202.30 to \$273.70); the fifth class includes wages over 1,150 marks (\$273.70). The weekly dues for the fourth class are 30 pfennig (7.1 cents) and for the fifth class are 36 pfennig (8.6 cents), of which the employer and employee each pays half. The benefits are calculated from a fixed sum, which is increased according to the amount of dues paid in. The table on page 356 shows the benefits for the two wage classes. Before a member is entitled to receive any benefits he must have paid dues for the "waiting time" (*Wartezeit*) of 200 weeks.

Whenever a member receives the invalidity pension, his right to the second class of relief, the "occupation invalidity" pension, ceases, but he receives instead of the latter the "supplementary pension" shown in the table on page 356.

In certain cases the national invalidity insurance grants another benefit in the form of a return of the dues paid in by the insured. This repayment includes only the workman's share of the dues and does not include interest. The cases in which dues are returned are as follows:

1. Female members who have paid dues for 200 weeks, who marry before a pension is applied for, may receive the amount of dues paid in by them. By so doing, however, they lose the much more valuable right to an invalidity or old-age pension in the future. The employer's half of the dues becomes the property of the society. The application for this benefit must be filed within one year of the time of the marriage.

2. In case a member becomes permanently incapacitated for work through an industrial accident, for which he is granted a pension by the accident insurance fund, he is entitled to the return of the part of

the dues paid by him to the invalidity fund. He thereby loses all claim to an invalidity pension. The dues must be claimed within two years after the time of the accident.

3. In case of the death of a member eligible to an invalidity pension, but who has not made application for such pension, the part of the invalidity dues paid by him may be returned to the family of the deceased. The claim must be made within one year after the date of death. If the family is in receipt of a pension from the accident fund of the society, no return of the invalidity dues is made.

The invalidity insurance fund pays an old-age pension when a member reaches the age of 70; as in the case of the invalidity pension, to be eligible for the old-age pension the member must have paid the requisite invalidity dues and have passed through the prescribed "waiting time." This waiting time consists of 30 years, during which period dues for at least 1,200 weeks must have been paid; but for the period immediately following the enactment of the law, temporary regulations have been provided which practically allow all persons subject to the law to receive the old-age pension on reaching 70. But to prevent a general migration of aged persons into those industries which are included under the operations of the law, applicants for a pension must either have been employed in the industry for 3 years prior to the time it became subject to the law, or must have paid dues for the first 5 years (with a minimum of 200 weeks' dues for the 5 years) after the industry was included under the operations of the law.

After a person has reached the age of 70 the old-age pension amounts in round numbers, to 200 marks (\$47.60) per annum for the fourth wage class—those receiving from 850 marks (\$202.30) to 1,150 marks (\$273.70); and to 230 marks (\$54.74) per annum for the fifth wage class—those earning over 1,150 marks (\$273.70). These amounts are composed, first, of 150 marks (\$35.70) and 180 marks (\$42.84), respectively, which are furnished by the relief society in its capacity as a fund establishment; and second, of the 50 marks (\$11.90) subsidy added by the Imperial Government to each invalidity or old-age pension. The old-age pension is regarded as a means of supplementing the earnings of aged wageworkers and is to be given up for the larger invalidity pension when a claim to the latter can be established.

The second kind of relief provided for its members by the Bochum Society is the "occupation invalidity" relief; it is paid when a member is no longer able to earn his livelihood at the occupation of mining, even though he may be able to perform some labor of another kind. Such relief is, of course, not paid when the disability has been caused by an accident for which compensation is paid by the national accident insurance system; it is a benefit given when disability due to sickness, age, or other causes prevents a man from supporting himself



at his usual vocation. The rules of the society require that the applicant shall be a permanent member and that he shall have paid dues during a "waiting time" of 250 weeks. The benefits consist of:

First. A pension, the amount of which is based on the sum of 110 marks (\$26.18) per year, which sum is increased in proportion to the number of weeks for which dues have been paid. The table on page 356 gives the amount of the pension for the different periods of time. In case a member is awarded a pension for total disability, his right to the "occupation invalidity" pension ceases, but he receives in its stead the "supplementary pension" (*Zusatzrente*) shown in the table.

Second. A death benefit, ranging from 50 marks (\$11.90) to 90 marks (\$21.42).

Third. School money, ranging from 3.20 to 3.75 marks (76.2 cents to 89.3 cents) per month, for the education of each child which has not reached the age of 14. In case both father and mother are dead, these amounts are doubled.

Fourth. A widow's pension equal in amount to two-thirds of the pension which the husband had received or would have received in case of occupation invalidity.

The dues for the members of the "occupation invalidity" fund range from 0.80 to 1.50 marks (19 to 35.7 cents) per week. Dues are not paid during the time of compulsory military service, nor while the member is receiving sick relief, nor after the member has paid dues for 2,000 weeks.

The dues of the employer and employee are equal in amount. In collecting the dues, the usual method is followed of having the employer deduct the dues of the employees from their wages, and forward his own and the employees' share to the society at the same time.

The table following shows the schedule of pension rates of the Bochum Society.

356 SPECIAL REPORT OF THE COMMISSIONER OF LABOR.

INVALIDITY PENSION RATES OF THE GENERAL MINERS' RELIEF SOCIETY OF BOCHUM, PRUSSIA

[Source: Satzungen für den Allgemeinen Knappschafts-Verein zu Bochum, 1900. Conversion of German into United States money was made on the basis of 1 mark=\$0.238.]

Time for which contributions have been paid.			"Occupation invalidity" pension.			Invalidity pension.		Supplementary pension.		
Years.	Weeks.	Years as permanent member.	Officials (first section).	Officials (second section).	Miners.	Wage class No. IV. (a)	Wage class No. V. (b)	Officials (first section).	Officials (second section).	Miners.
5	200					\$33.80	\$35.70			
6	260					36.08	38.56			
7	312	5	\$52.91	\$41.77	\$38.06	38.06	41.03	\$21.53	\$10.40	\$6.68
8	364	6	57.37	44.37	40.04	40.04	43.51	25.12	12.13	7.80
9	416	7	61.82	46.97	42.02	42.02	45.98	28.71	13.86	8.91
10	468	8	66.28	49.57	44.00	44.00	48.46	32.30	15.59	10.02
11	520	9	70.73	52.17	45.98	45.70	50.55	35.99	17.33	11.14
12	572	10	75.19	54.77	47.96	46.93	52.04	39.48	19.06	12.25
13	624	11	79.64	57.37	49.94	48.17	53.52	43.07	20.79	13.37
14	676	12	84.10	59.97	51.92	49.41	55.01	46.66	22.52	14.48
15	728	13	88.56	62.57	53.90	50.65	56.49	50.25	24.26	15.59
16	780	14	96.72	68.88	59.60	51.88	57.98	57.55	29.70	20.42
17	832	15	101.43	71.72	61.82	53.12	59.46	61.38	31.68	21.78
18	884	16	106.13	74.57	64.05	54.36	60.95	65.22	33.66	23.14
19	936	17	110.83	77.42	66.28	55.60	62.43	69.06	35.64	24.50
20	988	18	115.53	80.26	68.51	56.83	63.92	72.99	37.62	25.87
21	1,040	19	120.24	83.11	70.73	58.07	65.40	76.73	39.60	27.23
22	1,092	20	124.94	85.96	72.96	59.31	66.89	80.57	41.58	28.59
23	1,144	21	129.64	88.80	75.19	60.55	68.37	84.40	43.56	29.95
24	1,196	22	134.35	91.65	77.42	61.78	69.86	88.24	45.54	31.31
25	1,248	23	139.05	94.50	79.64	63.02	71.34	92.06	47.52	32.67
26	1,300	24	143.75	97.34	81.87	64.26	72.83	95.91	49.50	34.03
27	1,352	25	148.45	100.19	84.10	65.50	74.31	99.75	51.48	35.40
28	1,404	26	153.16	103.03	86.33	66.74	75.80	103.59	53.46	36.76
29	1,456	27	157.86	105.88	88.56	67.97	77.28	107.42	55.44	38.12
30	1,508	28	176.92	115.91	97.96	69.21	78.77	125.62	64.60	46.66
31	1,560	29	182.12	119.00	100.44	70.45	80.25	129.95	66.83	48.27
32	1,612	30	187.32	122.09	102.91	71.69	81.74	134.28	69.06	49.88
33	1,664	31	192.51	125.19	105.39	72.92	83.22	138.61	71.29	51.48
34	1,716	32	197.71	128.28	107.86	74.16	84.71	142.94	73.51	53.09
35	1,768	33	211.32	139.79	118.75	75.40	86.19	155.69	84.16	63.12
36	1,820	34	216.77	143.13	121.48	76.64	87.68	160.27	86.63	64.97
37	1,872	35	222.22	146.47	124.20	77.87	89.16	164.85	89.11	66.83
38	1,924	36	227.66	149.82	126.92	79.11	90.65	169.43	91.58	68.69
39	1,976	37	233.11	153.16	129.64	80.35	92.13	174.01	94.06	70.54
40	2,028	38	238.55	156.50	132.37	81.59	93.62	178.59	96.53	72.40
41	2,080	39	244.00	159.84	135.09	82.82	95.10	183.16	99.01	74.26
42	2,132	40	249.44	163.18	137.81	84.06	96.59	187.74	101.48	76.11
43	2,184	41	254.89	166.52	140.53	85.30	98.08	192.32	103.96	77.97
44	2,236	42	260.33	169.87	143.26	86.54	99.56	196.90	106.43	79.83
45	2,250	43	285.60	185.64	157.08	86.87	99.96	198.14	107.10	80.33

a Including persons whose annual earnings range from 850 marks to 1,150 marks (\$202.30 to \$273.70).  
 b Including persons earning more than 1,150 marks (\$273.70) per annum.

It is impossible to present any complete statistics of the old age and invalidity insurance of miners, because part of the mining population is insured in the territorial insurance institutes and part in the special organizations authorized to administer this branch of the insurance system for their members. Since 1900 the special organizations have been required to make annual reports of their operations to the imperial insurance office, which publishes these reports in connection with the reports for the territorial institutes. The reports of the institutes do not present the statistics according to the industry in which their members are employed, so that the only data available are those in the reports of the four special miners'

organizations. Though by far the greater part of the membership of these organizations is composed of coal miners, persons engaged in iron, salt, and other mines, as well as in smelting, etc., works, are also included.

The following tables show the development of the finances of the special organizations since 1900. The reports do not give figures for membership.

INCOME, EXPENDITURES, AND INVESTED FUNDS OF FOUR MINERS' ORGANIZATIONS AUTHORIZED TO INSURE MEMBERS AGAINST INVALIDITY AND OLD AGE, 1900 to 1903.

[Source: Amtliche Nachrichten des Reichs-Versicherungsamts, Jahrg. XVIII-XXI. Conversion of German into United States money was made on the basis of 1 mark=\$0.238.]

Organization and year.	Total income.	Total expenditures.	Invested funds.
<b>North German Miners' Pension Fund:</b>			
1900.....	\$367,155	\$194,148	\$1,745,286
1901.....	400,560	233,669	1,926,971
1902.....	400,707	243,221	2,084,403
1903.....	405,268	269,039	2,221,223
<b>Miners' Relief Society of Saarbrück:</b>			
1900.....	192,479	67,967	1,282,673
1901.....	206,768	87,204	1,402,237
1902.....	215,082	101,122	1,516,198
1903.....	229,261	114,443	1,631,016
<b>Miners' Pension Fund for the Kingdom of Saxony:</b>			
1900.....	120,363	57,988	672,330
1901.....	133,981	67,788	738,504
1902.....	131,839	75,731	794,611
1903.....	131,137	87,392	838,356
<b>General Miners' Relief Society of Bochum:</b>			
1900.....	1,132,915	334,482	5,254,650
1901.....	1,223,220	489,526	5,998,355
1902.....	1,252,615	563,674	6,687,296
1903.....	1,326,674	650,166	7,363,805

PRINCIPAL ITEMS OF EXPENDITURE OF FOUR MINERS' ORGANIZATIONS AUTHORIZED TO INSURE MEMBERS AGAINST INVALIDITY AND OLD AGE, 1900 to 1903.

[Source: Amtliche Nachrichten des Reichs-Versicherungsamts, Jahrg. XVIII-XXI. Conversion of German into United States money was made on the basis of 1 mark=\$0.238.]

Organization and year.	Invalidity and other pensions.	Return of contributions.	Medical services.	Cost of administration.
<b>North German Miners' Pension Fund:</b>				
1900.....	\$123,665	\$4,899	\$36,676	\$12,545
1901.....	144,100	5,381	48,789	12,934
1902.....	162,173	6,870	36,337	12,892
1903.....	182,267	7,161	39,515	12,943
<b>Miners' Relief Society of Saarbrück:</b>				
1900.....	54,021			12,953
1901.....	76,351	(a)		10,791
1902.....	88,929	29		12,125
1903.....	102,158	69		12,240
<b>Miners' Pension Fund for the Kingdom of Saxony:</b>				
1900.....	49,190	1,849	241	6,261
1901.....	58,829	1,973	749	5,820
1902.....	66,665	1,958	601	6,138
1903.....	76,832	2,103	1,150	6,574
<b>General Miners' Relief Society of Bochum:</b>				
1900.....	272,430	10,852	6,219	43,788
1901.....	413,440	13,364	13,111	48,887
1902.....	473,380	12,447	14,012	62,744
1903.....	539,744	15,123	23,177	67,348

<sup>a</sup> Twenty-four cents.

<sup>b</sup> Returned on account of erroneous payment in preceding year.

All the organizations show a steady increase of expenditures for the years in question. Income also increased steadily, except for one organization, in which there was a decrease during 1902 and 1903. The current expenses, however, do not bear a close relation to the income, as the latter must provide for a large reserve fund. The reserves of the societies all show a regular increase.

The principal items of expenditure are shown in the second table. The item of pensions is naturally the principal source of expense. The return of contributions is relatively unimportant for miners' organizations partly because of the small number of women employed. Medical service is also an unimportant item, except in the case of the North German Miners' Pension Fund, where it was 14.7 per cent of the total expenditure in 1903. The cost of administration shows a tendency to remain stationary, with the exception of the Bochum Society, where the increase in the total expenditures has been rapid.

#### MINE WORKERS' UNIONS.

Prior to 1869 the formation of labor unions in Germany for the purpose of jointly attempting to secure better wages, or to improve the condition of workmen in other respects, was prohibited by law, but the adoption of the general industrial code (*Gewerbeordnung*) of June 21, 1869, removed these restrictions. While this law removes the restrictions against organization, there is no imperial law which specifically defines the rights of labor organizations, this matter being left to the individual States of the Empire. Labor organizations have not been given the right of becoming legal persons through incorporation or otherwise; they can not hold property, sue, or be sued, and the members are individually liable for all debts. Owing to the restrictions of police regulations, and the interference of the police, in the absence of laws defining the rights of labor organizations, the latter enjoy but a very small measure of that freedom of action and association which organizations in the United States and Great Britain possess.

The first organizations of mine workers in Germany were the miners' relief societies (*Knappschaften*), which were formed for the purpose of providing relief to their members in cases of accident, sickness, or death, and are considered elsewhere. The organization of mine workers' unions is a feature of comparatively more recent years. The oldest organization of this kind, which was organized before the prohibition mentioned above was removed, was the "Zwickau Mine Workers and Laborers' Union" (*Zwickauer Gruben- und Tagearbeitergenossenschaft*) in Saxony, with a membership of about 3,000 in 1868, which had increased to about 6,000 in 1870, but was dissolved during the Franco-Prussian war.

Another union was organized in May, 1876, under the name of the "Saxon Mine Workers and Smelters' Union" (*Sächsische Berg-und Hüttenarbeiterverband*). In 1879 it had a membership of 1,502, which gradually increased to 9,225 in 1894. The union maintained a death-benefit fund and published its own organ, under the title of "Glück-auf." Owing to its alleged socialistic tendencies it was dissolved by order of the Saxon Government in 1895.

Through the efforts of Dr. Max Hirsch and Franz Duncker a number of local unions were formed in Silesia in 1868 and 1869, called Hirsch-Duncker unions, after the names of their organizers. They take the position that there should be no antagonism between labor and capital, and hence they seek to secure their objects by peaceful means. Every applicant for admission to this class of unions is required to subscribe to a declaration that he is not an adherent of socialism. Owing to the conservative character of these organizations, they have never attained the numerical strength of the other mine workers' associations. The number of the Hirsch-Duncker local unions on December 31, 1903, was reported to be 27, with a total membership of 541.

In May, 1891, an organization was formed at Hermsdorf, Silesia, under the name of "Loyal Mine Workers' Union" (*Reichstreuer Bergarbeiterverein*), to distinguish it from other organizations which were showing more or less socialistic tendencies. According to its constitution the objects of the Loyal Mine Workers' Union are as follows: To promote fellowship among its members, to promote the interests of its members by means of peaceful discussions with their employers, and by means of lectures to discourse on subjects which are of special interest to them as mine workers. Discussions on political and religious topics are excluded. Organizations of the same character were soon after formed at other places in Silesia which resulted in the formation of the "Federation of Loyal Mine Workers' Unions of the Lower Silesian Mine District" (*Verband reichstreuer Bergarbeitervereine des niederschlesischen Bergreviers*) in October, 1896. The council of the federation is composed of mine workers and of honorary members selected by the local unions from among the mine operators, mining officials, and others who are in sympathy with this movement. In September, 1898; it had a membership of 1,138.

In November, 1889, an organization of the mine workers was effected in the Saar district, under the name of "Legal Protective Union" (*Rechtsschutzverein*), with a membership of about 24,000. At first the organization was entirely under clerical influence, but in 1892 the socialistic element had completely gained the ascendancy. A strike, inaugurated on December 29, 1892, in which 25,000 mine

workers participated, resulted, after a short duration, in a complete failure and the dissolution of the organization in July, 1893.

The first important organization of mine workers in the Ruhr district, the largest and most important coal-mining district in Germany, was the "Federation of Rhenish-Westphalian Mine Workers" (*Verband rheinischwestfälischer Bergleute*), formed at the convention held at Essen February 2, 1878, and representing about 3,000 mine workers from different sections of the district. The convention adopted a constitution and declared in favor of better treatment of the mine workers, an 8-hour shift, free Sundays and holidays, and better wages. The existence of the organization, however, was of short duration, the membership gradually decreased under threats of the mine operators to discharge all miners joining any labor organization, and the federation finally disbanded in October, 1878, after having been in existence less than 9 months.

The next important organization of mine workers in the Ruhr district was formed in April, 1886, under the name of "Legal Protective Union" (*Rechtsschutzverein*.) It published its own organ under the title of "Kohle und Eisen." Upon the payment of 50 pfennigs (11.9 cents) a year the union provided legal counsel to its members in suits against the miners' relief funds and against the mine operators. At first the union had a membership of about 12,000, but three years later the membership had decreased to only 4,000, and owing to indifference on the part of the miners toward the union, and to political and religious dissensions, the union was soon after dissolved.

After the disastrous strike of May, 1889, a call was issued for a convention of mine workers to meet at Dorstfeld August 18, 1889. The convention was attended by over 200 delegates and organized the "Federation for the Protection and Advancement of the Interests of the Mine Workers in Rhenish-Westphalia" (*Verband zur Wahrung und Förderung der bergmännischen Interessen in Rheinland-Westfalen*). The objects of the federation were to promote the economic interests of the mine workers. Discussions of religious or political questions were prohibited by the constitution. The official organ was the "Journal for German Mine Workers" (*Zeitung der deutschen Bergleute*). The admission fee was 50 pfennigs (11.9 cents) and the monthly dues 30 pfennigs (7.1 cents). This organization was subsequently known as the "Old Federation" (*Alter Verband*).

Owing to the predominating influence of the socialistic element in the federation, the Catholic mine workers in May, 1890, formed an independent organization, under the name of "Glück-auf." Its existence however was short-lived, having disbanded in 1892.

The Old Federation (*Alter Verband*) continued its efforts to extend its influence over other portions of Germany and issued a call for the



first convention of German mine workers to meet at Halle in September, 1890. The convention remained in session for 4 days and organized the first "Central Federation of all German Mine Workers" (*Centralverband aller deutschen Bergarbeiter*). In 1892 the federation admitted to its membership the smelting workers and changed the title of its official organ to "Journal for German Mine and Smelting Workers" (*Deutsche Berg-und Hüttenarbeiterzeitung*) and later, in 1891, to "German Mine Workers Journal" (*Deutsche Bergarbeiter-Zeitung*).

In 1890 the federation had a membership of 58,000, but internal dissension, opposition on the part of the mine operators, restrictive measures employed by the authorities (as closing of halls, closing of saloons 2 hours before and after a meeting, arrest of speakers, etc.), and an unsuccessful strike in January, 1893, in sympathy with a strike in the Saar district, led to the rapid decline of the federation until its membership had decreased to only about 8,000 in 1895. But under new leadership and a thorough reorganization, with its former socialistic tendencies largely eliminated, it rapidly recovered its lost ground, until in 1903 its total membership had increased to 60,127 with its local unions extending over Lower Silesia, Upper Silesia, Lorraine, the Saar district, Saxony, Thuringia, Upper Bavaria, etc., but especially over the Ruhr district. In 1901 the name of the federation was changed to "Federation of German Mine Workers" (*Deutscher Bergarbeiterverband*).

The entrance fee is uniformly 50 pfennigs (11.9 cents) and the regular weekly dues are 20 pfennigs (4.8 cents) per member. In cases of disabled or invalid members who have paid their regular dues in full for 6 months, the dues are reduced to 10 pfennigs (2.4 cents) per week and in cases of sickness or unemployment exceeding four weeks to 10 pfennigs (2.4 cents) per month.

Members of the federation are entitled to a copy of the federation's official organ, published weekly; to legal assistance in all matters of dispute arising from their connection with the federation, and to death benefits of 30 marks (\$7.14) in case of the death of an unmarried member or the death of the wife of a member; to death benefits of 60 marks (\$14.28) in case of the death of a member who is married, or in case of the death of an unmarried member who has been the sole support of his mother.

Provision has also recently been made for the payment of benefits to unemployed mine workers in good standing who have held a regular membership for at least 1 year, provided such unemployment is involuntary on their part, payment of such benefits to begin with the third week of unemployment and to continue not exceeding 8 weeks, according to the scale following.

## UNEMPLOYMENT BENEFITS OF THE FEDERATION OF GERMAN MINE WORKERS.

[Conversion of German into United States money was made on the basis of 1 mark = \$0.238.]

Duration of membership.	Benefits.		Maximum benefits.
	Per day.	Per week.	
52 weeks.....	\$0.19	\$1.14	\$9.14
156 weeks.....	.24	1.43	11.42
260 weeks.....	.29	1.71	13.71

The Federation of German Mine Workers (*Deutscher Bergarbeiter verband*) has met in general convention annually since its organization in 1889. All its efforts have been directed to secure improved conditions for the mine workers. At its fourteenth general convention, held at Zwickau, Saxony, June 1-3, 1903, attended by 90 delegates and a representative of the recently organized Federation of Austrian Mine Workers, resolutions were adopted demanding a stricter enforcement of the sanitary regulations affecting mine workers; an 8-hour shift, and at temperatures above 28° R. (95° F.) a 6-hour shift; prohibition of employment underground of children under 18 years of age; prohibition of all female labor in mines; the appointment of assistant inspectors from the ranks of the mine workers; sanitary improvement of mines, and reform in the administration of miners' relief funds.

During the period of the decline of the "Old Federation" (*Alter Verband*), about the year 1894, a movement took place among the religious element of mine workers in the Ruhr district who were not in harmony with the principles dominating the "Old Federation" for the formation of a new organization. A convention, attended by 424 delegates representing 182 local unions, met at Essen August 26, 1894, and effected a temporary organization.

A subsequent convention held at the same place on October 28, 1894, adopted a constitution and formally organized the "Federation of Christian Mine Workers of the Dortmund District" (*Gewerkverein christlicher Bergarbeiter für den Oberbergamtsbezirk Dortmund*). The constitution prohibits discussions of religious and political topics. The general object of the federation, as enunciated by its constitution, is the improvement of the moral, social, and economic condition of the mine workers upon the basis of Christian and legal principles.

Since the beginning of 1896 the Federation of Christian Mine Workers has issued its own official organ under the name of "Der Bergknappe," which appears weekly.

The federation has grown very rapidly since its organization, the membership increasing from about 4,000 on March 31, 1895, to 41,800 on April 1, 1904, and its receipts from 4,261 marks (\$1,014.12) in 1895 to 236,513 marks (\$56,290.09) in 1903.

The regular dues are 50 pfennigs (11.9 cents) per member, payable on the first of each month. Members who are in arrears in their dues for more than 2 months forfeit their membership.

Members are entitled to a copy of the federation's official organ free of charge and to legal counsel in all subjects of dispute arising from their connection with the federation. After a membership of 12 months members in good standing are also entitled to death benefits of 50 marks (\$11.90) in case of their own death or the death of the wife, and the same amount may be paid to a member on the death of his widowed mother in case he is her sole support; but members over 45 years of age, who have joined the federation since October 1, 1902, have no claim to death benefits, unless it can be shown that they had no opportunity of acquiring such membership before that date.

Provision is also made by which mine workers whose surroundings are such as to prevent them from acquiring membership in the federation may, under certain restrictions, become beneficiaries of the death-benefit fund the same as regular members of the federation.

The position of the mine operators toward the Federation of Christian Mine Workers has hardly been more friendly than it has been toward the "Old Federation." A proposition on the part of the federation to be allowed representation on the board of mine inspection was rejected by the mine owners' association. The demand of the federation for an increase of wages of 10 per cent received similar treatment, with the reply that all negotiations should be conducted with each mine separately. Subsequent requests of the federation were treated with silence, the mine owners' association having declined to enter into any negotiations whatever with the federation.

An organization similar in its objects to the Federation of Christian Mine Workers was formed July 1, 1897, under the name of "Christian Mine, Iron, and Metal Workers' Union of the Sieg-Halle District" (*Verein christlicher Berg-, Eisen-, und Metallarbeiter im Sieg-Haller Industriebezirk*), with a membership of 400, representing 8 local unions. In order to extend its influence over the entire Bonn district its name was changed soon after to "Christian Mine, Iron, and Metal Workers' Union of the Bonn Mine District" (*Gewerkverein der christlichen Berg-, Eisen-, und Metallarbeiter für den Oberbergamtsbezirk Bonn*). In 1898 its membership had increased to 4,000, in 1899 to 6,500, and in 1901 to 11,200.

A convention of Christian Mine Workers' unions was held at Bochum January 31, 1897, with the view of effecting a national organization. It discussed questions relating to the hours of labor, Sunday rest, female labor, means for protecting the health and life

of workmen, workmen's committees, miners' relief funds, and wages. The convention adopted resolutions looking toward the formation of a national organization.

Several attempts have been made to bring about a national organization embracing all mine workers of Germany, regardless of their political or religious leaning, but all efforts in that direction have so far been unsuccessful. A national congress of German mine workers, which met at Essen on December 26, 1894, at the call of the "Old Federation," was attended by 87 delegates, nearly all of them from Rhenish Westphalia, Saxony being represented by only three delegates and Brandenburg, Upper Silesia, and Lower Silesia each by one delegate. The debates were strictly limited to economic questions relating to mine workers, as the selection of mining officials by the mine workers, the 8-hour shift, and uniform mining laws for the Empire. The Federation of Christian Mine Workers did not accept the invitation to attend the congress.

A second national congress of mine workers was held at Helmstedt on April 19, 1897, at which 57 delegates represented the mine workers of the Ruhr district, Saxony, Brunswick, Upper Bavaria, Lower Silesia, and the Saar district. Resolutions were adopted in favor of the sanitary improvement of mines, the 8-hour shift, a minimum wage of 4 marks (95.2 cents) per shift, the enactment of a law prohibiting employment of women and children in mines, and reform in the administration of the miners' relief and accident insurance funds.

The congress also emphasized its position by the adoption of a resolution that all features of a religious or political character should be strictly eliminated from all trade unions; that questions of an economic character only should be considered by them.

The third national congress of mine workers, attended by 74 delegates, was held at Halle on April 2, 1899. The main topics of discussion were: The unsatisfactory sanitary condition of the mines, the 8-hour shift, an average daily wage of 5 marks (\$1.19), and reform in the administration of the miners' relief funds. The Federation of Christian Mine Workers, however, took no part in this or the preceding congress.

After these three attempts on the part of the "Old Federation" to effect a federation of all miners' unions, the calling of national congresses for this purpose was abandoned. The federation, however, continued its annual meetings.

At the close of the year 1903 the following principal groups of mine workers' unions are found in Germany:

1. The Federation of German Mine Workers (*Deutscher Bergarbeiterverband*), with 420 affiliated unions and an average membership of 60,127 for the year.

2. The Federation of Christian Mine Workers of Germany (*Gewerkverein christlicher Bergarbeiter Deutschlands*), with 307 affiliated unions and an average membership of 40,831 for the year.

3. The Hirsch-Duncker unions, with 27 affiliated unions and a total membership of 541.

Of the three groups of mine workers' organizations, the Federation of German Mine Workers (*Deutscher Bergarbeiterverband*) is the most important. With regard to the membership it takes the fourth place among the "free" trade organizations (<sup>a</sup>) (*"freie" Gewerkschaften*) at the end of the year 1903, being exceeded in membership only by the metal workers', the masons', and the wood workers' unions. This is shown in the following table, which gives the membership from 1891 to 1903 of those trade unions which are usually classed with the so-called "free" trade organizations (*"freie" Gewerkschaften*):

MEMBERSHIP OF "FREE" TRADE ORGANIZATIONS IN THE GERMAN EMPIRE, 1891 TO 1903.

[Source: 1891 to 1901, *Correspondenzblatt der Generalkommission der Gewerkschaften Deutschlands*, Jahrg. III-XII; 1902 and 1903, *Reichs-Arbeitsblatt*, Jahrg. I, II. For 1891, 1892, and 1893 the membership is given as found at the end of the year; for subsequent years the average membership is given.]

Year.	Membership of unions of—										Mem- bership of other unions.	Total mem- ber- ship.
	Mine work- ers.	Print- ers and helpers.	Wood work- ers.	Ma- sons.	Metal work- ers.	Tail- ors.	Shoe- mak- ers.	To- bacco and cigar work- ers.	Textile work- ers.	Car- pen- ters.		
1891 . .	52,500	17,000	500	10,215	23,158	7,700	9,500	650	3,500	9,800	143,136	277,659
1892 . .	44,906	16,000	608	11,842	26,121	6,272	10,150	11,559	6,515	8,371	94,750	237,094
1893 . .	19,187	16,520	23,760	12,167	28,429	7,318	10,356	14,350	8,012	7,673	75,758	223,530
1894 . .	19,801	17,275	26,141	12,580	33,406	8,543	10,315	14,291	10,302	8,127	85,713	246,494
1895 . .	8,000	19,209	30,429	14,860	33,297	8,000	9,056	14,719	17,000	9,281	95,324	256,175
1896 . .	8,000	21,002	39,520	26,600	41,095	11,950	11,926	15,872	17,574	13,282	122,409	329,230
1897 . .	18,000	22,865	41,797	42,652	59,890	9,041	14,935	18,638	22,648	17,620	142,780	410,864
1898 . .	27,300	25,353	49,966	60,175	75,431	9,495	14,810	19,525	29,007	22,104	160,576	493,742
1899 . .	33,000	27,687	62,570	74,534	85,013	12,173	16,922	19,258	37,617	23,719	187,980	580,473
1900 . .	36,420	30,290	73,972	82,964	100,762	15,639	19,288	19,534	34,333	25,272	241,553	680,427
1901 . .	38,042	32,789	70,251	80,869	102,905	16,769	19,585	18,791	28,836	24,151	244,522	677,510
1902 . .	41,894	36,116	70,390	82,223	128,842	18,680	20,583	18,953	38,178	24,502	252,845	733,206
1903 . .	60,127	39,623	79,732	101,155	160,135	21,011	25,566	18,837	54,556	27,265	299,691	887,698

<sup>a</sup> The sum of the items does not agree with the total, but the figures are reproduced as found in the source quoted.

<sup>b</sup> Membership at end of the year.

The income of the Federation of German Mine Workers is derived principally from entrance fees, the fee amounting to 50 pfennigs (11.9 cents) for new members and the same amount for reinstated members; from regular membership dues at the rate of 20 pfennigs (4.8 cents) per week; and from subscriptions to the federation's organ of 1.50 marks (35.7 cents) per quarter.

The table following shows the membership of the federation, the number of affiliated unions, the receipts, the expenditures, and the funds on hand at the end of each year, from 1895 to 1903.

<sup>a</sup> Organizations not dominated by clerical or political influences.

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MEMBERSHIP, RECEIPTS, EXPENDITURES, AND FUNDS ON HAND OF THE FEDERATION OF GERMAN MINE WORKERS, 1895 TO 1903.

[Source: 1895 to 1901, *Correspondenzblatt der Generalkommission der Gewerkschaften Deutschlands*, Jahrg. III-XII, 1902 and 1903, *Reichs-Arbeitsblatt*, Jahrg. I, II. Conversion of German into United States money was made on the basis of 1 mark = \$0.238.]

Year.	Membersh- hip.	Number of affiliated unions.	Receipts.	Expendi- tures.	Funds on hand. (e)
1895.....	8,000	104	\$4,995.14	\$4,617.44	\$377.70
1896.....	8,000	120	3,737.55	2,910.03	1,829.03
1897.....	18,000	190	11,625.82	7,121.67	3,701.85
1898.....	27,300	(b)	c 13,766.16	c 11,442.56	2,180.32
1899.....	33,000	204	d 18,336.95	d 16,063.33	5,365.96
1900.....	36,420	249	45,848.32	36,000.83	15,213.44
1901.....	38,042	289	62,172.26	45,926.38	31,008.78
1902.....	41,894	322	79,068.11	56,262.25	61,923.79
1903.....	60,127	420	150,318.66	75,329.38	104,470.58

a The funds on hand at the close of any year do not equal the excess of receipts over expenditures for that year plus the funds on hand at the close of the preceding year. No explanation is given.

b Not reported.

c For 11 months only.

d For 10 months only.

The following table shows the expenditures of the federation, in detail, from 1896 to 1903.

EXPENDITURES IN DETAIL OF THE FEDERATION OF GERMAN MINE WORKERS, 1896 TO 1903.

[Source: *Correspondenzblatt der Generalkommission der Gewerkschaften Deutschlands*, Jahrg. VI-XIII. Conversion of German into United States money was made on the basis of 1 mark = \$0.238.]

Year.	Publica- tion of federation's organ.	Propa- ganda.	Strike benefits.		Legal protec- tion.	Removal, death, and other relief.	Confer- ences and general assem- blies.
			Mine workers.	Other trades.			
1896.....	\$1,692.18	\$365.33			\$178.74		\$84.40
1897.....	3,267.03	779.69	\$254.66	\$285.60	691.15		251.09
1898 (a).....	4,878.76	2,060.60			744.94		304.14
1899 (b).....	6,765.63	2,329.31	442.68		1,194.05		666.40
1900.....	12,234.86	3,569.76	3,877.26		2,189.84	\$1,299.48	1,447.28
1901.....	12,202.26	2,654.42	744.70		595.00	3,467.18	3,312.72
1902.....	17,277.85	2,153.42	6.19		2,737.00	3,526.45	5,203.87
1903.....	18,291.73	4,410.61	4,211.41		3,570.00	4,842.35	6,608.55

Year.	Contribu- tions to the General Commis- sion.	Administration of the general fund.		Other.	Contribu- tions on hand in dis- bursing offices.	Total.
		Salaries.	Supplies.			
1896.....	\$23.80			\$380.80	\$184.69	\$2,910.03
1897.....	71.40	\$467.19	\$563.82		489.09	c 7,121.67
1898 (a).....	238.00	1,045.30	2,170.32			11,442.56
1899 (b).....	357.00	804.20	1,507.21		1,916.85	16,063.33
1900.....	1,389.92	1,345.89	727.56		1,136.69	4,782.29
1901.....	871.56	2,280.06	754.22		5,714.38	12,154.66
1902.....	1,058.15	2,312.88	316.06		4,420.61	15,308.63
1903.....	1,819.27	3,971.03	503.61		916.06	22,856.09

a For 11 months only.

b For 10 months only.

c The sum of the items does not agree with this total, but the figures are reproduced as found in the source quoted.

During the entire period the expenditures on account of the publication of the federation's organ greatly exceed in amount those for the other items, the amount being nearly 25 per cent of the



total expenditures in 1903. The amount expended for strike benefits amounted to a little more than 10 per cent of the total for the same year. [www.libtool.com.cn](http://www.libtool.com.cn)

Prior to 1904 no allowances were made for the relief of the unemployed, although this was quite common in some other trade unions classed with the "free" trade organizations, especially in the printers' and metal-workers' unions, in which the unemployment relief amounted to 31 per cent and 13 per cent, respectively, of their total expenditures in 1903.

At their convention held at Zwickau in June, 1903, the Federation of German Mine Workers, however, adopted measures providing for the future relief of unemployed members of the federation, as previously stated.

The following table shows the receipts and the principal items of expenditure per member of the federation from 1896 to 1903:

RECEIPTS AND EXPENDITURES IN DETAIL, PER MEMBER, OF THE FEDERATION OF GERMAN MINE WORKERS, 1896 TO 1903.

[Computed from preceding tables.]

Year.	Member-ship.	Receipts per member.	Expenditure per member for—					Removal, death, and other relief.
			Publica-tion of federa-tion's organ.	Propa-ganda.	Strike benefits.		Legal protec-tion.	
					Mine workers.	Other trades.		
1896 .....	8,000	\$0.47	\$0.211	\$0.046			\$0.022	
1897 .....	18,000	.65	.182	.043	\$0.014	\$0.016	.039	
1898 (a) .....	27,300	.50	.179	.075			.027	
1899 (b) .....	33,000	.56	.205	.071	.013		.036	
1900 .....	36,420	1.26	.336	.098	.106		.060	\$0.036
1901 .....	38,042	1.63	.321	.070	.019	.016	.091	.087
1902 .....	41,894	1.89	.413	.051	(c)	.065	.084	.124
1903 .....	60,127	2.50	.304	.073	.070	.080	.081	.110

Year.	Expenditure per member for—						Total.
	Confer-ences and general assem-bles.	Contri-butions to the General Com-mis-sion.	Administra-tion of the general fund.		Other.	Contri-butions on hand in dis-bursing offices.	
			Salaries.	Supplies.			
1896 .....	\$0.011	\$0.003			\$0.048	\$0.023	\$0.364
1897 .....	.014	.004	\$0.026	\$0.031		.027	.396
1898 (a) .....	.011	.009	.038	.079			.419
1899 (b) .....	.020	.011	.024	.049		.058	.487
1900 .....	.040	.038	.037	.020	.031	.186	.988
1901 .....	.031	.023	.060	.020	.150	.319	1.207
1902 .....	.046	.025	.065	.008	.108	.366	1.343
1903 .....	.055	.030	.066	.009	.015	.380	1.253

a For 11 months only.

b For 10 months only.

c Less than one-half mill.

The next important group of mine workers' unions is the Federation of Christian Mine Workers (*Gewerkverein christlicher Bergarbeiter*). At the close of the year 1903 there were 307 affiliated unions with an average membership of 40,831. They occupy the first place among the Christian trade unions, as is shown in the

following table, which gives the membership from 1899 to 1904 of those trade unions usually classed with the Christian trade organizations. The oldest of these organizations are the mine workers' unions. Most of the other organizations were formed in 1898 and 1899, hence a comparison for years prior to 1899 is impracticable.

MEMBERSHIP OF CHRISTIAN TRADE UNIONS IN THE GERMAN EMPIRE, 1899 TO 1904.

[Source: 1899 to 1901, Correspondenzblatt der Generalkommission der Gewerkschaften Deutschlands, Jahrg. X-XIII; 1902 to 1904, Reichs-Arbeitsblatt, Jahrg. I, II.]

Year.	Membership of unions of—											Total membership.	
	Mine workers.	Textile workers.	Metal workers and smelters.	Building trades.	Wood workers.	Tobacco and cigar workers.	Shoemakers and leather workers.	Brickmakers.	Tailors.	Lead and zinc workers.	Watchmakers.		Membership of other unions.
1899 (a)	22,000	20,350	11,500	1,753	1,000	500	700	3,980	.....	.....	424	2,576	64,783
1900 (b)	26,280	20,000	16,298	3,800	2,200	920	a1,100	3,560	.....	700	400	2,806	78,664
1901 (b)	35,000	15,000	14,877	4,000	4,022	900	1,100	2,871	700	510	331	5,356	84,667
1902 (b)	35,500	14,459	9,066	3,547	3,850	1,150	1,255	2,871	750	500	300	5,990	79,238
1903 (b)	40,831	16,616	9,640	5,496	4,466	1,577	1,410	1,873	858	505	394	7,768	91,440
1904 (c)	41,800	17,430	7,433	8,931	5,100	2,229	1,696	1,700	1,272	525	394	11,543	100,053

a At end of year.

b Average for year.

c On April 1.

The following table shows the rapid growth of the Christian mine workers' unions in recent years, their membership having increased from 5,400 in 1895 to 40,831 in 1903. The receipts for the same period have increased from 4,261 marks (\$1,014.12) to 236,513 marks (\$56,290.09), the expenditures from 3,929 marks (\$935.10) to 186,977 marks (\$44,500.53), and their surplus from 332 marks (\$79.02) to 247,764 marks (\$58,967.83). The table shows these items for each year from 1895 to 1903:

MEMBERSHIP, RECEIPTS, EXPENDITURES, AND FUNDS ON HAND OF THE CHRISTIAN MINE WORKERS' UNIONS, 1895 TO 1903.

[Source: Kulemann, Die Gewerkschaftsbewegung; Pieper, Die Lage der Bergarbeiter im Ruhrrevier; Bergknappe, Dec. 24, 1896, Jan. 15, 1899, Jan. 13, 1900; Correspondenzblatt der Generalkommission der Gewerkschaften Deutschlands, Jahrg. X, XI, XIII; Reichs-Arbeitsblatt, Jahrg. I, II. Conversion of German into United States money was made on the basis of 1 mark = \$0.238.]

Year.	Membership.	Number of affiliated unions.	Receipts.	Expenditures.	Funds on hand at end of year.
1895.....	5,400	(a)	\$1,014.12	\$935.10	b \$79.02
1896.....	8,055	80	b 2,257.19	b 1,126.93	1,209.28
1897.....	21,000	103	b 4,695.03	b 2,885.99	3,018.32
1898.....	28,718	(a)	6,037.58	5,064.16	3,991.74
1899.....	22,000	(a)	7,525.80	6,901.05	4,616.49
1900.....	26,280	(a)	22,281.32	12,121.34	b14,776.47
1901.....	35,000	(a)	.....	.....	b31,762.26
1902.....	c35,500	323	40,965.75	25,192.78	d 47,535.26
1903.....	c40,831	307	56,290.09	44,500.53	d 58,967.83

a Not reported.

b Computed.

c Average for year.

d The funds on hand at the end of the year 1903 do not equal the excess of receipts over expenditures for that year plus the funds on hand at the close of the year 1902. No explanation is given.

The Hirsch-Duncker mine workers' unions, although organized as early as 1868 and 1869, show a very small growth in their membership when compared with the other trade unions of the Hirsch-Duncker group. While their membership at the beginning of 1879 was 239, it had increased, after various fluctuations, to only 541 at the end of 1903. On the other hand, other trade unions of this group of organizations show for the same period large increases in their membership, prominent among these being the machinists' and metal workers' unions and the factory employees' and artisan's unions, these two groups comprising more than one-half of the total membership of the Hirsch-Duncker organizations. This is shown in the following table, which gives the membership of the Hirsch-Duncker trade unions in 1872, 1879, and from 1892 to 1903:

MEMBERSHIP OF HIRSCH-DUNCKER TRADE UNIONS AT THE END OF THE YEARS 1872, 1879, AND FROM 1892 TO 1903.

[Source: 1872 to 1898, Kulemann, Die Gewerkschaftsbewegung; 1899 to 1901, Correspondenzblatt der Generalkommission der Gewerkschaften Deutschlands, Jahrg. X-XIII; 1902 and 1903, Reichs-Arbeitsblatt, Jahrg. I, II.]

Year.	Membership of unions of—						Tailors.
	Mine workers.	Machinists and metal workers.	Factory employees and artisans.	Cabinet makers.	Shoemakers and leather workers.	Textile workers.	
1872.....		4,468	3,543	2,019	306	1,571	438
1879 (a).....	239	3,749	2,423	2,879	666	1,129	457
1892.....	727	12,129	9,908	4,795	3,845	3,403	2,415
1893.....	554	24,163	10,080	4,393	3,670	3,002	2,595
1894.....	455	27,836	11,339	4,733	3,900	2,788	3,060
1895.....		27,000	11,833	4,880	4,200	2,899	3,000
1896.....	182	28,127	13,284	5,423	4,620	3,022	3,010
1897.....	210	30,837	15,006	6,010	5,300	3,330	3,350
1898.....	257	32,938	15,415	6,152	5,690	3,434	3,360
1899.....	301	34,025	16,758	6,431	6,000	3,623	3,560
1900.....	610	35,619	18,154	6,698	6,430	3,772	3,550
1901.....	635	38,510	19,400	6,730	6,315	3,854	3,720
1902.....	501	40,288	21,190	7,304	5,617	4,128	4,060
1903.....	541	43,018	22,018	8,106	5,504	4,273	3,805

  

Year.	Membership of unions of—					Membership of other unions.	Total membership.
	Building trades.	Printers, bookbinders, etc.	Cigar and tobacco workers.	Potters.	Tinners and metal workers.		
1872.....	2,521	289	102	266		633	16,156
1879 (a).....	1,042	1,058	125	43	180	322	14,912
1892.....	1,709	1,486	1,212	890	2,508	2,773	47,800
1893.....	2,090	1,612	1,121	843	2,346	4,685	61,154
1894.....	2,226	1,655	1,145	916	2,472	4,533	67,058
1895.....	1,629	1,918	1,230	1,021	2,667	4,482	66,759
1896.....	1,624	1,944	1,344	1,139	3,103	4,945	71,767
1897.....	2,300	1,900	1,408	1,324	3,134	5,444	79,553
1898.....	1,985	1,951	1,462	1,487	3,225	5,399	82,755
1899.....	1,958	1,941	1,576	1,588	3,455	5,561	86,777
1900.....	1,698	1,950	1,656	1,479	3,798	6,247	91,661
1901.....	1,365	1,873	1,311	1,464	3,937	7,651	96,765
1902.....	1,199	1,921	1,546	1,430	4,029	9,368	102,581
1903.....	1,268	1,993	1,592	1,597	3,573	12,927	110,215

<sup>a</sup>At the beginning of the year.

The following table gives a summary of the membership of the three groups of mine workers' unions in Germany from 1895 to 1903, the annual per cent of increase, and, finally, the per cent of increase for each year over the membership of 1895:

SUMMARY OF MEMBERSHIP OF THE FEDERATION OF GERMAN MINE WORKERS, THE CHRISTIAN MINE WORKERS' UNIONS, AND THE HIRSCH-DUNCKER MINE WORKERS' UNIONS, 1895 TO 1903.

[Compiled from preceding tables. The totals and the percentages were computed.]

Year.	Membership.				Per cent of—	
	Federation of German Mine Workers.	Christian mine workers' unions.	Hirsch-Duncker mine workers' unions.	Total.	Annual Increase.	Increase over 1895.
1895.....	8,000	5,400	.....	13,400	.....	.....
1896.....	8,000	8,065	182	16,237	21.13	21.13
1897.....	18,000	21,000	210	39,210	141.56	192.61
1898.....	27,300	28,716	257	56,273	43.52	319.95
1899.....	33,000	22,000	301	55,301	1.73	312.69
1900.....	36,420	26,280	610	63,310	14.48	372.46
1901.....	38,042	35,000	635	73,677	16.37	449.53
1902.....	41,894	35,500	501	77,895	5.72	481.31
1903.....	60,127	40,831	541	101,499	30.30	657.46

<sup>a</sup> Decrease.

In only one year, from 1898 to 1899, was there a decrease in the total membership, the decrease amounting to but 1.73 per cent. The most notable growth was from 1896 to 1897, when the increase was equal to 141.5 per cent. From 1897 to 1898 the increase was 43.5 per cent, while the year 1903 shows an increase of 30.3 per cent over the preceding year with an increase in the actual membership of 23,604.

### LABOR DISPUTES.

There is no record of any important coal mine strikes in Germany prior to 1869. In December of that year a strike began in Waldenburg, Silesia, involving over 6,000 mine employees. It terminated in a complete failure on January 24, 1870. Its origin appears to have been due to an agitation for improved labor conditions following the organization of socialist societies and trade unions among the miners. The trade-union leaders, fearing defeat, advised against the strike, but the relations between the employees and employers had been so strained that their efforts were futile. Formal demands were made by the miners' organizations regarding hours of labor and wages. The operators answered by serving notice to vacate upon all miners occupying their houses. This action was followed by a strike in which 6,409 mine employees left their work. The mine owners then served notice that they would thenceforth employ no members of any union. Nearly a thousand of the miners migrated to other fields, but those remaining soon began to weaken. In January, 1870, 78,000 marks (\$18,564) were raised in aid of the strikers and efforts

were made to induce the Prussian government to provide work for the strikers. Efforts to settle the strike by mediation failed. Finally the unions decided to vote to return to work unconditionally, which action, in view of the position taken by the operators, meant the dissolution of the miners' union.

The Franco-Prussian war of 1870 caused a temporary interruption in the labor movement in Germany. After the war agitation was renewed. In 1872, 15,000 coal miners at Essen and vicinity struck. This strike lasted 7 weeks and ended in failure.

From that time until 1889 no important coal mine strikes are recorded. In 1889, however, occurred the largest coal mine strike in the history of Germany, involving nearly all the coal mine employees in that country. There had been a feeling of unrest for years among the coal miners, and in the spring of 1889 those of Rhenish-Westphalia, encouraged by existing strikes in other industries and realizing the increased demand for labor, asked for an increase of from 15 to 25 per cent in wages and later demanded an 8-hour shift. Numerous minor grievances also existed, such as are frequently to be found in the coal mining industry.

The strikers were poorly organized and were under a divided leadership. Hostilities began on May 4 when the discharge of 80 mine workers in Westphalia led to a riotous conflict with the police. This conflict was immediately followed by a general strike which soon spread over nearly all the German coal fields. At the time of the maximum strength of the strike in each district over 90,000 miners were on strike in Westphalia, about 2,500 in Aix-la-Chapelle, 13,000 in the Saar district, 10,000 in Saxony, 12,000 in Lower Silesia, and 13,300 in Upper Silesia. The strike did not last long in any one locality. In Westphalia it was practically over by the end of May; in the Saar district it lasted from May 23 to June 6; in Saxony from May 21 to May 24; in Lower Silesia from May 13 to May 21; and in Upper Silesia from May 16 to May 25.

The loss of wages of coal mine employees was estimated at 3,000,000 marks (\$714,000). Besides this, many employees in other industries were thrown out of employment on account of lack of coal.

The strike was unattended by violence, except as above mentioned, and in Silesia. Public opinion was with rare unanimity on the side of the strikers, the press, including most of the national liberal papers, supporting them.

Largely through the efforts of the Emperor a compromise was effected which formed the basis on which work was resumed. As a result of this compromise the wages were increased in Westphalia and the working shift, inclusive of time of entrance and departure, was reduced from 10 to 9 hours and compulsory overtime was abolished. Similar compromises were made in other districts. An

official investigation by the German Government which followed the strike probably contributed toward the adjustment of other grievances. It is claimed, however, that the operators, subsequent to their agreements, instituted a system of blacklisting by which many of the more active strikers were dismissed from their employment. This resulted in much ill-feeling, and the following winter numerous local strikes occurred which the labor leaders were unable to prevent. These disturbances contributed largely to the organization among mine operators of a system of mutual strike insurance.

As the strike of 1889 affected almost the entire coal-mining industry in Germany, the burden fell very heavily upon the public, as restriction of the supply raised the price of coal. It was claimed, on the other hand, that the operators profited by this advance.

Unsuccessful coal mine strikes occurred in the years 1891 to 1893. A strike involving 18,122 mine workers took place in the Ruhr district in April, 1891. On February 15, 1891, a convention of coal mine workers' delegates, at a meeting at Bochum, formulated five demands relating to an increase of wages, an 8-hour shift, and other grievances. A mixed committee of Catholic and Social-democratic leaders was charged with the duty of presenting these demands. The demands were refused and the strike followed. It lasted but a few weeks and ended in failure. One result of this strike was the elimination of politics from the miners' union.

On December 29, 1892, a strike began in the Saar district, involving about 25,000 coal mine workers. The demands leading to the strike were for an increase of wages and an 8-hour shift, and against certain working rules, the discharge of labor leaders, and the increased frequency of idle shifts. Other minor causes also existed. The demands of the mine workers were answered by the discharge of 500 employees and the threat to lock out 3,000 more. The strike which followed lasted but a few weeks and ended in complete failure.

On January 8, 1893, a strike occurred in the Ruhr district in sympathy with the preceding strike in the Saar district. On January 11 13,000 men were on strike. This strike, being without leadership, failed completely, many of the strikers being dismissed and some imprisoned.

During the years 1894 to 1902 only unimportant local strikes occurred in the German coal mines.

In 1899 the German Imperial Government began the publication of annual strike statistics. This makes it possible to present the following detailed figures for all strikes in the coal and lignite mining industries of Germany for the years 1899 to 1903:



STRIKES IN THE COAL AND LIGNITE MINING INDUSTRIES IN THE GERMAN EMPIRE,  
1899 TO 1903.[Source: Statistik des Deutschen Reichs, neue Folge, Bände 134, 141, 148, 157, 164 (Streiks und Aussper-  
rungen, bearbeitet im Kaiserlichen Statistischen Amt).]

Year.	Strikes.	Estab- lishments affected.	Total duration (days).	Strikers.		Other em- ployees thrown out of work.	Strikers who vio- lated ex- isting con- tracts.
				Total.	Under 21 years of age.		
<b>Coal:</b>							
1899	14	32	119	8,257	2,887	104	8,257
1900	14	46	75	10,248	2,038	183	5,689
1901	1	1	1	12			
1902	1	1	3	911	97	200	911
1903	4	5	12	1,310			1,310
<b>Lignite:</b>							
1899	7	7	24	417	39	34	417
1900	20	40	159	2,581	295	67	2,507
1901	14	18	95	1,557	257	123	1,355
1902	8	10	15	382	69		382
1903	3	3	13	182		3	181

STRIKES IN THE COAL AND LIGNITE MINING INDUSTRIES IN THE GERMAN EMPIRE,  
BY CAUSES, 1899 TO 1903.[Source: Statistik des Deutschen Reichs, neue Folge, Bände 134, 141, 148, 157, 164 (Streiks und Aussper-  
rungen, bearbeitet im Kaiserlichen Statistischen Amt). Some of the strikes were due to two or  
more causes, and the facts in such cases have been tabulated under each cause. Hence the totals  
for this table necessarily do not agree with those for the other tables.]

Year.	Against reduc- tion of wages.	For in- crease of wages.	Other causes affect- ing wages.	For reduc- tion of hours.	Against working over- time.	Other changes affecting hours of labor.	Changes in meth- od of pay- ment.	For dis- charge of fore- men, etc.	For re- instate- ment of dis- charged em- ployees.	Other causes.	Total. (c)
<b>Coal:</b>											
1899		14		2	1	1				3	21
1900	1	12	4	6	6				2	8	39
1901	1										1
1902		1	1							1	3
1903	1	2	1	1		1				3	9
<b>Lignite:</b>											
1899	1	6					1		3	2	19
1900	1	22	12	15					2	17	63
1901	5	7	2	1		1		2	4	2	24
1902	2	4							2	1	9
1903		1	1						1		3

c Computed.

STRIKES IN THE COAL AND LIGNITE MINING INDUSTRIES IN THE GERMAN EMPIRE,  
BY RESULTS, 1899 TO 1903.[Source: Statistik des Deutschen Reichs, neue Folge, Bände 134, 141, 148, 157, 164 (Streiks und Aussper-  
rungen, bearbeitet im Kaiserlichen Statistischen Amt).]

Year.	Strikes which—			Strikes inaugu- rated or assisted by labor organ- izations.	
	Suc- ceeded.	Suc- ceeded partly.	Failed.	Total.	Receiv- ing fi- nancial aid.
<b>Coal:</b>					
1899	1	8	5	3	3
1900	1	6	7	5	2
1901			1		
1902		1		1	
1903	2	1	1	1	1
<b>Lignite:</b>					
1899	1	1	5	2	
1900	1	14	11	19	3
1901	2	7	5	6	2
1902		3	5		
1903		2	1	2	

## LEGISLATION.

Between 1851 and 1865 the pressing demands for a revision of the old system of regulation of mine ownership and control in Prussia led to the passage of a series of individual acts which, with all that remained of the older laws, were, at the latter date, entirely superseded by the general Prussian mining code. This law, with subsequent amendments and extensions, is at present applicable, either directly or by practically similar provisions, to the greater part of the German Empire.

The provisions given here are based on the Prussian code of June 24, 1865; the supplemental act of June 24, 1892, which resulted largely from the experiences of the strike of 1889; the industrial code; and various regulations and decrees affecting special features of mine operations and the employment of labor therein.

Many of the regulations especially applicable to the safety of employees are promulgated by the superior mine offices for the separate administrative districts. The provisions for the district of Dortmund have been taken as representative.

## PROSPECTING AND MINING GRANTS.

In Germany, as in Austria, certain minerals, among which coal is included, are not subject to the disposition or control of the proprietor of the soil, but can be prospected for and exploited only after complying with specific provisions of law. These provisions apply alike to all engaging in such work, whether the owner of the land, outside parties, or the State itself.

Prospecting in public places, streets, right of way of railways and in church yards is strictly prohibited; also in any place where, in the judgment of the district authorities, preponderating public interests would be interfered with. Prospecting beneath buildings or within 200 feet thereof, or within gardens or inclosed courtyards, requires the express consent of the proprietor.

Endeavors must be used to obtain the owner's permission, but except in the instances above noted the exploration of the land is to be allowed.

Full compensation must be paid annually in advance for the use of land of which the owner is deprived. Compensation must also be paid for any reduction in the value of the land when it is returned, as all land must be when its occupation by the mine prospector or operator is terminated. If satisfactory arrangements as to permission, compensation, etc., are not reached by the parties interested, the chief mine office intervenes, but can not deny the privilege of search except in the instances mentioned. A deposit of a sum sufficient to safeguard the owner secures to the prospector the right to proceed at once.

The right of prospecting extends even to mine areas owned by another when the search is for minerals other than those for which the existing mining right was granted. Such prospecting must not, however, affect the safety of the mine or disturb its operation.

Minerals taken by the prospector may be disposed of by him if the rights of no other person have attached thereto.

The right to a mine claim is secured by an application in prescribed form designating among other things the kind of mineral to be mined and the location of the point of discovery. This location must be entered on a map kept by the mine authorities.

The prospector or other discoverer of minerals has the prior right to enter an application for a mine claim, which right expires unless used within a week after the day of discovery, after which priority of application determines the precedence.

The mine grant is of a rectangular shape and has an area of 25,000 square fathoms (*Quadratlachtern*) (100,000 square yards) in a few localities, while in general the grant extends to 400,000 square fathoms (1,600,000 square yards). It is without bounds as to depth.

The grant of a mining right includes the right to erect and operate the necessary plant for the operation of the mine and for the preparation of the product. Auxiliary workings for drainage, ventilation, or the more advantageous operation of a mine may also be constructed in unclaimed territory, or in the territory of another mine owner if his interests are not damaged thereby. Joint constructions may also be undertaken.

The operation of a mine must not be discontinued when, in the judgment of the chief mine office, such discontinuance would be contrary to important public interests. Renewal of operations in a mine may be ordered, after investigation, under penalty of a forfeiture of the mine if the renewal is not effected within 6 months from notice.

#### MAPS.

Maps are to be made by an authorized surveyor, one copy of which is to be kept at the mine office of the district and one at the office of the mine itself, or of the manager thereof.

These maps must show all workings, openings, and constructions both above and below ground. A complete presentation of the mine plan must be made before the beginning of any contemplated work at a mine or in any portion thereof.

Corrections and alterations must regularly be made at least quarterly in coal mines in steady operation and half yearly in other mines.

A plan of ventilation must be prepared for each mine and section showing the division of currents, the measuring stations, and the nature of the devices installed for the distribution of the air.

## OFFICIAL CONTROL AND INSPECTION.

The enforcement of the mine laws and the regulation and supervision of the mining interests of the State are in the hands of (a) the district authorities, (b) the superior mine offices, and (c) the ministry of commerce.

The district officers are charged with the inspection of mines and constitute a court of first resort in all matters relating to the mining interests of their districts. The extent of their jurisdiction is determined by the minister of commerce.

The superior mine offices, of which there are five in Prussia, have supervision of the mine surveyors and of the training of persons preparing for the State mine service. They constitute a court of appeal in cases brought from the district authorities, though in certain classes of cases the ruling of the district office is final. They also verify the grants based on the reports of the surveyors. These offices are controlled in the scope of their powers by royal decrees.

The ministry of commerce constitutes the chief mine office and, in allowed classes of cases, the court of last resort.

The mine authorities of the State, together with their wives and children who are under parental authority, are not allowed to acquire any interest in any mine or mining undertaking in their respective administration districts.

The police supervision of the mine authorities extends to the necessary provisions for the security of the mine, the protection of the life and health of employees, the maintenance of conditions favorable to decency and morality among them, and to the protection of the surface in the interests of personal safety and of public travel. The prevention in general of injurious results from mining operations and the supervision of plants for the handling or preparation of minerals are likewise within their jurisdiction.

Public officials and employees presenting the proper credentials must be admitted into all mines for the purpose of examining or inspecting the same.

Section foremen or their substitutes must visit all occupied working places at least once in each shift. Remote points worked by single workmen must be visited twice or oftener.

## WORKING.

All operations in a mine must be carried on in accordance with a plan, which, with subsequent alterations, must have the approval of the authorities before work is begun. In emergency cases, however, subsequent notification of changes adopted is sufficient. The persons charged with the control or supervision of any mine are respon-

sible for the discontinuance or the carrying out of the plans and for compliance with the provisions of the law and all special regulations relative thereto.

Workings in the vicinity of injurious gases or accumulations of water, the presence of which is either known or suspected, must be prosecuted with precaution. If advance borings are resorted to, supplies of suitable material for plugging the same must be at hand. Records must also be kept of the location, number, and depth of the borings and of the indications disclosed by them.

#### REGULATIONS.

*Escape shafts.*—Every independent underground mine must be provided with at least two separate usable exits to the surface, which must be at all times accessible from all working places in the mine. These exits must be at least 20 meters (65.62 feet) apart throughout their entire course, must not open into the same surface structure, and must be capable of absolute isolation from one another by fire-proof barriers.

Each slope must have at its foot a mark showing its own number and the number of the level. At each intersection with the main gallery similar marks must be placed, as well as arrows to indicate the direction of the customary exit and of the emergency exit. Such marks must be in a clear light and kept in an easily legible condition.

Ladders, extending from the lowest level to the surface, must be placed in all hoistways, unless two hoists are installed in a single shaft, when only that portion of the shaft which can not be reached by either hoist need be supplied with ladders. The inclination of such ladders must not exceed  $80^{\circ}$ , and they must be securely fastened. The rounds of wooden ladders must be mortised in.

In shafts and ladder ways of more than 12 meters (39.37 feet) depth, the slope of which exceeds  $70^{\circ}$ , rest platforms at intervals of not more than 10 meters (32.81 feet) are required. At such platforms and at the pit's mouth the ladder must project at least 1 meter (3.28 feet) above the landing or secure hand grips must be fixed to a like height.

The carrying of tools and the wearing of wooden shoes during the ascent and descent of ladders are prohibited.

*Hoists, etc.*—Where hoisting is done by machinery, an approved braking device must be attached to the winding drum, such brake to be capable of operation from the station of the engineer. An indicator must show at all times the position of the bucket or car in the shaft, and, if there are different levels, bells must be so installed as to give warning of the approach of the bucket or car thereto.

The installation of rope or other hoisting devices requires permission from the superior mine office. Application therefor must be

made at the district office, accompanied by a detailed statement as to the local conditions, and a description of the system to be installed. The ropes used must have a carrying capacity at least six times as great as the maximum weight of the customary load. Tests and preliminary use for at least 3 hours in hoisting coal must precede the use of a new rope in hoisting workmen.

At periods of not longer than 3 months at least 3 meters (9.84 feet) must be cut from the lower end of the ropes and new attachments formed. Pieced rope must not be used. A reserve rope must be kept constantly on hand and protected from the weather and other injurious influences.

Suitable brakes and ratchets are required on hand windlasses. If these are used for hoisting while turning in either direction, the ratchets must be adjustable accordingly.

Couplings between ropes and buckets, etc., must be capable of bearing a weight of ten times the customary load and must be renewed every 2 years. Chains and rings must be so arranged that they will not kink.

The bottoms of cages are required to be of such construction that one stepping into them can not fall through.

Daily inspection must be made of each part, connection, and adjunct of all hoists, including the safety devices to prevent over-running. Ratchets must be tested every 6 or 12 months, according to the style used.

The hoisting of workmen must take place without unreasonable delay, whether at the end of regular shifts or at the close of extra or short day shifts. During the regular use of the hoist for traveling the forwarding of coal in ways opening into the hoist shaft must be suspended.

Neither the speed nor the number of persons going upon any car or cage at one time must exceed the limits fixed by the permit. The carrying of lighted candles or of heavy articles, such as tools, by the workmen when being hoisted is forbidden. Traveling in conveyances which are loaded in part or in unclosed cages is prohibited, except to overseers and to workmen charged with the duty of repairing or securing the shaft. Traveling must not be done in mine buckets or on counterweights or coal cars except in cases of necessity for the transporting of injured persons.

Tools or materials being taken up or down in buckets must, if they project above the edge of the same, be secured by tying them to the rope.

If the counterweight in a gravity plane is an empty car, the full car must not be placed on the track before the empty one has been hooked on.



Hookers-on attend to the taking up and uncoupling of the forwarding receptacles (buckets, etc.), determine the order of such forwarding, supervise the prescribed closing of the cars and cages, and give the necessary signals. All forwarding must be done strictly according to the directions of these persons.

*Traveling ways.*—All self-acting planes, galleries, and sliding holes used for forwarding coal must be provided with special passable ways on the sides or with safely separated sections for the use of the workmen, so that they will not be required to travel on the haulage ways. Going upon haulage ways not so provided and crossing the same while coal is being forwarded are unconditionally prohibited. If necessary to go thereon for the purposes of inspection or repair, for beginning work in new places not otherwise accessible, for hooking on where this can not be done without going upon the haulage section, and for rendering aid to injured persons, such entrance is permitted only after proper information has been given to those charged with the work of forwarding.

In single-track horse car ways not wide enough for persons traveling to avoid the cars, recesses for refuge must be constructed at intervals of not more than 60 meters (196.85 feet).

Where mechanical forwarding devices are installed in level ways which are used for traveling while hauling is being done, there must be alongside or between the car tracks a usable footway at least 80 centimeters (31.50 inches) in width. The speed of the cars must not exceed 60 meters (196.85 feet) per minute.

In inclined ways where the slope exceeds  $3^{\circ}$  the several cars moved by a single cable must be coupled. Horses drawing cars may be hitched to a train only after all the cars have been securely coupled together and may not move faster than a walk.

The driver may ride on the forward car if it is empty or if the way is of such dimensions as to make it safe for him to ride when sitting in an upright position. He must keep his light in such a position that it can be seen by approaching workmen, and the rear car is required to bear a red light. If two or more horses are hitched tandem, a boy carrying a light must precede, unless the superior mine office makes a different rule.

The employment of young workmen—i. e., those under 16 years of age—in the disposition of cars either above or below ground is forbidden.

Brakes in gravity planes must be so constructed as to preclude any movement until released by the brake tender. The fastening or hanging up of brake levers is forbidden, as is also the changing of the weight without express authority. Guards are required to be so placed as to prevent brakes from being struck by surrounding objects. The

station for the brake tender must be such as to enable him to discharge his duties conveniently and without danger. It is a part of his duties to inspect the brakes at the beginning of each shift.

*Signals.*—Signaling apparatus must be installed in shafts, and in all galleries where hauling is done by stationary machinery. Cards showing the signals in use must be posted at designated places. Signals are to be given to the engineer only by the hookers-off at the pit's mouth, or, if the hoisting be only from one level to another, by hookers-off stationed at the upper level. The movement of the cars, etc., except on signal is forbidden.

If several hoists or planes are in operation in a single mine, each must have a separate and distinct signaling apparatus. Devices used are to be of such a nature that the signals given can be understood at all points between the person giving and the person receiving the same.

*Ventilation.*—Under the head of explosive gases in the meaning of the following regulations are included all gaseous mixtures capable of detection by the use of a benzine test lamp. Mines producing gases must be so ventilated that, under ordinary circumstances, collections of explosive gases will be prevented. This provision applies especially to parts of mines used for travel, but all accessible working places and levels must also be maintained in a safe condition for occupation.

The air introduced must be of such amount and so distributed that each workman underground shall be supplied with at least 3 cubic meters (105.94 cubic feet) per minute, unless by special permit from the district office a supply of 2 cubic meters (70.63 cubic feet) is allowed. If the prescribed amount does not at all times suffice to reduce the gas content to less than 1 per cent of the outflow of air from any section, the supply must be correspondingly increased or the operations correspondingly reduced.

Diffusion is not accepted as a mode of ventilation, nor may an outflowing current alone be depended upon. The exclusive use of natural currents or of ventilating furnaces or chimneys, except in gallery workings, is permissible only as an exception and temporarily, and requires the written permission of the mine office. The entire ventilation must be effected regularly by the use of fans.

At least two openings to the surface must be provided in mines developing gas, one for the intake and one for the outflow of air, separated by firm rock partitions. Air must not be conducted to occupied workings through abandoned portions of the mine, nor shall such portions be the only means provided for the escape of the used air. Currents that have served for ventilating exploration and heading workings must not, on their way to the return shaft, come into contact with other occupied workings.

As many separate sections of the mine as possible are to be provided with distinct air currents, which are to be so isolated that the ascending air from one section shall be excluded from the other sections. Unless otherwise provided by the district office, not more than twenty cuttings may be in simultaneous operation in the same ventilation section and not more than 60 workmen may be employed therein at one time.

Principal air ways are required to have a cross section of not less than 4 square meters (43.06 square feet), and subordinate ways of not less than 2 square meters (21.53 square feet). Break throughs between galleries must have an area of not less than 1 square meter (10.76 square feet). Extensions of workings and explorations may be carried forward no faster than air ways and break throughs with adequate currents can be provided.

A speed of 6 meters (19.69 feet) per second for air currents may be exceeded only in shafts and ways not ordinarily used for haulage or travel.

Measurements must be made at least fortnightly at suitable stations to determine the amount of air, and analyses must be made at least quarterly of the collected outflows and of such sectional outflows as may be indicated by the district office. Records must be kept as to the quantity of air and the presence of gas and coal dust therein.

Ventilating fans must be provided with self-registering devices for recording the pressure, the records to be retained at least three months.

At each mine a person must be employed to have charge of the ventilation. His duties and authority, as related to the manager on the one hand and to the foreman of each working place on the other, are regulated by the district office according to local conditions.

Not more than 3 hours prior to the entry of the employees all working places not occupied by the immediately preceding shift must be examined by a special employee with a safety lamp. A similar inspection must be made by the head man at each working place before the beginning of work in a shift and before resumption after any interruption.

Places found dangerous must not be worked until conditions are remedied. All discoveries of dangerous conditions by workmen must be promptly reported and the places must be abandoned. If such places can not be adequately ventilated otherwise, special fans or other means of separate ventilation must be installed. Machinery for special ventilation must be freely located in the fresh air current and the used air so disposed of as to prevent its return to the working face.

Hand fans may be used only to forward the air at most 20 meters (65.62 feet) from the fan to the working place to be supplied, and must be in charge of competent men who are in no way interested in the contract of the mining force.

Air doors must be self-closing, and where a complete stopping of the flow is desired or where the mine operations occasion frequent passing through, at least two doors must be provided and so placed that one will be shut at all times. Fastening doors open is forbidden. All doors which become superfluous must be removed.

Where it is impracticable to set up doors, cloths may be hung, at least two being required and so placed that one will always be in position to bar the flow of air. Sail cloth or similar material may also be used for partitions between currents, but if such partitions exceed 50 meters (164.04 feet) in length, cloth can be used only by written permission from the district office.

Neither air doors nor cloths may be placed in self-acting planes, which must usually be closed at the foot with masonry or other approved device.

If galleries connect the principal intake and outflow air ways so that there is danger that by short cuts of the currents any large portion of the mine might be left without ventilation, such connecting galleries, if they can not be permanently walled up, must be closed by at least two iron doors set in masonry.

Workings not in use and air ways and shafts no longer necessary for ventilation must be securely isolated.

Sprinkling apparatus, in charge of competent workmen, must be provided in all mines, so that those portions thereof that are used for mining operations or for hauling, traveling, or ventilating can be wetted as a protection against danger from coal dust.

The intentional lighting of combustible gases, the smoking of tobacco, and the carrying of smoking tobacco, pipes, open lamps, matches, or other lighting material, except steel, flint, tinder, and smift, are forbidden in gas-producing mines.

Employees must give immediate notice of any injury to the ventilating apparatus or of any irregularity in the ventilation.

Mine managers are required to report to the district offices every gas or coal dust explosion, however caused.

*Guards and safety appliances.*—All workings, ways, and equipments connected with the getting or transporting of coal are required to be kept in a safe condition. All openings of shafts, slopes, and passageways, and all pits, sumps, and other places of possible danger must be so guarded that no one can enter or fall into them without fault of his own.

Injuring, changing without authority, removing or rendering useless any appliance intended for safeguarding a mine or protecting the life and health of the workmen is forbidden. This rule is to be especially enforced in connection with the provisions made for hauling, traveling, ventilating, lighting, and draining. Anyone opening or removing any barrier or cut-off for the purpose of carrying on work is obligated to close or replace the same when the work ceases or is completed.

The wall faces of shafts must be secured by suitable inside constructions, as by masonry or cementing. Timber may be used for such purposes only temporarily.

Safety pillars of 20 meters (65.62 feet) thickness, which must not be pierced, reduced, or removed without the assent of the superior mine office, must be left standing at right angles to the boundaries, for the protection of deep underground workings against caving in. Pillars of similar thickness must be left in workings extending below water-charged rock, such pillars to have their bases below the lower level of the rock strata.

To provide against the dangers of mine fires, fireproof barriers or doors must be so constructed and placed that in case of need each independent ventilation area can be thoroughly isolated.

Suitable materials, as wood, nails, clay, stones, cement, and the like, must be kept in readiness at each mine level at suitable places and in such quantities that at least two fire barriers can be constructed therefrom. Devices must be provided at the pit's mouth and at the openings of galleries and air ways to prevent the spread of fire, and especially the indrawing of flames with the air currents.

At the pit's mouth and at those pit eyes of entry shafts at which danger from fire is not precluded by natural dampness, hydrants must be provided and kept constantly ready for use.

Rooms underground in which machinery driven by steam or electricity is placed must be of fireproof construction. Tools, oil, and waste may be kept in such rooms only in sheet-iron receptacles, or in walled-up niches with iron doors. Used waste must always be removed.

Workmen must immediately give notice to their superiors of any observed outbreak of fire, and are to depart at once from any threatened working.

The installation and use of heating apparatus of every sort, as well as of electrical appliances in a mine, requires the assent of the superior mine office.

Elevator or hoistways must be inclosed at all landings, both above and below ground, to a height of 2 meters (6.56 feet), so that no one can enter or put his head into the shaft without opening the barrier.

Hooking-on or loading points must be similarly protected to a height of 1.8 meters (5.91 feet). Sliding doors must be provided for each branch-way opening at a platform of a shaft. Doors may be omitted at the head and foot of ways over which single wagons are constantly forwarded with the aid of endless ropes or chains.

Chambers into which shafts, planes, slide-holes, etc., open directly must, if frequented by workmen, be provided with side passages or made safe by shields, so that the falling of objects or the passing through of loaded cars will not cause injury. The two sides at loading places equipped for double service must be connected by means of a traversable side gallery. Tools, stones, and all other movable objects must be kept away from shafts and steep planes, so that they may not fall therein.

Workmen employed near moving machinery are required to wear closely fitting clothing. Cleaning, oiling, and other contact with moving machinery which is attended with danger, as well as undertaking to repair an engine or any machinery driven by it while in motion, are forbidden. The putting on of driving belts and ropes during operation is permitted only when devices are used in connection therewith to protect workmen against danger.

Work not prohibited during running time may be done only by the engineer or other competent workmen, and in no case by young persons.

All mine works and ways above ground must be plainly marked off from adjacent property, and the unauthorized entrance upon mine property, whether above or below ground, is prohibited. Rubbish and ash heaps must be specially designated, and going upon them or upon the right of way of any mine railway is permissible only to the mine officials and the workmen employed thereabout.

Workmen employed in gas-producing mines are forbidden to strip their bodies.

*Lamps and lighting.*—Underground engine rooms, intersections of much-traveled galleries, loading places in shafts and slopes, the upper and lower coupling stations of self-acting planes, and all coupling stations of ways with mechanical forwarding devices, as well as all surface workings and structures not sufficiently lighted by natural means, must be clearly lighted during working time by special fixed lighting apparatus. Underground stables may be lighted only with safety lamps or electric lights.

In galleries not lighted throughout their course by fixed lights, car men and drivers must carry their lights so as to be visible to persons meeting them. Cages and buckets must be lighted by means of one or more closed lights. Traveling by a hoist without a light is forbidden.

In mines having explosive gases the use of open lights is forbidden except in intake shafts opening to the surface, in pit eyes belonging



to the same, and in walled-up engine rooms immediately-adjacent to the pit eyes. In these cases the lights must be so placed as to avoid danger of ignition of adjacent objects therefrom.

Electric lights may be used wherever open lights are allowed. Their use elsewhere requires the permission of the superior mine office, except in cases of rescue or other emergency.

Safety lamps must conform to fixed requirements as to construction, must be equipped with an inside lighting device and with a fastening requiring the use of a magnet for opening. These lamps are to be furnished, kept, and cared for by the mine management, and must be in proper order and duly tested when issued to the workmen at the beginning of work. Special employees are charged with the care and issue of the lamps, and they are held responsible for the furnishing of none but perfect lamps. Workmen receiving lamps must examine them and those that are defective must be at once returned, and suitable lamps must be furnished from the reserve.

If the special ventilation of dangerous places is effected by drawing off the air, the light of the attendant at the fan must be provided with a mantle of extra thickness to prevent the ignition of the returning gas.

Lamps are to be inspected quarterly, and the results of such inspections must be recorded in special books in which the record for each lamp is kept separately.

The use of lamps not furnished by the mine management is forbidden, as is the opening or injuring of a lamp or the carrying of any implement for opening or locking the same. Nothing may be lighted at the cylinders of the lamps.

Extinguished lamps may be relighted only at places known to be free from mine gas, and no lamp may be hung or placed opposite the mouths of air pipes.

Lamp rooms must be ventilated by separate exits, and lighted only with closed safety lamps or electric lamps. No heating apparatus using fire shall be allowed therein.

Where benzine is used in the lamps, unless it is conveyed from the storage room by direct pipe connection, it may be brought into the filling room only by daylight. Filling vessels must be of metal of suitable thickness, must be kept tightly closed, and may not exceed 25 liters (6.6 gallons) in capacity. If pipes connect the filling vessels with the storage tanks, two valves must be placed in each pipe, one near each end, both of which must be closed after the filling vessels are replenished. The work tables in the filling room must be so placed that in case of danger escape can be made without delay. The doors must open outward.

The removal, cleaning, and reinstallation of the lighting apparatus of the lamps must not be done at the same table nor by the same

workmen as the filling and closing of the bowls. Used matches or lighters must be thrown into vessels of water. Waste, rags, and other cleaning material must be kept in iron boxes with tight covers until removed, and the room must be kept clean at all times.

*Explosives and blasting.*—All handling and use of explosives must be done by the mine officials or by persons specially designated therefor. Supplies for blasting may be procured only from the proprietor of the mine in which they are to be used, or from some person by him authorized.

None but workmen charged with the duty of blasting may have in their possession any explosives except powder (*Pulver*) and explosive saltpeter (*Sprengsalpeter*). If other explosives are used, a record must be kept of the amounts issued and of the persons receiving the same.

The use of other than so-called safety explosives is restricted to certain classes of mines. With each consignment of safety explosives the manufacturer is required to furnish a statement as to composition, date of manufacture, etc. Explosives held until decomposition or other deterioration takes place must be promptly disposed of and not given out for use.

On the delivery of explosives at a mine they are to be immediately placed in a special storage chamber, which must be officially approved before use and be kept securely locked. It may be entered only by the mine proprietors and by the employees charged with the care and distribution of the explosives.

Principal magazines, if below ground, must be at least 100 meters (328.08 feet) from the nearest shaft being worked and at least 10 meters (32.81 feet) from the nearest traveling or haulage way, and must be plainly marked. If more than one person is employed in the giving out of explosives, the room must have at least two entries.

Primers and explosives of the various classes must each be kept in distinct and separate apartments, and the range of temperature of a room in which nitroglycerine preparations are kept shall not exceed from + 8° C. to + 50° C. (46.4° F. to 122° F.).

Storage rooms for blasting powder (*Sprengpulver*) and explosive saltpeter (*Sprengsalpeter*) must be divided into two compartments, each of which can be closed—an anteroom from which all distribution shall be made, and a room opening therefrom to be used for storage purposes exclusively. Only the anteroom may be entered with a light, which must be a safety lamp or lantern with a specially protected chimney. The storage section is to be lighted only by such light as comes through its open door. Workmen entering these rooms must be barefooted or must wear felt shoes over their usual footwear. The doorsills must be of wood and the floors of both rooms are to be covered with haircloth.

Where storage rooms contain more than 50 kilograms (110.23 pounds) of explosives, distribution is to be made from the anteroom only, the intervening door being closed in the meantime.

The forwarding of explosives in mines must be in the packages delivered by the factory. Cases containing explosives must be hauled or let down in closed cars or boxes lined with sawdust, hair-cloth, tow, or similar protective material. Blasting powder and explosive saltpeter are not within these regulations.

Explosives must not be forwarded with other materials, and employees in charge of such forwarding must give warning to other workmen in the vicinity. Forwarding must not be done during the entry or exit of workmen, nor until after due notice to the engineer and the hookers-on both above and below ground. The speed must not exceed that used for transporting workmen, and all lighting must be by the use of safety lamps.

Tobacco smoking by those engaged in the handling of explosives or by those in their vicinity is prohibited.

Delivery for use must be immediately to the head workmen at the working place or to the blasters where such are employed. Blasters must not receive in excess of 6 kilograms (13.23 pounds) of powder or explosive saltpeter or 3 kilograms (6.61 pounds) of other explosives, including such as may be turned over from the preceding shift; nor may they receive at the same time safety and other explosives. Those serving several stations may receive as much as 10 kilograms (22.05 pounds), or even more by special allowance, where machine drilling or other circumstances affect conditions.

Explosives must be delivered in the form of cartridges and must be carried to the proper place by the distributor's assistant in a numbered closed receptacle furnished by the management. Primers and explosives fired by percussion must not be carried or deposited in the same receptacle with powder and explosive saltpeter. The giving out of frozen explosives is forbidden. Frozen cartridges containing nitroglycerine may be thawed only in vessels surrounded by lukewarm water.

A strong box with secure fastenings must be provided by the management to receive the delivered explosives at a place sufficiently distant from the place of actual use to secure safety, such box to be kept locked while it contains explosives.

Blasting supplies, with the exception of explosive saltpeter, straw matches, and safety matches, remaining unused at the end of any shift must be returned to the principal magazine or to a suitable designated storeroom. If, however, the shifts change directly at the working place, the blaster's attendant may give over to his successor any materials not used.

The preparation of straw matches and fuses in the mine is forbidden. Cartridges may be supplied with fuses only immediately before their use, and no explosives or primers shall be taken out of the mine.

In the use of nitroglycerine preparations and of compressed gun cotton, cartridges may be placed in the drill holes only with the aid of wooden tamping bars. Tamping materials prescribed are clay, loam free from sand, and water. Where powder and explosive saltpeter are used, soft stone which does not give off sparks may be employed. Packing with coal is forbidden. The lighting of shots not provided with packing and of cartridges not inclosed in drill holes is forbidden. Blasting must not be done at places where collections of explosive gas are discoverable by a careful use of the safety lamp or at any place in the affected ventilation section which is in the same air current. If coal dust is present, it is to be rendered free from danger by wetting for at least 20 meters (65.62 feet) around the place of discharge.

Timely warning is to be given all workmen near a blast. In case of the simultaneous firing of several shots and of the failure of any shot to discharge, the working place must not be reentered until at least ten minutes have elapsed after the lighting. Shots which have failed to discharge must not be bored out, nor may holes not blasted out be drilled deeper. New holes drilled near shots that have missed fire must be given such a direction that they will not come into contact therewith.

Electricity or safety fuses must be used in all blasting in coal or the immediately adjacent rock. The simultaneous charging or firing of more than one blast is permissible only when shots are fired by electricity.

*Accidents.*—At each independent shaft house there must be at least two persons trained in rendering first aid to the injured, one of whom shall be at all times present or easily reached.

A room must be set apart exclusively for the use of the sick and injured. This room must have a broad entry way, must be kept closed, properly heated and ventilated, and provided with bathing conveniences and hot and cold water.

In the room are to be an operating table or chair and a chest of surgical instruments and supplies, such as splints, rubber bands, shears, knife, forceps, soap and brushes, and necessary antiseptics and bandages.

A wagon must be provided at each shaft for the transportation of the sick, and within the mine litters must be placed at designated places—at least one for each 100 miners in the principal shift.

As quickly as possible after the occurrence of any accident, it is the duty of the manager of the mine to ascertain the names and number of workmen making their exit and of those left in the mine.

In cases of accidents, either underground or on the surface, by which death or serious injury is occasioned the fact must be reported immediately to the police authorities. The district officials must take the necessary steps to effect rescue if needed and to prevent further danger, the mine owner being required to furnish proper assistance and appliances for these objects.

Owners of neighboring mines may also be called upon for aid, the expenses incurred being borne by the owner directly concerned, unless others are shown to be jointly responsible.

#### EMPLOYMENT.

*Rules.*—Working rules must be drafted and posted in each mine, in which are specified the requirements as to hours of regular labor, emergency labor, rates of wages, terms of contracts, payments of wages and deductions and forfeitures therefrom, termination of employment, etc., a copy of the rules to be given each workman when he is employed. These rules may relate to the entire mine, to some division or annex of the same, or to individual groups of workmen. Before adoption all rules, amendments, or additions must be submitted to the adult workmen affected thereby or to the standing committee of the employees, where such exists.

Mine rules take effect not earlier than two weeks after their promulgation. Duplicate copies must be transmitted to the district authorities, together with the comments of the workmen or of their committee. If any provisions are found to be contrary to law, they must be altered so as to conform thereto.

Rules which have been properly promulgated and which contain no illegal provisions have themselves the force of law within the scope of their application.

The standing committees referred to above may be constituted of the following persons only:

(a) The executive boards of sick or other funds for the mine workers, where the majority of such boards are elected from among the workmen and they are commissioned to act as such committee.

(b) The representatives of insurance fund associations which are restricted to the workings of a single mine owner, when elected and commissioned as above.

(c) Properly constituted committees existing prior to January 1, 1892.

(d) Delegates chosen by secret ballot by and among the adult workmen of any mine, division, or connected establishment, or by some designated class or classes of employees.

Regulations may be promulgated by the superior mine offices applicable to their entire jurisdiction or to any portion thereof. Such regulations may relate to the provisions for security, health, etc., mentioned under the heading of inspection, and may extend, where conditions warrant it, to the determination of the hours of labor, the time of beginning and ending the same, and the periods of rest to be allowed. These regulations, like those drafted by the mine owners, are to be submitted to the workmen or their committee before promulgation.

District officials may issue emergency orders in cases of apparent danger, which must be obeyed at once, though subsequent reports and appeals are provided for.

*Contracts.*—Except as expressly provided for, the contractual relations between mine owners and employees are controlled by the general provisions of law. No forfeiture or deduction from the wages of a mine employee on account of the violation of his contract shall exceed in amount the average week's wages of such employee.

Where work of the same kind is continued in the same place beyond the time specified in the contract the terms of the contract control as to wages, etc. Other grounds for dismissal or for quitting work than those set forth in the mine rules can not be agreed upon in the contract of employment.

Mine owners who induce a workman to leave his employment before the termination of his contract share the liability for damages to the former employer; likewise if they employ one whom they know to be still under contract with another employer, or if they retain him in their service after learning of the existence of such previous contract unless two weeks have expired since the unlawful breaking of the same.

*Termination.*—Unless otherwise agreed upon, the contract of employment may be terminated by either party after fourteen days' notice. If another term is fixed, it must be the same for both parties.

Employees may be discharged without notice if at the time of making the contract they presented forged certificates or made false representations as to existing employment; if guilty of fraud, theft, or of a dissolute life; if they quit work without authority or persistently disregard the obligations of their contracts; if they violate the mine regulations or orders; if they become violent or insulting to the mine owner or his representative or the members of their families; if they intentionally and unlawfully injure the mine owner, his representative, or their superiors or fellow-workmen; if they seek to incite their superiors or associates to commit illegal or immoral acts; and if unable to continue work or afflicted with repul-



sive diseases For all causes except the last the discharge can take place only within one week after the facts have come to the knowledge of the mine proprietor or his representative.

To what extent an employee is entitled to an indemnity for discharge for the last cause named depends upon the provisions of the contract of employment or the general provisions of the law.

Employees may leave service without notice if they are unable to perform their duties; if the mine owner, his representative, or any person placed over them is guilty of violence or insulting conduct toward them or the members of their families, or incites or attempts to incite them or members of their families to the commission of illegal or immoral acts; if the proprietor neglects to pay wages in the manner agreed upon, or if sufficient work is not furnished those doing piecework, or if fraud is practiced by the proprietor. Where the contract is abandoned on account of violence or insults, the action must be taken within one week after the employee learns of the facts; otherwise they afford no grounds therefor.

Such emergencies as accidents, flooding of mines, or death or sickness in the family of an employee calling for his presence in his home are sufficient to abrogate a contract extending beyond four weeks or requiring more than two weeks' notice.

The contracts of employment of mine officials in charge of operations and of persons possessing technical training of a higher order—as mechanical and mining engineers, draftsmen, etc.—may, unless otherwise agreed, be terminated by either party at the close of a calendar quarter after six weeks' notice. The contract may also be terminated for special reasons justifying the omission of notice, or for such reasons in general as are set forth as affording grounds for the termination without notice of the contracts of other mine employees.

A complete list of the employees of each mine must be kept, which must be accessible to the mine authorities when desired by them.

*Certificates.*—Every mine employee leaving service must be furnished by his employer with a certificate as to the nature and duration of his employment, and, if desired, a statement of his conduct and efficiency. The signature thereto must be attested to by the local police authorities free of charge and without stamp duty. If the employer refuses to furnish such certificate, the same will be prepared by the police authorities at the employer's expense.

If the certificate contains statements that might hinder the holder's future employment, he may apply to the police authorities for an investigation, and if such statements are disproved the authorities must enter their finding on the certificate.

No marks or signs may be made on the certificate conveying any information regarding the workman that is not expressed on the certificate in its official form. The employment of adults who have previously worked in mines and who do not present such certificates is forbidden.

When a minor is first employed, his employer must secure from the local authorities a pass book (which is furnished free of charge) in which must be entered the name, date of birth, residence, and signature of the employee, the date of each employment, the nature of the same, and the date of its termination.

*Wages.*—Where wages are paid on the basis of the amount of coal mined, the capacity of each car or other receptacle for coal must be plainly and permanently marked thereon, unless all used are of uniform size; if the measurement is by weight, the net weight of each receptacle must be established before use and tested at least once a year, with proper marking as above. If the mine rules provide for deductions on account of insufficient or improper filling, the miners must be notified of any deductions so made after the close of each shift.

The miners or their standing committee may furnish at their own expense a representative to watch over the deductions, but not in such a way as to hinder the forwarding of the coal.

Deductions must not be made for the purpose of fining when the loading is sufficiently and properly done, nor for loss through washing, or on account of rubbish, unless by approval of the mine authorities.

Fines are limited in amount to one-half the average daily wages for the preceding wage period, unless for violent or prejudicial conduct, when they may extend to the entire earnings.

All fines and deductions must be turned over to the miners' association funds, or to some similar fund for the benefit of the mine workers.

The mine rules must clearly designate the fines and penalties that may be exacted, and none other can be levied.

(The following provisions as to wage payments appear in the Industrial Code.)

Wages are to be reckoned in the money of the Empire and paid in cash. Goods furnished are not to be credited to employers, though they may supply food at cost price, rent or lease lands and dwellings at the rates customary in the vicinity, and furnish fuel, light, board, medicines, and medical attendance, as well as tools and work supplies at the average cost price, and deduct such amount from the wages. Tools and materials for use in contract work may be furnished at an advance over cost price, provided that such price has been previously agreed upon, and does not exceed that usually charged in the neighborhood.

Wage payments must not be made in restaurants, saloons, or stores without the permission of the local authorities, nor may they be paid to third parties for the satisfaction of debts, except as provided by the law in respect to attachments.

Payments made or contracts entered into contrary to the provisions above set forth are void. So likewise are agreements between employers and employees that the latter shall purchase goods only at designated stores, or as to the application of wages to any other object than for participation in institutions for improving the condition of the workmen or of their families.

Deductions from wages made by employers to secure themselves against loss on account of a breach of the labor contract, or to enforce the payment of fines previously agreed upon, must not exceed one-fourth of the wages due for any wage period, or the average wages for one week.

A commune or union of communes may by statutory action determine that wages must be paid at fixed intervals of time, not longer than one month nor less than one week, and that the wages of minors must be paid to their parents or guardians, unless on written order they are to be paid to the minors themselves; in the latter case, employers are to report to the parents or guardians at fixed periods the amounts paid to minors as wages.

*Miners, etc.*—Persons who have not completed the sixteenth year of life, and those who have passed their sixtieth year and have never had previous experience in mining must not be employed underground.

For the independent prosecution of mine work only such persons may be employed as have completed their twenty-first year, have had at least three years' experience in mining, and during this time have been employed at least one year at getting coal under the oversight of an independent hewer. If the three years' work is interrupted by the rendering of military service, such service shall be reckoned as one of the three, but shall not affect the requirement as to the year's labor at getting coal.

Workmen unacquainted with the German language are to be specially informed as to the rules governing their employment. They may be employed in or about mines only when they are able rightly to comprehend the oral instructions of their superiors and the communications of their fellow-workmen.

Only competent and responsible engineers shall be employed at hoisting engines. Hookers-on must be reliable and experienced persons, at least 21 years of age, and having not less than 2 years' experience at mining.

Foreigners may be employed as overseers and as attendants at engines, boilers, and machinery only when they can speak German and read both print and script.

*Mine bosses, etc.*—Foremen, head miners, skilled overseers, etc., must be employed to control and supervise the operations of all mines. Their names must be reported by the proprietor to the mine authorities of the district. Such employees may assume their duties only after their fitness and capacity therefor have been established. Persons subsequently becoming unfit for the positions occupied by them must be removed and, if necessary, operations must be suspended until properly qualified successors are procured.

These employees must accompany the state officials who visit the mine in the discharge of their duties and furnish them information as to the carrying out of rules and other matters pertaining to the operation of the mine.

If several workmen are employed at one place at hewing, timbering, driving headings, etc., at least one person in each shift must be designated to act as foreman or leader.

*Women and children.*—The imperial industrial code prohibits the employment of women below ground at mines or quarries.

Women may be employed only between 5.30 a. m. and 8.30 p. m.; on Saturdays or days preceding feast days employment shall not continue after 5.30 p. m. Eleven hours is a day's work for women above 16 years of age, and 10 hours on Saturdays or days before feast days. An hour's interval at midday must be allowed.

Workwomen above 16 years of age who have domestic concerns are, at their request, to be dismissed one-half hour before the noon-time rest where this interval does not already amount to at least 1½ hours.

Mothers are not in any case to be employed for four weeks after confinement, nor for a further period of two weeks, except with the approval of a competent physician.

The provision of the above-named code as to the employment of children mentions factories, but is construed as applying to mine labor as well. The age limit is fixed at 13 years, and those above that age can be employed only when the requirements as to school attendance have been complied with.

The hours of labor of children under 14 years of age must not exceed 6 per day; for those between 14 and 16, 10 hours is the limit. Work must not begin earlier than 5.30 a. m. nor continue later than 8.30 p. m. The interval between the hours of each working day must be uniform, and at least 15 hours in length, unless preceding or following a Sunday or feast day, when a minimum of 13 hours is prescribed. For children working only 6 hours a rest of at least one-half hour must be allowed; for others at least 1 hour must be allowed at noon besides an interval of one-half hour in the morning and afternoon work periods.

Boys above 14 years of age may be employed above ground for 6-hour periods at work commensurate with their strength, without regard to stated intervals for rest, if the nature of the employment involves interruptions. Times of beginning and ending work and the intervals between shifts are the same as those fixed above.

During the prescribed rest periods all labor by young workmen must cease, and they may be permitted to remain in their places of employment only if that part of the work on which they are engaged is entirely stopped for the time, or when it is not feasible for them to be out of doors, or if suitable sojourning rooms can not be provided without disproportionate difficulty. A notice of the work and rest periods must be posted at each work place, and also the regulations of the central office applying to the employment of women and young persons.

Mine employees under 18 years of age are to be allowed time, as determined by the district mine authorities, for attending finishing schools (*Fortbildungsschulen*) which are recognized by the State or communal authorities as educational institutions; or such schools may hold their sessions on Sundays only, if at such hours as not to interfere with church attendance, or if special church services are provided.

On Sundays and feast days, as well as during the designated hours for pastoral care and for confirmation services, etc., young people shall not be employed.

Lists of the women and young people to be employed must be furnished the local police authorities before the beginning of their employment. These lists must state the nature of the work, the days employed and the hours of beginning and ending labor. Changes, other than those of a temporary nature, must be reported also.

The above general law is modified by a decree applicable to the employment of young persons in coal mines in Prussia, Baden, and Alsace-Lorraine, which provides that in mines where 8-hour shifts are worked the restrictions as to the time of beginning and closing work and as to rest periods need not be observed in the case of the employment of boys over 14 years of age above ground in work connected with the forwarding of coal. Work may begin not earlier than 5 o'clock in the morning and, where two shifts are worked per day, may close at not later than 11 o'clock p. m. except on days before Sundays and feast days, when it may begin at 4 a. m. and close at 1 o'clock at night. No shift, including rest time, shall be longer than 8 hours.

Before entering on employment, a medical certificate of physical ability is necessary, as well as the approval of one of the higher boards of administration. This certificate is to be in the hands of the

employer during the term of a boy's service, and at its close it must be returned to him or his legal representative.

The provisions of this decree must be posted near those of the imperial industrial code, in all work places where young people are employed in accordance herewith.

*Hours of labor.*—In underground workings where a temperature of 29° C. (84.2° F.) or above prevails, a shift shall not exceed 6 hours in length.

The hours of labor of women and children are fixed by the special laws governing their employment.

In general the contract of employment controls the hours of labor of mine workmen, though the superior mine offices have authority to make rules relative to the matter, operative throughout their respective jurisdictions.

*Sunday labor, etc.*—(The following regulations as to Sunday and holiday labor appear in the Industrial Code and are applicable to the mining industry where not superseded.)

Labor on Sundays and holidays must be restricted to designated kinds of work, as the guarding of plants, the making of necessary repairs, etc., that can not be attended to on other days, and work for the preservation of property and the maintenance of working conditions.

What will be regarded as holidays must be determined by the state governments.

Sunday or holiday rest includes 24 consecutive hours, or if two such days occur in succession, 36 consecutive hours. At Christmas, Easter, and Pentecost 48 hours must be allowed.

A list must be kept of the employees required to labor on Sundays and holidays for the purposes stated above, showing the nature and duration of their employment, which list must be always open to the inspection of the proper officials. Where such labor extends to more than three hours or the employee is prevented from attending divine worship, he must be allowed 36 hours' uninterrupted rest every third Sunday or a rest from 6 a. m. to 6 p. m. every other Sunday. By way of exception, where attendance on church is not prevented, the workman may be allowed 24 hours' rest within the week, in lieu of Sunday. Other exceptions may be made by the authorities on sufficient representation, but they must be uniform within the districts affected.

#### SPECIAL RULES.

Only employees and officially authorized persons may enter any mine or working connected therewith except on permit from the district mine office or from the mine superintendent or his deputy. Inexperienced persons must be accompanied by competent guides.



Drunken persons or those afflicted with any disease or infirmity on account of which they might occasion injury to themselves or to others are not to be allowed in or about any mine.

At each shaft house where workmen customarily go in and out a sufficient number of shower baths must be furnished for the employees, the bathrooms to be kept in a clean and proper condition. Rooms for boys under 18 must be provided apart from those for older workmen.

Baths may not be supplied with water from the mine sumps. Pools to be used in common are prohibited.

- Waiting rooms must also be provided, suited to the number of workmen, and must be heated in cold weather.
- Privies, both above and below ground, must be provided in adequate number. Their location and care are regulated by the general mining law.

Precautions are to be taken, involving microscopic examinations bimonthly and the use of both preventive and remedial measures, to guard against anchylostomiasis.

#### REPORTS.

The mine proprietor is required to submit the prescribed statistical reports to the mine office of the ministry of commerce at the times and in the forms designated therefor.

Report must be made of accidents by which persons are killed or injured or by which life is endangered, as well as of all unusual events connected with the moving of coal and of important alterations in any shaft or in the haulage devices which might affect the safety of the latter.

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**CHAPTER V.**

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**COAL MINE LABOR IN GREAT BRITAIN.**

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## CHAPTER V.

### COAL MINE LABOR IN GREAT BRITAIN.

#### OUTPUT, VALUE, AND DISTRIBUTION OF PRODUCT.

The coal fields of the United Kingdom are found dotted here and there over the country, in some parts almost adjoining one another and in others widely separated. They lie almost wholly to the north and east of a line drawn from Bath to Hull. They extend over an area of nearly 7,000 square miles, of which about 72 per cent is in England and Wales, 26 per cent in Scotland, and 2 per cent in Ireland. According to a classification made by the British home office there are nine principal coal fields in the United Kingdom, namely:

1. The Scotch coal fields.
2. The Northern coal field.
3. The Yorkshire, etc., coal field.
4. The Lancashire and Cheshire coal field.
5. The Midland coal fields.
6. Small detached coal fields.
7. The North Wales coal field.
8. The South Wales coal field.
9. The Irish coal fields.

The Scotch coal fields comprise the counties of Argyle, Ayr, Clackmannan, Dumbarton, Dumfries, Edinburgh, Fife, Haddington, Kinross, Lanark, Linlithgow, Peebles, Perth, Renfrew, Stirling, and Sutherland.

Of the coal fields in England the Northern coal field comprises the counties of Durham and Northumberland; the Yorkshire, etc., comprises the counties of Derby, Nottingham, and West Riding of Yorkshire; the Lancashire and Cheshire coal field comprises the counties of Chester and Lancaster; the Midland coal fields, the counties of Leicester, Salop, Stafford, Warwick, and Worcester; and the small detached coal fields are in the counties of Cumberland, Gloucester, Kent, North Riding of Yorkshire, Somerset, and Westmoreland.

Of the Welsh coal fields, the North Wales field is located in the counties of Denbigh and Flint, and the South Wales coal field in the counties of Brecon, Carmarthen, Glamorgan, Monmouth (England), and Pembroke.

The Irish coal fields are found in the counties of Antrim, Cork, Kilkenny, Leitrim, Queens, Roscommon, Tipperary, and Tyrone.

With the exception of a small quantity from the oolite in Scotland, all the coal is obtained from rocks belonging to the Carboniferous epoch, and mainly from the true Coal Measures. In the north of England and in Scotland some of the coal seams are geologically older, as they occur in strata of the same age as the millstone grit and carboniferous limestone. Some of the coal in Scotland is of still earlier date, being found in the calciferous sandstone at the base of the carboniferous rocks. Anthracite coal is found in Scotland, Wales, and Ireland.

The thickness of the seams worked varies from 11 or 12 inches to 30 feet, but the latter, which occurs in Staffordshire, must be regarded as exceptional. In Scotland seams of cannel coal only 6 inches in thickness have been worked.

It seems probable, from the discovery of tools and coal ornaments and from other evidence, that the aborigines of Great Britain made use of coal before the time of the Roman conquest, and there seems to be no doubt that the use of coal as fuel was known to the Romans during their occupation of the British Isles.

The first record of the use of coal by the Anglo-Saxons is found in a Saxon chronicle of the abbey of Peterborough, in which it is reported that the abbot Ceobred in 852 gave a lease of the lands of Sempringham to Wulfred on condition that he furnish each year to the monastery, among other things, 12 loads of pit coal and 6 loads of peat. This shows that at that period coal was an article of consumption. Documentary evidence has been found showing that coal seams were worked at Mostyn during the reign of Edward the Elder (901 to 925). The Bolden Book, published during the reign of Henry II, in the twelfth century, has an entry in which the use of coal is mentioned.

Many documents exist showing that coal was used subsequent to the twelfth century, especially in the Durham and Northumberland region. In 1213 King John granted a charter regarding coal mining, which charter was confirmed in 1234 by Henry III. Permission to mine coal in the vicinity of Newcastle-upon-Tyne was granted by royal charters in 1238, 1245, and 1259. Shortly after receiving these charters the people of Newcastle were sending coal to London. In 1281 the commerce in coal between Newcastle and London is known to have been very important. In 1298 coal was sold at Southampton.

The fourteenth century records the discovery of many new coal deposits in various parts of England. From 1300 to 1306 there was a very large consumption of coal in London, especially by the brewers and blacksmiths. Additional charters for the mining of coal in the vicinity of Newcastle were granted in 1351 and 1358 by Edward III,



and in 1378 by Richard II. During the fourteenth century coal mines were opened in Yorkshire and in various parts of the districts of Durham and Northumberland.

While the mining operations conducted in Durham and Northumberland were by far the most extensive during this early period, other districts of England also were exploited for coal. In Cumberland coal mining was being carried on in 1660, and in Lancashire during the reign of Henry VIII in the early part of the sixteenth century. A charter granted by Edward II shows that coal was being mined in Derbyshire in 1315. In Staffordshire, Warwickshire, and Shropshire coal was being extensively used in 1612; in the Forest of Dean coal mining was being carried on about the year 1300. Documentary evidence exists of the mining of coal in North Wales in 1295, and during the seventeenth century coal was being shipped from there to Ireland. As regards Yorkshire, Cheshire, Monmouthshire, and Glamorganshire there is no record of the mining of coal during these early periods, although it is known that mining operations were being carried on in these districts during the eighteenth century. Coal was being mined in Scotland during the reign of William the Lion (1165 to 1214), and in Ireland at the beginning of the sixteenth century.

Up to 1612 coal was used almost exclusively by brewers and blacksmiths and for domestic purposes. In that year, however, a patent running 12 years was granted to Simon Sturtevant for a process of manufacturing iron by means of coal. In 1619 Lord Dudley also employed coal for the smelting of iron ore in Worcestershire. In the year 1625 coal was in use in nearly all parts of England.

The first record of the exportation of coal from England was that in 1325 a French vessel carried grain to Newcastle and returned with a cargo of coal. This commerce with France developed considerably during the fifteenth century.

The British coal commission of 1866, in a résumé of its work and researches regarding coal production prior to the nineteenth century, states that it is impossible to make an estimate of the production or consumption of coal before the sixteenth century. The production from 1500 to 1660 is very uncertain, but it may be estimated at 1,000,000 tons per year for all the coal mines of the Kingdom, or about 150,000,000 tons during the period. From 1660 to the beginning of the nineteenth century the production may be estimated with some degree of certainty at about 700,000,000 tons for the entire period. Thus the total production during the three centuries preceding the year 1801 may be placed at about 850,000,000 tons.

Coal mining is by far the most important of the mining industries of Great Britain, and in comparison with the coal output the production of all other mines and quarries of Great Britain is insignificant.

Thus the total coal production from mines and quarries in the United Kingdom in 1903 was valued at £88,227,547 (\$429,359,357), while the value of all other products of mines and quarries was but slightly more than one-seventh of this sum. With the exception of the last two years, Great Britain remained the greatest coal-producing country of the world during each year of the nineteenth century. In 1899 and 1900 the total coal production of the United Kingdom was 220,094,781 and 225,181,300 long tons, respectively. During the same years the total coal production in the United States was 226,554,635 and 240,789,309 long tons, respectively. In 1901, 1902, and 1903 the production in the United Kingdom was 219,046,945, 227,095,042, and 230,334,469 long tons, respectively, as compared with 261,874,836, 269,277,178, and 319,068,229 long tons in the United States.

The statistics of coal production in Great Britain prior to the year 1854 are fragmentary and not very reliable. Figures obtained from the Journal of the London Statistical Society, and published in the coal report (") recently issued by the United States Bureau of Statistics of the Department of Commerce and Labor, show a total production of 11,290,000 long tons in 1800, 16,034,799 long tons in 1829, 34,600,000 long tons in 1845, and 36,400,000 long tons in 1846. From 1851 to 1853 the average yearly output of coal, as estimated by the royal commission of 1866, was about 50,875,000 tons. These earlier figures are largely estimates.

In the statistics of output, value, and distribution, reproduced in this compilation, anthracite is included in the quantities reported.

The following table shows the annual production of coal in Great Britain during each year from 1854 to 1903:

PRODUCTION OF COAL IN THE UNITED KINGDOM, 1854 TO 1903.

[Source: 1854 to 1858, Statistical Abstract of the United Kingdom, No. 12; 1859 to 1872, No. 21; 1873 to 1903, Mines and Quarries: General Reports and Statistics, 1901-1903. Production includes coal extracted from open quarries.]

Year.	Production (long tons).	Year.	Production (long tons).	Year.	Production (long tons).
1854	64,661,401	1871	117,352,028	1888	169,935,219
1855	61,455,079	1872	123,497,316	1889	176,916,724
1856	66,645,450	1873	128,680,131	1890	181,614,288
1857	65,394,707	1874	126,590,106	1891	185,479,126
1858	65,038,649	1875	133,306,485	1892	181,786,871
1859	71,979,765	1876	134,125,166	1893	164,325,785
1860	80,042,698	1877	134,179,968	1894	188,277,525
1861	83,635,214	1878	132,612,063	1895	189,661,362
1862	81,638,338	1879	133,720,393	1896	195,361,260
1863	86,232,215	1880	146,969,408	1897	202,129,931
1864	92,787,873	1881	154,184,300	1898	202,054,716
1865	98,150,587	1882	156,495,977	1899	220,094,781
1866	101,630,544	1883	163,737,327	1900	225,181,300
1867	104,500,480	1884	160,757,779	1901	219,046,945
1868	103,141,157	1885	159,351,418	1902	227,095,042
1869	107,427,557	1886	157,518,482	1903	230,334,469
1870	110,431,192	1887	162,119,812		

<sup>a</sup> Coal Trade of the United States and the World's Coal Supply and Trade, 1902.

It will be seen that the production of coal in the United Kingdom increased nearly threefold in 50 years. The total output during this period amounted to 7,029,318,222 long tons, giving an average of 140,586,364 long tons annually. These figures give some idea of the enormous proportions of the British coal industry. In but 14 instances during the 50-year period covered by the table has there been a decrease of output over the year preceding. This decrease has been slight in all but two years, namely, in 1893, when the output was 17,461,076 tons less than in 1892, and in 1901, when it was 6,134,355 tons less than in 1900. The decrease in the output of the coal production in 1893 was due to the great coal strike of that year, and that in 1901 was due to a falling off in the demand on account of a decline in exports and a slackness in the iron trade. The decline in either case had no relation to the natural coal supply. Hence there are at present no signs of a permanent change in the upward movement which the coal output of the United Kingdom has maintained since production began.

Of the total output of coal from both mines and quarries, namely, 230,334,469 tons, in 1903, 160,571,972 tons, or 69.71 per cent, were mined and quarried in England; 34,666,895 tons, or 15.05 per cent, in Wales; 34,992,790 tons, or 15.19 per cent, in Scotland, and 102,812 tons, or only 0.05 per cent, in Ireland. Of the coal produced in England, Wales, and Scotland during the year 1903, 10,174 tons were obtained from quarries, and do not therefore appear in the total quantity of coal mined as given in some of the statistics which follow.

The British Government has officially published statistics of coal production and value reaching back as far as the year 1854. Statistics showing production by coal fields and certain other details do not exist, however, for earlier years than 1894, when the mine office began the publication of regular annual reports covering the entire mining industry in the United Kingdom.

The table following shows the tons of output of coal from mines (exclusive of quarries) in each coal field or group of coal fields as above defined and the per cent which such output was of the total in the United Kingdom during each of the years 1894 to 1903.

## PRODUCTION OF COAL IN EACH COAL FIELD IN THE UNITED KINGDOM, 1894 TO 1903.

[Source: 1894 to 1896, Annual General Reports upon the Mineral Industry, 1894-1896; 1897 to 1903, Mines and Quarries, General Reports and Statistics, 1897-1903. The production does not include coal from open quarries. The percentages were computed.]

Year.	England (not including Monmouthshire).									
	Northern coal field.		Yorkshire, etc., coal field.		Lancashire and Cheshire coal field.		Midland coal fields.		Small detached coal fields.	
	Output (long tons).	Per cent of total.	Output (long tons).	Per cent of total.	Output (long tons).	Per cent of total.	Output (long tons).	Per cent of total.	Output (long tons).	Per cent of total.
1894..	42,098,123	22.36	41,736,583	22.17	23,907,620	12.70	18,252,158	9.69	4,119,774	2.19
1895..	39,827,904	21.00	40,668,152	21.44	22,764,171	12.00	17,593,163	9.28	3,992,707	2.11
1896..	41,790,291	21.39	42,337,227	21.67	23,386,290	11.97	18,578,834	9.51	4,042,164	2.07
1897..	43,587,527	21.57	43,668,293	21.60	23,550,916	11.65	19,190,429	9.49	4,172,658	2.06
1898..	45,308,060	22.42	46,974,559	23.25	25,031,116	12.39	19,791,161	9.80	4,647,073	2.30
1899..	46,054,747	20.93	49,720,360	22.59	25,108,906	11.41	20,252,307	9.20	4,616,185	2.10
1900..	46,315,240	20.57	52,112,715	23.14	25,541,659	11.34	20,873,735	9.27	4,652,187	2.07
1901..	45,226,443	20.65	50,075,568	22.86	24,260,719	11.08	19,724,143	9.01	4,565,790	2.08
1902..	46,427,487	20.44	52,136,750	22.96	24,879,391	10.96	20,264,442	8.92	4,674,054	2.06
1903..	47,894,583	20.80	52,376,693	22.74	24,963,554	10.83	20,086,248	8.72	4,579,838	1.99

  

Year.	Scotland.		Wales.				Ireland.		Total output of the United Kingdom (long tons).
	Scotch coal fields.		North Wales coal field.		South Wales coal field.(*)		Irish coal fields.		
	Output (long tons).	Per cent of total.	Output (long tons).	Per cent of total.	Output (long tons).	Per cent of total.	Output (long tons).	Per cent of total.	
1894.....	21,481,554	11.41	3,150,765	1.67	33,418,344	17.75	112,604	0.06	188,277,585
1895.....	28,792,693	15.18	2,848,072	1.50	33,040,114	17.42	125,596	.07	189,652,562
1896.....	28,326,600	14.60	2,893,039	1.46	33,867,921	17.34	129,585	.07	195,351,951
1897.....	29,062,996	14.39	2,924,962	1.45	35,806,390	17.72	135,025	.07	202,119,196
1898.....	30,237,295	14.97	3,199,396	1.58	26,723,618	13.23	129,965	.06	202,042,243
1899.....	31,142,612	14.15	3,194,734	1.45	39,870,097	18.11	125,420	.06	220,065,368
1900.....	33,112,104	14.70	3,109,615	1.38	39,328,209	17.47	124,699	.06	225,170,163
1901.....	32,796,510	14.97	3,075,979	1.40	39,209,059	17.90	103,029	.05	219,037,240
1902.....	34,115,309	15.02	3,173,118	1.40	41,305,583	18.19	106,737	.05	227,064,871
1903.....	34,992,240	15.19	3,184,136	1.38	42,154,191	18.30	102,812	.05	230,324,295

\* Includes the coal mines in Monmouthshire, England.

The most productive fields are the Northern and Yorkshire, etc., coal fields, which produce nearly one-half the entire coal output of the United Kingdom. The production in all of the important coal fields shows the same upward movement that is noted in the total production for the country as a whole, and it will be observed that the decline in the output in 1901, as well as the increase in 1902 and 1903, has affected each of the coal fields. The increase in production during the period has been most marked in the Scotch and Yorkshire coal fields. In South Wales there was a decided decrease in the output of coal in 1898 due to an extensive labor dispute, but this decrease does not seem to have affected to any marked extent the output of the United Kingdom.

The following table shows the total estimated value and the value per long ton of the British coal output from 1854 to 1903:

TOTAL ESTIMATED VALUE AND VALUE PER LONG TON OF COAL PRODUCED IN THE UNITED KINGDOM, 1854 TO 1903.

[Source: 1854 to 1858, *Statistical Abstract* of the United Kingdom, No. 12; 1859 to 1872, No. 21; 1873 to 1876, estimates furnished by the British Home Office; 1877 to 1887, *Statistical Abstract*, No. 39; 1888 to 1892, No. 50; 1893 to 1896, Annual General Reports upon the Mineral Industry; 1897 to 1903, Mines and Quarries: General Reports and Statistics, 1897-1903. The value of coal obtained from quarries is included. Conversion of English into United States money was made on the basis of £1=\$4.8665. The value per ton was computed.]

Year.	Value of coal product.		Year.	Value of coal product.	
	Total.	Per long ton.		Total.	Per long ton.
1854	\$78,668,076	\$1.22	1879	\$227,762,600	\$1.70
1855	78,415,214	1.28	1880	308,971,313	2.07
1856	81,094,084	1.22	1881	318,893,003	2.07
1857	79,500,332	1.22	1882(a)	214,702,237	1.37
1858	79,091,466	1.22	1883	224,122,487	1.37
1859	87,572,380	1.22	1884	211,430,950	1.32
1860	97,381,045	1.22	1885	200,204,929	1.26
1861	101,752,090	1.22	1886	185,637,688	1.18
1862	99,323,241	1.22	1887	190,245,257	1.17
1863	104,985,062	1.22	1888	209,119,715	1.23
1864	112,892,011	1.22	1889	273,377,711	1.55
1865	119,412,454	1.22	1890	364,763,026	2.01
1866	123,046,256	1.22	1891	360,606,755	1.94
1867	127,138,018	1.22	1892	321,434,620	1.77
1868	125,484,099	1.22	1893	271,698,431	1.65
1869	130,099,050	1.22	1894	305,276,416	1.62
1870	134,353,349	1.22	1895	278,515,698	1.47
1871	171,328,091	1.46	1896	278,816,850	1.42
1872	225,373,777	1.82	1897	290,724,754	1.44
1873	231,833,996	1.82	1898	312,280,298	1.55
1874	225,885,779	1.78	1899	406,260,953	1.86
1875	227,106,795	1.70	1900	592,022,358	2.63
1876	228,452,042	1.70	1901	498,750,805	2.28
1877	228,545,381	1.70	1902	455,121,927	2.00
1878	225,874,811	1.70	1903	429,359,357	1.86

<sup>a</sup> The plan of obtaining the value of coal was changed in 1882.

The value of the output as given for recent years is based upon the average price of coal at the pit's mouth as estimated for each county by the mine inspectors, and the average value per ton is the total estimated value divided by the total output.

The average value of the coal per ton shows considerable variation from 1882 to 1903, the period for which the figures are comparable. From 1882 to 1887 there was a steady fall in the value, when a minimum of \$1.17 per ton was reached. After that there was a steady increase until 1890, when the price was \$2.01 per ton. From that time until 1896 there was a steady fall in price when a minimum of \$1.42 per ton was reached. Then there was another steady increase until 1900 when the maximum price of the period was reached, namely, \$2.63 per ton. The years 1901 to 1903 show a steady decrease in the average value of coal per ton.

Similar fluctuations are shown in the average value of coal at the pit's mouth in each of the countries of England, Wales, and Scotland, when separately considered. During each of these years the prices have been higher in Wales than in either England or Scotland. The prices in England have been almost always higher than in Scotland. This is shown in the table following.

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AVERAGE VALUE OF COAL PER LONG TON IN ENGLAND, WALES, AND SCOTLAND, 1882 TO 1903.

[Source: Mines and Quarries; General Report and Statistics, 1903. Includes value of coal from open quarries. Conversion of English into United States money was made on the basis of £1 = \$4.8665.]

Year.	Value per long ton in—			Year.	Value per long ton in—		
	England.	Wales.	Scotland.		England.	Wales.	Scotland.
1882.....	\$1.38	\$1.40	\$1.07	1893.....	\$1.66	\$1.87	\$1.40
1883.....	1.36	1.54	1.26	1894.....	1.60	1.83	1.46
1884.....	1.30	1.54	1.12	1895.....	1.44	1.74	1.30
1885.....	1.26	1.42	1.07	1896.....	1.42	1.64	1.24
1886.....	1.20	1.26	.97	1897.....	1.44	1.60	1.28
1887.....	1.20	1.28	.97	1898.....	1.54	1.66	1.48
1888.....	1.24	1.40	.95	1899.....	1.85	1.99	1.83
1890.....	1.52	1.93	1.26	1900.....	2.56	2.92	2.64
1891.....	1.97	2.51	1.68	1901.....	2.21	2.90	1.93
1892.....	1.91	2.49	1.56	1902.....	1.97	2.58	1.62
1892.....	1.76	2.15	1.40	1903.....	1.85	2.31	1.52

The following table shows the total value and the average value per ton of coal at the pit's mouth in each of the nine principal coal fields of the United Kingdom for the years 1894 to 1903:

TOTAL VALUE AND VALUE PER LONG TON OF COAL PRODUCTION IN EACH COAL FIELD OF THE UNITED KINGDOM, 1894 TO 1903.

[Sources: 1894 to 1896, Annual General Reports Upon the Mineral Industry; 1897 to 1903, Mines and Quarries; General Reports and Statistics, 1897-1903. The value of coal obtained from quarries is not included. Conversion of English into United States money was made on the basis of £1 = \$4.8665. The value per ton was computed.]

Year.	England (not including Monmouthshire).									
	Northern coal field.		Yorkshire, etc., coal field.		Lancashire and Cheshire coal field.		Midland coal fields.		Small detached coal fields.	
	Value of product.	Value per ton.	Value of product.	Value per ton.	Value of product.	Value per ton.	Value of product.	Value per ton.	Value of product.	Value per ton.
1894..	\$58,633,689	\$1.39	\$70,198,674	\$1.68	\$40,131,232	\$1.68	\$30,290,673	\$1.66	\$7,299,677	\$1.77
1895..	50,569,398	1.27	60,311,542	1.48	35,587,697	1.56	26,267,143	1.49	6,435,503	1.61
1896..	51,801,089	1.24	62,401,859	1.47	35,436,714	1.52	26,350,073	1.42	6,452,161	1.60
1897..	56,209,949	1.29	65,204,233	1.49	34,416,418	1.46	27,846,366	1.45	6,739,908	1.62
1898..	64,823,853	1.43	74,306,506	1.58	39,308,906	1.57	29,594,788	1.50	7,684,345	1.65
1899..	77,921,580	1.69	89,422,453	1.80	45,978,463	1.83	34,103,824	1.68	9,941,666	2.15
1900..	116,155,131	2.51	131,664,214	2.53	66,842,044	2.62	51,961,139	2.49	12,915,453	2.78
1901..	94,805,873	2.10	110,403,414	2.20	57,170,698	2.36	43,905,013	2.23	10,949,294	2.40
1902..	82,922,269	1.79	103,738,927	1.99	50,622,666	2.03	39,742,204	1.96	10,472,547	2.24
1903..	82,260,747	1.72	97,034,939	1.85	47,226,390	1.89	37,005,752	1.84	9,844,462	2.15

  

Year.	Wales.									
	Scotch coal fields.		North Wales coal field.		South Wales coal field. (a)		Irish coal fields.		United Kingdom.	
	Value of product.	Value per ton.	Value of product.	Value per ton.	Value of product.	Value per ton.	Value of product.	Value per ton.	Value of product.	Value per ton.
1894..	\$31,620,994	\$1.47	\$4,919,404	\$1.56	\$61,943,951	\$1.85	\$238,123	\$2.11	\$305,276,416	\$1.62
1895..	37,339,423	1.30	4,273,541	1.50	57,459,763	1.74	257,817	2.05	278,501,829	1.47
1896..	35,311,353	1.25	4,341,020	1.50	55,959,392	1.65	250,917	1.94	278,304,580	1.42
1897..	37,326,736	1.28	4,092,366	1.40	58,622,433	1.64	252,956	1.87	290,711,366	1.44
1898..	44,806,834	1.48	5,254,827	1.64	46,231,249	1.73	255,389	1.97	312,266,696	1.55
1899..	56,823,283	1.82	6,024,527	1.89	85,783,299	2.15	250,430	2.00	406,249,527	1.85
1900..	87,869,174	2.65	8,701,443	2.80	115,595,123	2.94	302,935	2.43	592,066,654	2.63
1901..	62,920,619	1.92	6,923,278	2.25	111,396,321	2.84	267,682	2.60	498,740,196	2.28
1902..	55,297,027	1.62	6,562,840	2.07	105,494,191	2.55	258,883	2.38	455,111,557	2.00
1903..	53,156,400	1.52	5,865,422	1.84	96,711,215	2.29	236,308	2.30	429,347,634	1.86

<sup>a</sup> Includes the coal mines in Monmouthshire, England.



The average value per ton of coal seems to follow the same variations in each of the 9 principal coal fields, being generally lowest during the period from 1895 to 1897, after which there was a rapid increase in value until 1900, followed by a decided decrease, except in the Irish coal fields where there was an increase in 1901, but a decrease in 1902 and 1903. The total value of the product shows similar fluctuations.

The following table shows the average declared value of coal per long ton, free on board, exported from the principal British coal-shipping ports during each year of the period, 1833 to 1903:

AVERAGE DECLARED VALUE PER LONG TON OF COAL EXPORTED FROM THE PRINCIPAL SHIPPING PORTS OF THE UNITED KINGDOM, 1833 TO 1903.

[Source: 1833 to 1872, Report on Wholesale and Retail Prices in the United Kingdom in 1902, with comparative statistical tables for a series of years, published by order of the House of Commons, 1903; 1873 to 1903, Mines and Quarries: General Report and Statistics, 1903. The values of the exports represent the cost of the coal, exclusive of cinders, coke, and patent fuel, and the charges of delivering the goods on board ship, and are known as "free on board" values. From 1833 to August 14, 1850, small coal exported in ships not British were subject to duties ranging from 4s. (\$0.97) in 1833 to 4s. 2d. (\$1.02) in 1850; large coal to duties ranging from 6s. 8d. (\$1.62) to 4s. 2d. (\$1.02). For coal exported in British ships the rates charged were: Small coal, 2s. and 1s. 0d. (\$0.49 and \$0.26); large coal, 3s. 4d. (\$0.81) to 2s. 1d. (\$0.51). The duty as regards English ships was in abeyance from 1834 to 1842 and was abolished in 1845; as regards foreign vessels the duty closed on August 14, 1850. On April 19, 1901, coal exported became subject to a customs duty of 1s. (\$0.24) per ton. A rebate is allowed on coal the value of which free on board, exclusive of duty, is proved not to exceed 6s. (\$1.46) per ton. The values in 1901, 1902, and 1903 include the duty. Conversion of English into United States money was made on the basis of £1 = \$4.8665.]

Year.	English ports.							
	Liverpool.	Newcastle.	Shields (N. and S.). <sup>(c)</sup>	Sunderland.	Hartlepool.	Hull.	Goole.	Grimsby.
1833.....	\$2.41	\$1.54		\$1.22		\$2.13	\$2.58	\$2.92
1834.....	2.74	1.50		1.18		2.05	1.87	
1835.....	2.35	1.42		1.05		1.95	1.97	
1836.....	2.72	1.50		1.12		2.25	2.13	2.27
1837.....	3.06	1.62		1.12		2.66	2.45	2.64
1838.....	2.90	1.50		1.16		2.41	2.39	2.43
1839.....	2.76	1.74		1.30		2.39	2.43	2.43
1840.....	2.58	1.76		1.12		2.27	2.41	2.43
1841.....	2.62	1.74		1.26		2.17	2.35	2.21
1842.....	2.56	1.76		1.18		2.37	1.99	2.39
1843.....	2.66	1.72		1.40		2.19	2.11	2.49
1844.....	2.68	1.80		1.50		2.29	2.31	2.74
1845.....	2.60	1.70		1.40	\$1.16	2.29	2.17	2.43
1846.....	3.00	1.68		1.32	1.18	2.29	1.99	2.27
1847.....	2.76	1.74		1.26	1.30	2.21	2.19	2.43
1848.....	2.80	1.78	\$1.93	1.32	1.34	2.39	2.19	
1849.....	2.51	1.78	1.91	1.32	1.34	2.25	2.07	2.39
1850.....	2.41	1.76	1.87	1.36	1.38	2.19	1.76	2.33
1851.....	2.29	1.76	1.85	1.22	1.40	2.07	1.80	2.09
1852.....	2.35	1.74	1.78	1.38	1.30	2.01	1.89	2.07
1853.....	2.60	1.76	1.78	1.36	1.42	2.21	1.99	2.43
1854.....	3.04	2.15	2.13	1.66	1.87	2.62	2.33	2.72
1855.....	2.90	2.19	2.19	1.76	1.87	2.47	2.45	2.56
1856.....	3.00	2.19	2.15	1.72	1.83	2.43	2.39	2.56
1857.....	2.86	2.21	2.03	1.78	1.78	2.45	1.83	2.43
1858.....	2.88	2.19	1.99	1.76	1.78	2.39	1.99	2.41
1859.....	2.76	2.15	1.99	1.74	1.68	2.39	1.99	2.43
1860.....	3.04	2.05	1.97	1.66	1.62	2.41	2.09	2.43
1861.....	3.16	2.01	1.95	1.68	1.66	2.43	2.27	2.43
1862.....	2.98	2.03	1.95	1.72	1.58	2.33	2.27	2.41
1863.....	2.82	2.01	1.97	1.70	1.58	2.31	2.43	2.43
1864.....	2.94	2.01	1.99	1.72	1.62	2.33	2.29	2.43
1865.....	2.94	2.13	2.05	1.85	1.72	2.31	2.39	2.43
1866.....	2.94	2.25	2.11	2.07	2.09	2.45	2.29	2.43
1867.....	3.06	2.35	2.25	2.11	2.15	2.60	2.37	2.45
1868.....	2.94	2.27	2.27	2.03	2.17	2.51	2.27	2.53
1869.....	2.76	2.19	2.09	1.95	2.11	2.43	2.27	2.43
1870.....	2.76	2.19	2.03	1.95	2.05	2.37	2.17	2.45
1871.....	2.80	2.19	2.19	1.97	2.09	2.33	2.21	2.43
1872.....	3.97	3.51	3.16	3.45	3.51	3.83	3.79	3.57

<sup>c</sup> Beginning with 1866 the value of coal exported from Blythe is included.

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AVERAGE DECLARED VALUE PER LONG TON OF COAL EXPORTED FROM THE PRINCIPAL SHIPPING PORTS OF THE UNITED KINGDOM, 1833 TO 1903—Continued.

[Source: 1833 to 1872, Report on Wholesale and Retail Prices in the United Kingdom in 1902, with comparative statistical tables for a series of years, published by order of the House of Commons, 1903; 1873 to 1903, Mines and Quarries: General Report and Statistics, 1903. The values of the exports represent the cost of the coal, exclusive of cinders, coke, and patent fuel, and the charges of delivering the goods on board ship, and are known as "free on board" values. From 1833 to August 14, 1850, small coal exported in ships not British were subject to duties ranging from 4s. (\$0.97) in 1833 to 4s. 2½d. (\$1.02) in 1850; large coal to duties ranging from 6s. 8d. (\$1.62) to 4s. 2½d. (\$1.02). For coal exported in British ships the rates charged were: Small coal, 2s. and 1s. 0½d. (\$0.49 and \$0.26); large coal, 3s. 4d. (\$0.81) to 2s. 1½d. (\$0.51). The duty as regards English ships was in abeyance from 1834 to 1842 and was abolished in 1845; as regards foreign vessels the duty closed on August 14, 1850. On April 19, 1901, coal exported became subject to a customs duty of 1s. (\$0.24) per ton. A rebate is allowed on coal the value of which free on board, exclusive of duty, is proved not to exceed 6s. (\$1.46) per ton. The values in 1901, 1902, and 1903 include the duty. Conversion of English into United States money was made on the basis of £1=\$4.8665.]

Year.	English ports.							
	Liverpool.	Newcastle.	Shields (N. and S.). (a)	Sunderland.	Hartlepool.	Hull.	Goole.	Grimsby.
1873	\$5.62	\$4.97	\$4.48	\$4.91	\$4.70	\$5.13	\$4.62	\$5.07
1874	4.40	4.12	4.04	4.12	3.55	4.26	3.71	4.87
1875	3.67	3.20	3.39	3.02	2.70	3.47	3.08	3.89
1876	3.12	2.62	2.74	2.45	2.35	3.12	2.90	3.41
1877	2.78	2.37	2.62	2.29	2.23	2.86	2.72	3.08
1878	2.72	2.09	2.33	2.03	2.17	2.58	2.68	2.74
1879	2.72	1.89	2.05	1.83	2.01	2.43	2.29	2.70
1880	2.66	1.93	2.03	1.89	2.06	2.33	2.09	2.35
1881	2.56	1.89	1.95	1.87	1.87	2.33	2.09	2.25
1882	2.56	1.89	2.07	1.97	2.01	2.33	2.05	2.33
1883	2.80	1.85	2.05	1.97	2.05	2.33	2.07	2.39
1884	2.78	1.91	1.97	1.93	1.95	2.27	2.05	2.37
1885	2.78	1.85	1.91	1.85	1.87	2.25	2.01	2.37
1886	2.45	1.74	1.83	1.78	1.78	2.19	1.99	2.29
1887	2.66	1.72	1.80	1.76	1.78	2.19	2.01	2.29
1888	2.70	1.70	1.74	1.74	1.76	2.21	2.09	2.21
1889	3.10	2.03	2.01	2.01	2.07	2.41	2.07	2.39
1890	3.37	2.78	2.68	2.96	2.80	2.92	2.66	2.82
1891	3.26	2.51	2.62	2.74	2.68	2.72	2.62	2.92
1892	3.53	2.29	2.45	2.43	2.47	2.76	2.60	2.94
1893	3.57	2.01	2.25	1.97	2.35	2.70	2.45	2.96
1894	3.18	2.09	2.29	2.29	2.38	2.70	2.43	2.88
1895	2.86	1.99	2.01	2.05	2.17	2.47	2.23	2.62
1896	2.86	1.74	1.91	1.91	2.05	2.39	2.13	2.53
1897	2.98	1.78	1.85	1.95	2.05	2.35	2.13	2.45
1898	2.78	2.01	2.11	2.11	2.27	2.62	2.21	2.45
1899	2.90	2.31	2.29	2.41	2.39	2.65	2.21	2.54
1900	4.44	b 3.59	3.71	3.87	3.99	3.79	3.04	3.69
1901	3.81	b 2.80	(c)	3.02	2.92	3.24	3.04	3.18
1902	3.37	b 2.53	(c)	2.70	2.68	2.62	2.51	3.12
1903	3.18	b 2.41	(c)	2.62	2.60	2.86	2.43	3.04

Year.	Welsh ports.			Scotch ports.				
	Newport.	Cardiff.	Swansea.	Leith.	Boneas.	Grangemouth.	Kirkcaldy.	Glasgow.
1833	\$2.29	\$1.91	\$1.70	\$2.07	\$1.97	\$1.52	\$2.01	\$2.21
1834	1.66	1.89	1.78	1.60	1.85	1.45	1.80	1.85
1835	1.83	1.60	1.76	1.50	1.68	1.38	1.70	1.85
1836	1.99	1.97	1.85	1.72	1.95	1.76	2.31	2.19
1837	2.13	2.33	2.07	2.03	2.43	2.11	2.66	3.20
1838	2.31	2.13	2.03	1.76	2.15	1.80	2.25	2.03
1839	2.29	2.17	2.09	1.74	1.69	1.64	1.95	1.99
1840	2.25	2.47	2.31	1.64	1.76	1.62	1.89	1.87
1841	2.25	2.41	2.29	1.60	1.80	2.66	1.89	1.83
1842	2.27	2.25	2.01	1.68	1.72	1.80	1.97	1.70
1843	2.29	2.19	2.01	1.58	1.83	1.74	1.87	1.72
1844	2.17	2.19	1.87	1.60	1.74	1.60	1.89	1.68
1845	2.23	2.31	1.89	1.70	1.89	1.76	2.17	2.43
1846	2.33	2.45	2.05	2.15	2.25	2.06	2.33	2.70
1847	2.41	2.43	2.09	1.93	2.27	2.17	2.64	2.39
1848	2.43	2.41	2.13	1.76	1.87	1.60	2.19	2.01
1849	2.37	2.29	2.05	1.95	1.78	1.64	2.15	1.68
1850	2.37	2.23	2.60	1.74	1.83	1.58	2.03	1.76
1851	2.39	2.19	1.89	1.89	1.74	1.52	1.95	1.70
1852	2.41	2.13	1.87	2.51	1.66	1.52	1.78	1.78
1853	2.45	2.53	2.27	3.26	1.85	1.72	2.07	2.25

a Beginning with 1868 the value of coal exported from Blythe is included.  
 b Including North Shields and South Shields.  
 c North and South Shields included in Newcastle.

AVERAGE DECLARED VALUE PER LONG TON OF COAL EXPORTED FROM THE PRINCIPAL SHIPPING PORTS OF THE UNITED KINGDOM, 1833 TO 1903—Concluded.

[Source: 1833 to 1872, Report on Wholesale and Retail Prices in the United Kingdom in 1902, with comparative statistical tables for a series of years, published by order of the House of Commons, 1903; 1873 to 1903, Mines and Quarries: General Report and Statistics, 1903. The values of the exports represent the cost of the coal, exclusive of cinders, coke, and patent fuel, and the charges of delivering the goods on board ship, and are known as "free on board" values. From 1833 to August 14, 1850, small coal exported in ships not British were subject to duties ranging from 4s. (80.97) in 1833 to 4s. 2½d. (\$1.02) in 1850; large coal to duties ranging from 6s. 8d. (£1.62) to 4s. 2½d. (\$1.02). For coal exported in British ships the rates charged were: Small coal, 2s. and 1s. 0½d. (80.49 and 80.26); large coal, 2s. 4d. (80.81) to 2s. 1½d. (80.51). The duty as regards English ships was in abeyance from 1834 to 1842 and was abolished in 1845; as regards foreign vessels the duty closed on August 14, 1850. On April 19, 1901, coal exported became subject to a customs duty of 1s. (80.24) per ton. A rebate is allowed on coal the value of which free on board, exclusive of duty, is proved not to exceed 6s. (\$1.46) per ton. The values in 1901, 1902, and 1903 include the duty. Conversion of English into United States money was made on the basis of £1=\$4.8665.]

Year.	Welsh ports.			Scotch ports.				
	Newport.	Cardiff.	Swansea.	Leith.	Boness.	Grange-mouth.	Kirk-caldy.	Glasgow.
1854	\$2.49	\$2.74	\$2.43	\$4.28	\$2.19	\$2.25	\$2.47	\$2.68
1855	2.49	2.62	2.41	3.45	2.41	1.91	2.51	2.35
1856	2.51	2.49	2.41	4.26	2.56	2.30	2.27	2.05
1857	2.45	2.51	2.43	4.60	2.78	2.56	2.90	2.33
1858	2.43	2.43	2.39	5.07	2.49	2.17	2.19	2.56
1859	2.35	2.39	2.35	6.43	3.00	2.37	1.89	4.24
1860	2.29	2.35	2.33	5.45	2.84	1.91	1.95	2.80
1861	2.37	2.35	2.39	5.78	2.96	1.95	2.05	3.06
1862	2.27	2.33	2.33	4.56	3.20	1.80	1.83	2.27
1863	2.21	2.35	2.27	4.83	3.18	1.70	1.74	2.41
1864	2.49	2.72	2.51	5.72	2.72	1.72	1.76	2.49
1865	2.53	2.76	2.53	5.01	3.02	1.83	1.87	2.47
1866	2.56	2.80	2.64	5.43	2.58	2.21	2.05	2.92
1867	2.56	2.82	2.64	4.36	2.41	2.25	2.01	2.29
1868	2.49	2.72	2.58	3.71	1.83	2.13	1.78	2.09
1869	2.47	2.62	2.51	3.43	1.87	2.19	1.64	2.09
1870	2.49	2.68	2.53	3.63	1.87	2.37	1.72	2.09
1871	2.53	2.80	2.49	2.96	2.09	2.23	1.99	2.56
1872	4.01	4.44	3.77	5.03	3.67	3.59	3.28	4.14
1873	5.11	5.39	4.74	5.41	4.28	4.54	3.97	4.74
1874	4.46	4.62	4.06	3.75	3.24	3.35	3.10	3.45
1875	3.53	3.57	2.96	2.92	2.39	2.39	2.29	2.82
1876	2.56	2.72	2.33	2.78	2.15	2.51	2.05	2.45
1877	2.45	2.47	2.11	2.68	2.03	2.45	1.97	2.53
1878	2.35	2.39	2.07	2.78	1.85	2.35	1.91	2.23
1879	2.31	2.25	2.03	2.76	1.68	1.97	1.74	2.07
1880	2.29	2.27	2.09	2.76	1.72	2.72	1.76	2.17
1881	2.35	2.39	2.17	2.56	1.70	2.51	1.74	1.95
1882	2.37	2.49	2.19	2.39	1.80	2.17	1.70	1.93
1883	2.43	2.49	2.25	2.53	2.01	2.33	1.87	2.13
1884	2.43	2.56	2.25	2.41	1.93	2.13	1.80	2.07
1885	2.37	2.43	2.21	2.33	2.27	2.05	1.70	1.91
1886	2.21	2.27	2.07	2.47	1.93	2.05	1.64	1.87
1887	2.01	2.15	2.01	2.51	2.11	2.13	1.64	1.87
1888	2.17	2.23	2.11	2.23	1.99	2.07	1.58	1.91
1889	2.82	2.92	2.49	2.74	1.99	2.21	1.87	2.13
1890	3.37	3.35	2.96	3.53	2.58	2.66	2.49	2.62
1891	3.26	3.26	2.94	3.53	2.62	2.53	2.45	2.49
1892	2.72	2.88	2.66	3.59	2.47	2.41	2.29	2.35
1893	2.62	2.58	2.49	3.26	2.45	2.29	1.97	2.29
1894	2.72	2.76	2.37	3.81	2.47	2.43	2.19	2.25
1895	2.37	2.45	2.29	2.70	2.31	2.23	1.80	1.83
1896	2.21	2.33	2.23	2.39	2.05	2.17	1.80	1.70
1897	2.27	2.35	2.23	2.47	1.99	2.23	1.78	1.80
1898	2.58	2.78	2.49	2.37	2.27	2.31	1.97	2.25
1899	2.78	2.82	2.60	2.70	2.41	2.37	2.29	2.51
1900	4.79	4.58	3.99	3.59	3.57	3.26	3.37	3.49
1901	3.81	3.93	3.67	3.02	2.88	2.94	2.66	2.90
1902	3.28	3.39	3.61	2.66	2.64	2.62	2.39	2.62
1903	3.12	3.22	3.22	2.58	2.64	2.61	2.37	2.45

Among the English shipping ports the average value has been highest at Liverpool during almost the whole period, while the lowest values have been shown most frequently at Sunderland, Newcastle, and Hartlepool. Among the Welsh ports the highest value was most frequently seen at Cardiff and the lowest at Swansea. As for the Scottish ports the value during the first 19 years of the period was

generally highest either at Kirkcaldy or Glasgow, but since 1851 it has been highest every year at Leith, while the lowest values for the greater portion of the period were shown for the ports of Grangemouth and Kirkcaldy, values having been lowest at the former port during 21 years and at the latter port during 34 years.

In this connection it is interesting to note the average wholesale prices of coal in the London coal market from 1873 to 1903:

AVERAGE PRICE PER LONG TON OF COAL IN THE LONDON MARKET. 1873 TO 1903.

[Source: Mines and Quarries: General Report and Statistics, 1903. Conversion of English into United States money was made on the basis of £1=\$4.8665.]

Year.	Price per long ton.	Year.	Price per long ton.	Year.	Price per long ton.
1873.....	\$7.54	1884.....	\$3.75	1895.....	\$3.55
1874.....	5.76	1885.....	3.75	1896.....	3.51
1875.....	5.27	1886.....	3.59	1897.....	3.73
1876.....	4.64	1887.....	3.61	1898.....	3.93
1877.....	4.24	1888.....	3.61	1899.....	4.42
1878.....	3.97	1889.....	4.01	1900.....	5.54
1879.....	3.87	1890.....	4.52	1901.....	4.72
1880.....	3.61	1891.....	4.44	1902.....	4.40
1881.....	3.89	1892.....	4.28	1903.....	3.85
1882.....	3.85	1893.....	4.62		
1883.....	4.10	1894.....	3.97		

These average prices have been obtained from the published returns issued by the London Coal Exchange each market day, which give the average price of the best sea-borne coal put into barge in the River Thames, including the 1s. 1d. (26.4 cents) per ton dues paid to the corporation of London up to the year 1890, when such duty was discontinued.

The amount of coal imported into the United Kingdom is so insignificant that it is not worth considering. In 1903 the imports of coal amounted to but 3,479 tons and in the preceding year to 3,279 tons, while during the years from 1896 to 1903 the amount imported varied from a minimum of 1,749 tons in 1899 to a maximum of 15,750 tons in 1896. While the great development in the coal production in the United Kingdom has been mainly due to the increasing domestic demand, there has been a steady advance in the exportation of coal from that country. In 1873 the estimated proportion of coal exported was 12.49 per cent of the total output. Eight years later, in 1881, it was 16.25 per cent. In 1891 it was 21.63 per cent and in 1903, 27.70 per cent. At the same time the quantity remaining for home consumption continued to increase more rapidly than the increase in population. In 1873 the per capita consumption in the United Kingdom was 3.499 tons; in 1881, 3.696 tons; in 1891, 3.846 tons, and in 1903, 3.970 tons. The following table shows the quantity of coal and the estimated coal equivalent of coke and patent fuel exported per year and the quantity remaining for home consumption from 1873 to 1903:

PRODUCTION OF COAL IN THE UNITED KINGDOM, QUANTITY EXPORTED, AND QUANTITY REMAINING FOR HOME CONSUMPTION, 1873 TO 1903.

[Source: Mines and Quarries: General Report and Statistics, 1903. The percentages were computed.]

Year.	Total output. <sup>(a)</sup>	Quantity exported (long tons).				Quantity remaining for home consumption (long tons).			
		Coal.	Estimated coal equivalent of coke and patent fuel. <sup>(b)</sup>	Coal shipped for use of steamers engaged in foreign trade. <sup>(c)</sup>	Total.	Per cent of total output.	Total.	Per cent of total output.	Per head of the population.
1873..	128,680,131	12,077,507	686,651	3,312,470	16,076,628	12.49	112,603,503	87.51	3.499
1874..	126,590,108	13,381,071	672,638	3,140,383	17,194,092	13.58	109,396,016	86.42	3.366
1875..	133,306,485	13,978,956	745,212	3,278,249	18,002,417	13.50	115,304,068	86.50	3.511
1876..	134,125,166	15,690,402	798,283	3,564,524	20,053,209	14.95	114,071,957	85.05	3.436
1877..	134,179,968	14,880,899	741,027	3,661,552	19,283,478	14.37	114,896,490	85.63	3.422
1878..	132,612,063	14,998,527	656,745	4,018,019	19,673,282	14.84	112,938,781	85.16	3.327
1879..	135,720,393	15,740,082	806,828	4,401,120	21,038,030	15.73	112,682,363	84.27	3.285
1880..	146,969,409	17,801,181	1,085,389	4,926,076	23,902,646	16.26	123,066,763	83.74	3.554
1881..	154,184,300	18,759,901	1,062,349	5,227,588	25,049,928	16.25	129,134,372	83.75	3.696
1882..	156,499,977	19,926,011	1,265,051	5,575,160	26,766,222	17.10	129,733,755	82.90	3.685
1883..	163,737,327	21,670,926	1,398,371	6,400,594	29,439,891	17.98	134,297,436	82.02	3.788
1884..	160,757,779	22,354,474	1,261,336	6,614,937	30,230,747	18.81	130,527,032	81.19	3.654
1885..	159,351,418	22,710,335	1,374,980	6,681,359	30,766,674	19.31	128,584,744	80.69	3.570
1886..	157,518,482	22,107,144	1,557,193	6,698,238	30,362,575	19.28	127,155,907	80.72	3.501
1887..	162,119,812	23,258,855	1,589,381	6,868,790	31,717,026	19.56	130,402,786	80.44	3.563
1888..	169,935,219	25,632,407	1,816,310	7,121,393	34,570,110	20.34	135,365,109	79.66	3.670
1889..	176,916,724	27,504,911	1,806,316	7,736,794	37,138,021	20.99	139,778,703	79.01	3.760
1890..	181,614,288	28,738,241	1,825,626	8,096,405	38,660,272	21.29	142,954,016	78.71	3.814
1891..	185,479,126	29,496,785	2,087,581	8,536,495	40,120,861	21.63	145,358,265	78.37	3.846
1892..	181,786,871	29,048,056	1,732,571	8,600,129	39,380,756	21.66	142,406,115	78.34	3.737
1893..	164,325,795	27,708,128	1,633,570	8,126,372	37,488,070	22.81	126,837,725	77.19	3.300
1894..	188,277,525	31,756,368	1,656,601	9,294,461	42,687,430	22.67	145,590,095	77.33	3.755
1895..	189,661,362	31,714,906	1,784,607	9,407,789	42,907,302	22.62	146,754,060	77.38	3.752
1896..	195,361,260	32,947,680	1,701,826	9,937,305	44,586,811	22.82	150,774,449	77.18	3.820
1897..	202,129,931	35,354,296	2,318,410	10,455,758	48,128,464	23.81	154,001,467	76.19	3.867
1898..	202,054,516	35,058,430	1,944,065	11,264,204	48,266,699	23.89	153,787,817	76.11	3.826
1899..	220,094,781	41,180,332	2,402,891	12,226,801	55,810,024	25.36	164,284,757	74.64	4.051
1900..	225,181,300	44,089,197	2,563,574	11,752,316	58,405,087	25.94	166,776,213	74.06	4.075
1901..	219,046,945	41,877,081	2,319,162	13,586,833	57,783,076	26.38	161,263,869	73.62	3.882
1902..	227,095,042	43,159,046	2,092,973	15,148,115	60,400,134	26.60	166,694,908	73.40	3.973
1903..	230,334,469	44,950,057	2,055,444	16,799,848	63,805,349	27.70	166,529,120	72.30	3.970

<sup>a</sup> Includes coal extracted from open quarries.

<sup>b</sup> In making this estimate it was assumed in the British reports that for every 60 tons of coke 100 tons of coal were consumed in the manufacture, and that of every 100 tons of patent fuel 90 tons consisted of coal and 10 tons of pitch, etc.

<sup>c</sup> British and foreign passenger and cargo steamers bound for foreign ports.

Statistics of exports in which coke and patent fuel have been reduced to a coal basis are not obtainable for the years preceding 1873. The total tonnage of the exports of coal, coke, cinders, and patent fuel without such reduction, and the declared value of the same, has, however, been published for a long series of years. These are shown in the table following.



## TONNAGE AND DECLARED VALUE OF COAL, COKE, CINDERS, CULM, AND PATENT FUEL EXPORTED FROM THE UNITED KINGDOM, 1844 TO 1903.

[Source, 1844 to 1856: Statistical Abstract of the United Kingdom, No. 6; 1857 to 1871, No. 19; 1872 to 1885, No. 34; 1886 to 1900, No. 48; 1901 and 1902, No. 50; 1903, No. 51. The coal shipped for use of steamers engaged in foreign trade is not included. The tonnage of coke, cinders, culm, and patent fuel is the actual weight and not the estimated coal equivalent as given in the preceding table. Conversion of English into United States money was made on the basis of £1 = \$4.8665.]

Year.	Coal, coke, cinders, culm, and patent fuel export- ed.		Year.	Coal, coke, cinders, culm, and patent fuel export- ed.	
	Long tons.	Declared value.		Long tons.	Declared value.
1844	1,731,491	\$3,234,290.50	1874	13,927,205	\$58,323,158.10
1845	2,531,282	4,738,194.73	1875	14,544,916	47,001,085.25
1846	2,531,108	4,726,223.14	1876	16,299,077	43,333,569.19
1847	2,483,161	4,713,214.98	1877	15,420,050	38,175,191.12
1848	2,785,301	5,295,827.50	1878	15,494,633	35,673,751.72
1849	2,828,039	5,290,479.21	1879	16,442,296	35,071,887.33
1850	3,351,890	6,249,676.10	1880	16,719,971	40,746,878.44
1851	3,468,545	6,338,484.85	1881	19,587,063	42,756,825.68
1852	3,640,194	6,677,392.78	1882	20,934,443	46,546,203.76
1853	3,935,062	7,808,742.10	1883	22,775,634	51,808,364.81
1854	4,309,255	10,351,804.67	1884	23,350,230	52,807,024.15
1855	4,976,902	11,905,118.48	1885	23,770,957	51,746,229.34
1856	5,979,779	13,755,561.30	1886	23,283,389	47,873,406.38
1857	6,821,750	15,884,732.92	1887	24,490,967	49,492,261.20
1858	6,597,128	15,031,387.28	1888	26,970,536	55,211,897.58
1859	7,082,029	16,133,805.24	1889	28,956,445	71,936,554.34
1860	7,412,575	16,408,042.26	1890	30,142,839	92,562,139.09
1861	7,934,832	17,773,256.11	1891	31,084,116	91,952,897.11
1862	8,380,673	18,486,504.95	1892	30,453,973	81,809,553.81
1863	8,342,500	18,260,606.88	1893	29,031,955	69,958,253.95
1864	8,900,872	20,540,927.12	1894	33,073,698	84,537,532.31
1865	9,285,214	21,882,543.31	1895	33,101,452	75,106,602.30
1866	10,142,260	25,395,820.52	1896	34,282,056	73,758,197.21
1867	10,585,829	26,711,950.84	1897	37,096,918	81,051,338.51
1868	10,967,062	26,463,647.41	1898	36,562,796	88,256,420.48
1869	10,744,945	25,138,723.32	1899	43,111,404	112,383,301.13
1870	11,702,649	27,439,132.47	1900	46,096,228	187,943,529.22
1871	12,816,434	30,493,584.23	1901	43,785,912	147,624,051.14
1872	13,198,494	50,817,555.15	1902	44,897,948	134,223,598.34
1873	12,617,566	64,181,888.78	1903	46,622,700	132,674,348.00

The chief foreign consumer of British coal was France, which in 1903 imported from the United Kingdom 6,976,467 tons. Next in order among the importers of British coal in 1903 was Italy, which imported 6,278,333 tons; Germany, 6,110,101 tons; Sweden and Norway, 4,461,544 tons; Russia, 2,442,478 tons; Denmark, including Iceland and Greenland, 2,246,362 tons; Egypt, 2,131,321 tons; Spain not including the Canaries, 1,896,569 tons; Argentina, 1,120,178 tons, and Brazil, 900,605 tons. The exportation of British coal to the United States in 1903 was 1,142,603 tons and in 1902, 837,550 tons, while in 1900 it was but 40,145 tons and in 1901 but 95,700 tons.

The exportation of coal to France has decreased each year since 1900, while that to Spain and Brazil was less in 1903 than in 1902. To each of the other countries named the exportations were larger in 1903 than in the preceding year, and there has been in general an upward movement in the exportation of British coal to all the leading countries except the United States and the British colonies and dependencies. The total for 1903 exceeds that of any previous year. The following table shows the average number of tons of coal and culm exported per year to the leading coal-importing countries from 1890 to 1903:



EXPORTS OF COAL AND CULM FROM THE UNITED KINGDOM TO VARIOUS COAL-CONSUMING COUNTRIES, 1890 TO 1903.

[Source: Coal Tables (Parliamentary Papers, No. 118, of session 1899, and No. 312, of session 1903, and continuation, 1904). The quantities include coal and culm, but do not include coke, cinders, or manufactured peat fuel.]

Calendar year.	Exports (long tons) of coal and culm to—					
	France.	Italy.	Germany.	Sweden and Norway.	Russia.	Denmark.
1890.....	4,953,796	3,642,883	3,311,021	a 2,314,787	1,425,360	1,320,699
1891.....	5,075,244	3,340,397	4,109,354	a 2,439,084	1,435,068	1,394,385
1892.....	5,112,842	3,560,960	3,652,385	a 2,493,787	1,442,321	1,446,666
1893.....	4,566,860	3,586,857	3,675,994	2,394,015	1,568,006	1,415,859
1894.....	4,951,248	4,431,948	3,848,030	2,878,563	1,774,217	1,524,541
1895.....	4,952,988	4,138,635	4,105,274	2,936,742	1,726,433	1,627,246
1896.....	5,116,421	3,996,754	4,463,017	3,043,428	1,777,748	1,637,575
1897.....	5,554,921	4,628,373	4,957,417	3,336,587	1,871,299	1,828,830
1898.....	5,606,023	4,463,939	4,668,731	3,522,532	2,100,054	1,977,356
1899.....	6,646,865	5,235,808	5,029,515	4,365,163	3,274,274	2,015,437
1900.....	8,314,997	5,115,125	5,938,178	4,311,338	3,116,099	2,056,990
1901.....	7,565,906	5,497,625	5,819,344	4,068,434	2,403,425	2,101,595
1902.....	7,408,431	5,797,118	5,814,477	4,202,194	2,297,093	2,134,090
1903.....	6,976,467	6,278,333	6,110,101	4,461,544	2,442,478	2,246,362

Calendar year.	Exports (long tons) of coal and culm to—					Total exports of coal and culm.
	Egypt.	Spain.	Brazil.	Argentina.	Other countries.	
1890.....	1,532,153	b 1,599,837	628,191	551,672	b 8,253,579	c 28,738,241
1891.....	1,568,363	b 1,676,339	741,654	415,490	b 8,246,130	c 29,496,785
1892.....	1,567,481	b 1,665,932	763,468	646,064	b 7,488,445	c 29,048,056
1893.....	1,423,713	1,375,430	709,625	641,071	6,350,908	27,708,128
1894.....	1,637,773	1,515,332	820,624	748,285	7,625,307	31,756,368
1895.....	1,531,268	1,489,043	781,751	900,979	7,524,947	31,714,906
1896.....	1,748,767	1,532,949	928,430	876,626	7,826,065	32,947,680
1897.....	1,824,946	1,539,850	953,236	860,127	7,998,210	35,354,296
1898.....	1,878,010	1,192,502	923,995	842,377	7,882,311	35,058,430
1899.....	2,083,783	1,529,265	920,414	988,608	9,091,480	41,180,332
1900.....	1,935,332	1,695,320	750,910	768,099	10,086,109	44,089,197
1901.....	2,061,223	1,835,762	776,018	906,129	8,842,420	41,877,081
1902.....	1,965,929	1,928,016	924,114	973,386	9,712,198	43,159,046
1903.....	2,131,321	1,896,569	900,605	1,120,178	10,386,099	44,950,057

a Including coke.

b Including coke and patent fuel.

c This total does not agree with the sum of the items, probably for the reasons given in notes a and b.

EMPLOYEES.

In making a comparison of the statistics of employment in coal mines in the United Kingdom care must be taken to use such figures as are comparable. In the British reports the statistics of coal mine employment are given in three different ways, depending upon the use which is made of them. Thus one set of figures shows all persons employed in and about mines coming under the Coal Mines Regulation Act. These include not only persons employed in coal mines, but also those in stratified ironstone, shale, and fire-clay mines. Another set of figures relates to persons employed in and about coal mines, but also includes those engaged in raising other minerals found in coal mines. A third set of figures, and those upon which is based the average production per employee, is obtained by deducting from the number of persons engaged in and about mines coming under the

Coal Mines Regulation Act the estimated number engaged in raising minerals other than coal. The difference, however, between the figures obtained by these various methods is not very great. Thus, in 1903, there were 842,066 persons employed in mines under the Coal Mines Regulation Act, 828,968 in and about coal mines, and 822,000 was the estimated number engaged in the work of coal mining only.

In the table which follows those figures were taken each year which most nearly represent the number of persons engaged in coal mining, as far as the available statistics permitted this to be done.

## EMPLOYEES IN COAL MINES IN THE UNITED KINGDOM, 1851 TO 1903.

[Source: 1851 to 1882, Mines and Quarries: General Report and Statistics, 1900. 1883 to 1903, Coal Tables, 1903 (Parliamentary Paper No. 312 of session 1903, and continuation, 1904). The figures for the years 1851 to 1860 relate to persons employed in coal mines only; those for 1861 to 1872, to persons in coal and stratified ironstone mines; those for 1873 to 1882, to persons employed in and about mines classed under the Coal Mines Regulation Act, while the figures from 1883 to 1903 show the number of persons employed under the Coal Mines Regulation Act after deducting the estimated number of persons engaged in raising minerals other than coal. The percentages were computed.]

Year.	Employees.				Total.
	Below ground.	Per cent of total.	Above ground.	Per cent of total.	
1851	171,893	79.50	44,324	20.50	216,217
1852	177,160	79.50	45,683	20.50	222,843
1853	182,427	79.50	47,041	20.50	229,468
1854	187,095	79.50	48,399	20.50	236,094
1855	192,962	79.50	49,757	20.50	242,719
1856	198,229	79.50	51,116	20.50	249,345
1857	203,497	79.50	52,474	20.50	255,971
1858	208,764	79.50	53,832	20.50	262,596
1859	214,031	79.50	55,191	20.50	269,222
1860	219,298	79.50	56,549	20.50	275,847
1861	224,566	79.50	57,907	20.50	282,473
1862	231,345	79.50	59,655	20.50	291,000
1863	237,705	79.50	61,295	20.50	299,000
1864	244,496	79.50	63,046	20.50	307,642
1865	250,784	79.50	64,667	20.50	315,451
1866	254,927	79.50	65,736	20.50	320,663
1867	264,827	79.50	68,289	20.50	333,116
1868	275,722	79.50	71,098	20.50	346,820
1869	274,630	79.50	70,816	20.50	345,446
1870	278,961	79.50	71,933	20.50	350,894
1871	294,850	79.50	76,031	20.50	370,881
1872	332,380	79.50	85,708	20.50	418,088
1873	407,808	79.32	106,341	20.68	514,149
1874	428,611	79.54	110,218	20.46	538,829
1875	427,017	79.69	108,828	20.31	535,845
1876	409,229	79.53	105,303	20.47	514,532
1877	395,025	79.90	99,366	20.10	494,391
1878	382,979	80.57	92,350	19.43	475,329
1879	385,179	80.78	91,631	19.22	476,810
1880	391,381	80.71	93,552	19.29	484,933
1881	399,387	80.61	96,090	19.39	495,477
1882	406,192	80.60	97,795	19.40	503,987
1883	397,900	80.89	94,000	19.11	491,900
1884	404,500	81.11	94,200	18.89	498,700
1885	406,700	81.45	92,600	18.55	499,300
1886	408,100	81.49	92,700	18.51	500,800
1887	414,800	81.41	94,700	18.59	509,500
1888	422,900	79.85	106,700	20.15	529,600
1889	447,600	79.62	114,600	20.38	562,200
1890	490,500	80.09	121,900	19.91	612,400
1891	520,700	80.21	128,500	19.79	649,200
1892	536,500	80.31	131,500	19.69	668,000
1893	536,000	80.46	130,200	19.54	666,200
1894	555,600	80.76	132,400	19.24	688,000
1895	549,400	80.59	132,300	19.41	681,700
1896	540,500	80.38	131,900	19.62	672,400
1897	541,900	80.26	133,300	19.74	675,200
1898	550,600	80.18	136,100	19.82	686,700
1899	566,400	79.92	142,300	20.08	708,700
1900	607,700	79.97	152,200	20.02	759,900
1901	632,300	80.27	156,400	19.73	787,700
1902	646,900	80.25	158,200	19.65	805,100
1903	660,400	80.34	161,600	19.66	822,000

The number of persons engaged in coal mining, as shown in this table, increased during 52 years from 216,217 in 1851 to 822,000 in 1903, or 280 per cent.

It will be observed that the relation between the number of persons employed above ground and those below ground remains almost unchanged. Thus, of the 216,217 persons employed in coal mines in 1851, 79.50 per cent worked below, and 20.50 per cent worked above ground. Of 822,000 persons employed in 1903, 80.34 per cent worked below and 19.66 per cent worked above ground. This shows that whatever means may have been employed for increasing the labor efficiency of coal mine employees, the effect of such improvement has been practically the same below as above ground.

The following table shows the estimated quantity of coal produced per employee during each year from 1883 to 1903, based upon the estimated number of persons employed in coal production only and the quantity of coal produced:

TOTAL PRODUCTION, ESTIMATED NUMBER OF EMPLOYEES, AND ESTIMATED PRODUCT PER EMPLOYEE IN THE COAL MINES IN THE UNITED KINGDOM, 1883 TO 1903.

[Source: Coal Tables 1903, (Parliamentary Paper, No. 312, of session 1903, and continuation, 1904).]

Year.	Coal produced (long tons). (a)	Estimated number of employees. (b)	Estimated quantity produced per employee (long tons). (c)	Year.	Coal produced (long tons). (a)	Estimated number of employees. (b)	Estimated quantity produced per employee (long tons). (c)
1883	163,737,000	491,800	333	1894	188,277,000	688,000	274
1884	160,758,000	498,700	322	1895	189,661,000	681,700	278
1885	159,351,000	499,300	319	1896	195,361,000	672,400	291
1886	157,518,000	500,800	315	1897	202,130,000	675,200	299
1887	162,120,000	509,500	318	1898	202,055,000	686,700	294
1888	169,935,000	529,600	321	1899	220,095,000	708,700	311
1889	179,917,000	562,200	315	1900	225,181,000	759,900	296
1890	181,614,000	612,400	297	1901	219,047,000	787,700	278
1891	185,479,000	649,200	286	1902	227,095,000	805,100	282
1892	181,787,000	668,000	272	1903	230,334,000	822,000	280
1893	164,326,000	666,200	247				

<sup>a</sup> Quantity is given in round numbers.

<sup>b</sup> These figures were obtained by deducting from the total number of persons returned to the home office as employed in mines under the coal mines regulation act the estimated number engaged in raising minerals other than coal.

<sup>c</sup> Computed.

The statistics of employment in Great Britain for each of the principal coal fields as presented in the British reports show the number of persons employed in and about coal mines, including those engaged in raising ironstone, fire clay, etc., from those mines. These figures are therefore slightly higher than those estimated for the same years in the preceding table. The following table shows for each principal coal field and for the United Kingdom the number of persons employed in and about coal mines and the quantity of all minerals raised from such mines per person employed, also the relation between

quantity of coal and of other minerals and the total product of the coal mines:

NUMBER OF EMPLOYEES IN AND ABOUT COAL MINES, AND PRODUCT PER EMPLOYEE, IN THE UNITED KINGDOM, BY PRINCIPAL COAL FIELDS, 1894 TO 1903.

[Source: 1894 to 1896, Annual General Reports upon the Mineral Industry; 1897 to 1903, Mines and Quarries: General Reports and Statistics, 1897-1903. The percentages were computed.]

England (not including Monmouthshire).												
Year.	Northern coal field.						Yorkshire, etc., coal field.					
	Employees.			Quantity of minerals <sup>(a)</sup> produced per employee (long tons).		Per cent of coal of total product.	Employees.			Quantity of minerals <sup>(a)</sup> produced per employee (long tons).		Per cent of coal of total product.
	Below ground.	Above gr'nd.	Total.	Below gr'nd.	Above and below ground.		Below ground.	Above gr'nd.	Total.	Below gr'nd.	Above and below ground.	
1894..	106,037	30,261	136,298	402	313	98.82	126,171	31,363	157,534	b 324	268	98.93
1895..	105,624	30,003	135,627	382	297	98.78	123,785	30,797	154,582	c 332	265	98.99
1896..	107,022	30,252	137,274	395	308	98.81	123,547	31,258	154,805	347	277	98.75
1897..	107,635	30,446	138,081	411	320	98.57	123,750	31,719	155,469	357	284	98.81
1898..	109,186	30,885	140,071	421	328	98.57	126,115	32,492	158,607	377	300	98.69
1899..	112,549	32,892	145,441	415	321	98.54	130,076	34,118	164,194	387	306	98.82
1900..	118,117	34,436	152,553	398	308	98.53	137,920	36,622	174,542	382	302	98.88
1901..	120,826	34,253	155,079	380	296	98.52	145,296	37,627	182,923	349	277	98.88
1902..	124,048	34,818	158,866	380	296	98.60	149,412	38,585	187,997	353	280	98.87
1903..	127,685	35,738	163,423	381	297	98.52	152,215	39,464	191,679	348	277	98.82

  

England (not including Monmouthshire)—Continued.												
Year.	Lancashire and Cheshire coal field.						Midland coal fields.					
	Employees.			Quantity of minerals <sup>(a)</sup> produced per employee (long tons).		Per cent of coal of total product.	Employees.			Quantity of minerals <sup>(a)</sup> produced per employee (long tons).		Per cent of coal of total product.
	Below ground.	Above gr'nd.	Total.	Below gr'nd.	Above and below ground.		Below ground.	Above gr'nd.	Total.	Below gr'nd.	Above and below ground.	
1894..	72,207	15,848	88,055	333	273	99.47	48,376	15,425	63,801	400	303	94.29
1895..	70,685	16,542	87,227	324	263	99.41	46,683	15,495	62,178	403	302	93.60
1896..	67,537	16,226	83,763	349	281	99.23	47,334	15,409	62,743	419	316	93.59
1897..	67,763	16,470	84,233	350	282	99.26	46,403	15,247	61,650	441	332	93.81
1898..	67,033	16,333	83,366	376	302	99.28	47,306	15,687	62,993	449	337	93.25
1899..	66,984	16,436	83,420	378	303	99.22	49,629	16,171	65,800	436	329	93.52
1900..	70,687	17,257	87,944	365	293	99.10	53,344	16,955	70,299	420	318	93.27
1901..	74,634	18,157	92,791	328	264	99.02	55,829	17,419	73,248	373	284	94.74
1902..	74,878	18,509	93,387	336	269	99.03	58,440	17,873	76,313	366	280	94.83
1903..	76,529	18,777	95,306	329	264	99.08	58,823	17,835	76,658	359	275	95.11

<sup>a</sup> Coal, ironstone, fire clay, etc.

<sup>b</sup> Based upon the totals shown in the report, this number should be 334.

<sup>c</sup> Based upon the totals shown in the report, this number should be 266.

CHAPTER V.—COAL MINE LABOR IN GREAT BRITAIN. 419

NUMBER OF EMPLOYEES IN AND ABOUT COAL MINES, AND PRODUCT PER EMPLOYEE, IN THE UNITED KINGDOM, BY PRINCIPAL COAL FIELDS, 1894 TO 1903—Continued.

[Source: 1894 to 1896, Annual General Reports upon the Mineral Industry; 1897 to 1903, Mines and Quarries: General Reports and Statistics, 1897-1903. The percentages were computed.]

Year.	England (not including Monmouthshire)— Concluded.						Scotch coal fields.						
	Small detached coal fields.												
	Employees.			Quantity of minerals <sup>(a)</sup> produced per employee (long tons).			Per cent of coal of total product.	Employees.			Quantity of minerals <sup>(a)</sup> produced per employee (long tons).		Per cent of coal of total product.
	Below ground.	Above gr'nd.	Total.	Below gr'nd.	Above and below ground.	Below ground.		Above gr'nd.	Total.	Below gr'nd.	Above and below ground.		
1894..	16,551	4,114	20,665	252	202	98.92	73,257	15,363	88,620	304	252	96.38	
1895..	16,178	3,882	20,060	249	201	99.05	72,797	15,574	88,371	411	339	96.24	
1896..	16,063	3,921	19,974	255	205	98.85	67,134	15,348	82,482	439	358	96.02	
1897..	15,617	3,917	19,534	271	216	98.74	67,792	15,355	83,147	446	363	96.28	
1898..	16,526	4,070	20,596	284	228	99.03	70,925	15,776	86,701	442	361	96.53	
1899..	16,081	4,201	20,282	280	230	98.93	73,969	16,416	90,385	436	357	96.54	
1900..	17,390	4,393	21,783	271	216	98.74	80,610	17,892	98,502	426	348	96.52	
1901..	17,814	4,520	22,334	280	207	98.68	83,059	18,510	101,569	405	331	97.49	
1902..	18,102	4,471	22,573	262	210	98.65	84,063	18,877	102,940	418	341	97.06	
1903..	17,937	4,535	22,472	259	207	98.66	86,172	20,088	106,260	420	341	96.64	

  

Year.	Wales.												
	North Wales coal field.						South Wales coal field. <sup>(b)</sup>						
	Employees.			Quantity of minerals <sup>(a)</sup> produced per employee (long tons).			Per cent of coal of total product.	Employees.			Quantity of minerals <sup>(a)</sup> produced per employee (long tons).		Per cent of coal of total product.
	Below ground.	Above gr'nd.	Total.	Below gr'nd.	Above and below ground.	Below ground.		Above gr'nd.	Total.	Below gr'nd.	Above and below ground.		
1894..	10,382	2,254	12,636	310	255	97.85	106,139	18,394	124,533	317	270	99.23	
1895..	10,044	2,192	12,236	289	237	98.02	107,510	18,625	126,135	310	264	99.10	
1896..	9,488	2,048	11,536	313	257	97.51	106,721	18,421	125,142	319	273	99.26	
1897..	9,595	2,069	11,664	314	258	97.14	107,880	18,960	126,740	334	285	99.26	
1898..	9,470	2,063	11,533	348	286	97.09	109,068	19,725	128,813	247	209	99.37	
1899..	9,804	2,204	12,008	335	273	97.33	111,981	20,701	132,682	358	302	99.46	
1900..	10,295	2,334	12,629	310	253	97.36	124,441	23,211	147,652	318	268	99.51	
1901..	10,899	2,478	13,377	291	237	97.12	127,324	23,070	150,394	309	262	99.61	
1902..	10,871	2,471	13,342	300	245	97.19	131,062	23,509	154,571	317	268	99.57	
1903..	10,876	2,372	13,248	300	246	97.54	135,317	23,844	159,161	313	266	99.53	

<sup>a</sup> Coal, ironstone, fire clay, etc.

<sup>b</sup> Includes the coal mines in Monmouthshire, England.

<sup>c</sup> Based upon the totals shown in the report, this number should be 320.



420 SPECIAL REPORT OF THE COMMISSIONER OF LABOR.

NUMBER OF EMPLOYEES IN AND ABOUT COAL MINES, AND PRODUCT PER EMPLOYEE, IN THE UNITED KINGDOM, BY PRINCIPAL COAL FIELDS, 1894 TO 1903—  
Concluded.

[Source: 1894 to 1896, Annual General Reports upon the Mineral Industry; 1897 to 1903, Mines and Quarries: General Reports and Statistics, 1897-1903. The percentages were computed.]

Year.	Irish coal fields.					Per cent of coal of total product.	United Kingdom.					Per cent of coal of total product.
	Employees.			Quantity of minerals <sup>(a)</sup> produced per employee (long tons).			Employees.			Quantity of minerals <sup>(a)</sup> produced per employee (long tons).		
	Below ground.	Above gr'nd.	Total.	Below gr'nd.	Above and below ground.		Below ground.	Above gr'nd.	Total.	Below gr'nd.	Above and below ground.	
1894..	704	244	948	168	125	94.94	559,824	133,266	693,090	342	277	98.24
1895..	711	244	955	<sup>b</sup> 103	137	96.32	554,017	133,354	687,371	349	<sup>c</sup> 283	98.05
1896..	736	235	971	183	139	96.01	545,572	133,118	678,690	<sup>d</sup> 366	294	97.97
1897..	768	245	1,013	186	141	94.47	547,203	134,328	681,531	377	303	97.90
1898..	715	266	981	192	140	94.92	556,364	137,297	693,661	371	297	97.92
1899..	733	260	993	179	132	95.54	571,806	143,399	715,205	393	314	98.06
1900..	737	260	997	173	128	97.66	613,541	153,360	766,901	374	300	98.02
1901..	719	214	933	151	116	95.02	636,400	156,248	792,648	350	281	98.33
1902..	609	169	778	187	146	95.49	651,505	159,282	810,787	355	285	98.28
1903..	590	171	761	186	144	93.67	666,144	162,824	828,968	352	283	98.21

<sup>a</sup> Coal, ironstone, fire clay, etc.

<sup>b</sup> Based upon the totals shown in the report, this number should be 183.

<sup>c</sup> Based upon the totals shown in the report, this number should be 281.

<sup>d</sup> Based upon the totals shown in the report, this number should be 365.

The Yorkshire coal field gave employment to the greatest number of persons during each of the ten years, and with the exception of the year 1894 it produced the greatest quantity of coal. As regards the production per employee, however, it ranked fourth and fifth among the nine coal fields of the United Kingdom during the period. The Northern coal field ranked second in production and number of employees during nine of the ten years, but generally ranked third as regards the production per employee. Next in rank with regard to production and persons employed during almost the entire period was the South Wales coal field. With regard to the product per employee it ranked from fourth to eighth at different times during the period. The Scotch coal fields ranked fourth in quantity of output and number of employees during almost the entire period, and generally ranked first with regard to the product per employee. The remaining coal fields, namely, the Lancashire and Cheshire field, the Midland fields, the small detached fields, the North Wales field, and the Irish fields, ranked fifth, sixth, seventh, eighth, and ninth, respectively, in total output and persons employed. With regard to the product per employee, the Midland coal fields generally ranked second, the Lancashire and Cheshire field from fourth to sixth, the North Wales coal field seventh, the small detached coal fields eighth, and the Irish coal fields ninth.



Official statistics of the age and sex of employees are somewhat fragmentary. In 1887 a report was published by the British home office on Women and Girls and Men and Boys Employed in Connection with Mines, which contains statistics showing for the period from 1874 to 1886 the number of boys, by age periods, and adult males employed above and below ground, and the number of girls, by age periods, and adult females engaged in surface work about mines. Following is a summary of these statistics:

NUMBER OF EMPLOYEES IN AND ABOUT MINES CLASSED UNDER THE BRITISH COAL MINES REGULATION ACT, BY SEX AND AGE GROUPS, 1874 TO 1886.

[Source: Parliamentary Report on Women and Girls and Men and Boys Employed in Connection with Mines, 1887.]

Year.	Employees above ground.								Total.
	Males.				Females.				
	10 to 13 years of age.	13 to 16 years of age.	16 years of age or over.	Total.	10 to 13 years of age.	13 to 16 years of age.	16 years of age or over.	Total.	
1874.....	1,738	7,684	93,897	103,319	22	797	6,060	6,899	110,218
1875.....	1,520	7,735	93,069	102,324	10	739	5,755	6,504	108,828
1876.....	1,305	7,527	90,416	99,248	10	580	5,465	6,055	105,303
1877.....	1,064	7,352	85,552	93,968	20	545	4,813	5,378	99,366
1878.....	752	6,873	79,769	87,394	21	433	4,502	4,956	92,350
1879.....	671	6,572	79,546	86,789	9	502	4,331	4,842	91,631
1880.....	552	7,037	81,323	88,912	10	354	4,276	4,640	93,552
1881.....	438	7,570	83,367	91,375	2	353	4,360	4,715	96,090
1882.....	491	8,066	84,586	93,143	1	307	4,344	4,652	97,796
1883.....	410	8,484	84,864	93,758	1	288	4,190	4,479	98,237
1884.....	372	8,419	84,894	93,685	3	329	4,126	4,458	98,143
1885.....	302	8,226	83,610	92,138	3	254	4,046	4,303	96,441
1886.....	307	8,236	83,434	91,977	1	276	3,854	4,131	96,108

  

Year.	Male employees below ground.					Total employees above and below ground.
	10 to 12 years of age.	12 to 13 years of age.	13 to 16 years of age.	16 years of age or over.	Total.	
1874.....	919	10,137	51,219	366,336	428,611	538,839
1875.....	694	9,283	48,562	368,478	427,017	535,845
1876.....	565	8,655	45,175	354,834	409,229	514,532
1877.....	561	7,585	42,571	344,308	395,025	494,391
1878.....	474	5,798	38,559	338,148	382,979	475,329
1879.....	446	4,881	35,993	343,859	385,179	476,810
1880.....	428	4,868	36,162	349,923	391,381	484,933
1881.....	404	3,936	36,393	358,654	399,387	495,477
1882.....	390	3,584	36,914	365,314	406,192	503,987
1883.....	340	3,427	37,353	375,578	416,696	514,933
1884.....	340	3,364	37,032	381,497	422,233	520,376
1885.....	290	3,712	36,882	383,307	424,191	520,632
1886.....	311	3,697	36,480	383,374	423,862	519,970

The employment of females below ground and of males under 10 years of age at mine labor was prohibited by act of Parliament in 1842. Later, in 1887, the age limit of males was raised to 12 years. In 1900 an act was passed prohibiting the employment of boys under 13 years of age in underground work in mines.

During the period from 1874 to 1886, while the employment of male children from 10 to 12 years in underground work was permitted, the number so employed decreased from 919 in 1874 to 311 in 1886, or 66.2 per cent. During the same period the number of boys from 12 to 13 years of age employed underground decreased from 10,137 to 3,697, or 63.5 per cent, and those from 13 to 16 decreased from 51,219 to 36,480, or 28.8 per cent. On the other hand, the number of underground employees 16 years of age or over increased from 366,336 in 1874 to 383,374 in 1886, or 4.7 per cent, while the total number of underground employees shows a slight decrease for the period. In surface work there seemed also to be a tendency to dispense with the labor of young children, the number from 10 to 13 years of age having decreased from 1,738 in 1874 to 307 in 1886 in the case of boys, and from 22 to 1 in the case of girls. The number of surface employees from 13 to 16 years of age shows an increase from 7,684 in 1874 to 8,236 in 1886 in the case of boys, and a decrease from 797 to 276 in the case of girls. The number 16 years of age or over showed a decrease from 93,897 in 1874 to 83,434, or 11.1 per cent in the case of males, and from 6,080 to 3,854, or 36.6 per cent in the case of females.

For the period from 1887 to 1893, inclusive, no statistics of the age of mine employees are available, but the sex of persons employed in and about mines coming under the Coal Mines Regulation Act can be shown, as follows:

NUMBER OF EMPLOYEES IN AND ABOUT MINES CLASSED UNDER THE BRITISH COAL MINES REGULATION ACT, BY SEX, 1887 TO 1893.

[Source: Mines and Quarries: General Report and Statistics, 1902.]

Year.	Employees above ground.			Male employees below ground.	Total employees above and below ground.
	Males.	Females.	Total.		
1887.....	93,554	4,183	97,737	428,540	526,277
1888.....	106,024	4,258	110,282	438,902	549,184
1889.....	113,868	4,341	118,209	463,600	581,809
1890.....	121,071	4,497	125,568	506,812	632,380
1891.....	127,143	4,749	131,892	536,091	667,983
1892.....	129,459	4,871	134,330	549,312	683,642
1893.....	128,545	4,725	133,270	549,738	683,008

During this period there was an almost steady increase in the total number of employees from 526,277 in 1887 to 683,008 in 1893. The male employees increased from 522,094 to 678,283, or 29.9 per cent, and the females from 4,183 to 4,725, or 13.0 per cent.

Since 1894 the annual general reports on mines and quarries published by the British home office contain statistics of coal mine employees by age and sex. These figures are not exactly comparable

with the preceding, as they do not include employees of all mines coming under the Coal Mines Regulation Act, but only of such mines as are engaged in actual coal mining. The number includes, however, persons engaged in raising minerals other than coal found in coal mines. The following table shows for the United Kingdom the number of males and females employed in and about coal mines from 1894 to 1903, by age periods:

NUMBER OF EMPLOYEES IN AND ABOUT COAL MINES IN THE UNITED KINGDOM, BY SEX AND AGE GROUPS, 1894 TO 1903

[Source: 1894 to 1896, Annual General Reports upon the Mineral Industry; 1897 to 1903, Mines and Quarries: General Reports and Statistics, 1897-1903. The figures relate to employees in and about coal mines only, but include those engaged in raising minerals other than coal from such mines.]

Year.	Employees above ground.								Male employees below ground.			Total employees above and below ground.	
	Males.				Females.				Total.	12 to 16 years of age.	16 years of age or over.		
	12 to 13 years of age.	13 to 16 years of age.	16 years of age or over.	Total.	12 to 13 years of age.	13 to 16 years of age.	16 years of age or over.	Total.					
1894...	145	11,496	117,150	128,800	2	448	4,016	4,466	133,266	46,005	513,129	559,824	693,090
1895...	150	11,576	116,809	128,625	2	537	4,190	4,729	133,354	44,255	509,762	554,017	687,371
1896...	197	12,179	116,319	128,695	9	409	3,915	4,423	133,118	42,044	503,528	545,572	678,000
1897...	148	12,660	117,113	129,921	6	552	3,849	4,407	134,328	42,568	504,635	547,203	681,531
1898...	156	12,368	119,202	132,726	6	622	3,943	4,571	137,297	42,749	513,615	556,364	693,661
1899...	102	14,116	124,527	138,745	2	704	3,948	4,654	143,399	44,293	527,513	571,806	715,205
1900...	75	14,647	133,868	148,590	.....	674	4,096	4,770	153,360	47,144	566,307	613,541	766,901
1901...	<sup>a</sup> 2,926	<sup>b</sup> 11,649	136,544	151,119	<sup>a</sup> 47	<sup>b</sup> 696	4,398	5,129	156,248	<sup>c</sup> 45,322	591,078	636,400	792,648
1902...	<sup>a</sup> 2,729	<sup>b</sup> 11,587	139,687	154,003	<sup>a</sup> 45	<sup>b</sup> 841	4,393	5,279	159,282	<sup>c</sup> 45,112	606,393	651,505	810,787
1903...	<sup>a</sup> 2,911	<sup>b</sup> 11,694	142,896	157,501	<sup>a</sup> 42	<sup>b</sup> 735	4,546	5,323	162,824	<sup>c</sup> 44,806	621,338	666,144	828,968

<sup>a</sup> From 12 to 14 years of age.    <sup>b</sup> From 14 to 16 years of age.    <sup>c</sup> From 13 to 16 years of age.

From 1894 to 1903 there was an increase from 693,090 to 828,968 employees, or 19.6 per cent. There was a decrease of 4.0 per cent in the number of males under 16 years of age employed at underground work, but an increase of 25.5 per cent in the number of boys and of 72.7 per cent in the number of girls under 16 years of age employed at surface work, while the number of females 16 years of age or over increased 13.2 per cent. During the period the total employees above ground increased 22.2 per cent, hence the relative number of girls employed at surface work increased more rapidly than any other class of surface employees.

Although these increases are shown when the first and last years of the period are compared, there is but little change in the proportion of employees in each sex and age group from year to year. This fact is illustrated by the following table, which shows the per cent of employees of each class of the total number of persons employed in coal mines during each year from 1894 to 1903. The computations are based upon the preceding table.

## PERCENTAGE OF MALE AND FEMALE COAL MINE EMPLOYEES IN THE UNITED KINGDOM, IN EACH AGE GROUP, 1894 TO 1903.

[Source: Computed from preceding table.]

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Year.	Employees above ground.				Male employees below ground.			Total employ-ees above and below ground.	
	Males.		Females.		Total.	12 to 16 years of age.	16 years of age or over.		
	12 to 16 years of age.	16 years of age or over.	12 to 16 years of age.	16 years of age or over.					
1894.....	1.68	16.90	0.07	0.58	19.23	6.74	74.03	80.77	100.00
1895.....	1.70	17.01	.08	.61	19.40	6.44	74.16	80.60	100.00
1896.....	1.82	17.14	.07	.58	19.61	6.20	74.19	80.39	100.00
1897.....	1.88	17.18	.08	.57	19.71	6.25	74.04	80.29	100.00
1898.....	1.95	17.18	.09	.57	19.79	6.16	74.05	80.21	100.00
1899.....	1.99	17.41	.10	.55	20.05	6.19	73.76	79.95	100.00
1900.....	1.92	17.46	.09	.53	20.00	6.15	73.85	80.00	100.00
1901.....	1.84	17.23	.09	.55	19.71	6.57	74.57	80.29	100.00
1902.....	1.77	17.23	.11	.54	19.65	6.56	74.79	80.35	100.00
1903.....	1.76	17.24	.09	.55	19.64	6.41	74.95	80.36	100.00

a From 13 to 16 years of age.

## WAGES.

Owing to the complicated system of wage payments in the mines of the United Kingdom, there are no statistics showing from year to year the actual weekly wage rates or annual earnings of coal mine employees. While there are official statistics of wages paid at different times during the past century, there are no continuous series covering in any case more than a few years, and even where they do occur for the earlier years they relate only to a few individual mines or mine districts. Furthermore, there are so many circumstances to be considered in comparing such wage statistics, especially in coal mining, as, for instance, the diversity of the systems of wage payments, the methods adopted in securing the wage data, the hours of labor, the various conditions under which mine labor was carried on at different times and in different localities, etc., that a reproduction of the fragmentary statistics available would not convey a fair idea of the actual wage conditions. Even the official statistics of wages published in recent years, excepting those secured in October, 1886, and the changes published from year to year, are only rough estimates.

No better idea of the systems of wage payments in the coal mines of the United Kingdom can be given than is conveyed in the following extract from a recent official report of the British Board of Trade: (a)

Both time work and piecework systems prevail among coal miners, the hewers being almost invariably paid by the piece, while the majority of other underground workers, nearly all surface men, and most lads and boys are paid by time, although in some districts,

a Report on Standard Piece Rates of Wages and Sliding Scales in the United Kingdom 1900.

e. g., Northumberland, putters and some other underground workers are paid by the piece.

There are no definite statistics showing the numbers of those paid by the piece and by the day in coal mining. The returns of wages paid to miners in 1886, collected by the board of trade, furnish, however, some material from which a rough estimate may be made of the relative proportions of piece and time workers. These returns cover a total of 78,646 persons employed in coal and iron mining, of whom 40,464 (°) were employed by the piece and 36,553 (°) by the day. Applying the proportion thus obtained to the number of persons shown by the returns of the miners' inspectors to be employed in and about coal mines in 1898, the figures would show that about 364,000 persons were working by piece and 329,000 by day rates. There are no generally recognized piece lists applicable to whole districts in the coal-mining industry, the prices varying not only from colliery to colliery, but often in different parts of the same colliery, owing to the great variety of circumstances under which the coal has to be got. Thus, when general or district advances or reductions of wages are made, they are not based upon any uniformly recognized standard, but upon the standards prevailing at the separate collieries. In Northumberland and Durham, however, "county averages" have been agreed to, which are used as a guide in the framing of piece price lists. In these counties joint committees of representatives of the employers and work people exist, to whom appeal may be made in the event of prices being fixed which result in earnings varying above or below certain limits from the recognized average. Therefore, such printed price lists as exist in the coal trade are applicable to particular collieries only. [Specimens of piece price lists are here reproduced.]

The piece lists \* \* \* are all strictly local, but percentage changes on the prices given therein are usually made simultaneously and uniformly over large districts, the general method of arrangement being by a permanent conciliation or wages board. Such boards at present regulate wages in Northumberland, Durham, the Federated districts (Lancashire, Yorkshire, Midlands, etc.), South Staffordshire, and East Worcestershire, and Scotland. In South Wales wages are regulated by a sliding scale.

Whatever the process be by which a percentage rise or fall in wages is arranged in a particular district, the percentage is usually calculated not on existing rates, but on the rates actually paid in a particular year (usually 1879 or 1888) at the various collieries, i. e., on the piece prices in the various colliery lists for that year. These rates form the "standard" on which, as a rule, all changes are calculated. As regards districts in which general changes of wages are brought about by mutual negotiations, either directly or through the medium of a wages board, there is no need to go into further details.

The changes in the piece price lists that have taken place in the various collieries of Great Britain during the past 30 years have usually been based upon the standards of 1871, 1879, and 1888.

° In addition to these numbers, 1,629 lads and boys are returned as working time and piece, it not being possible to separate them. They were coal hewers' assistants.

These changes have been reported from time to time in the British reports. In the following table, reproduced from recent reports, is shown for each of the principal districts the percentage of coal hewers' wages above or below these standards at the end of each of the years 1871 to 1903, inclusive. The hewer is the miner who cuts the coal.

PER CENT OF INCREASE IN COAL HEWERS' WAGES AT THE CLOSE OF EACH YEAR OF THE PERIODS, 1871 TO 1878, 1879 TO 1887, AND 1888 TO 1901, AS COMPARED WITH THE STANDARDS OF 1871, 1879, AND 1888, RESPECTIVELY, BY DISTRICTS.

[Source: 1871 to 1900, Report on Standard Time Rates of Wages in the United Kingdom in 1900; 1901, 1902, 1903, Ninth, Tenth, and Eleventh Annual Reports on Changes in Rates of Wages and Hours of Labor. In the South Staffordshire and East Worcestershire district, 3s. 4d. (81.1 cents) per nominal day was used as the basis for all percentage changes during the entire period. In the Forest of Dean, the percentages up to 1887 are based upon the standard of 1871. In the other coal mine districts of England and Wales the standard wage of 1879 was, with four exceptions, the same as the wage paid at the end of 1878, hence the relation between the standard of 1879 and that of 1871 is indicated by the rate per cent by which wages at the end of 1878 were above or below the standard of 1871. The four exceptions are—Durham, where the standard of 1879 was 10.01 per cent below the standard of 1871, instead of 0.13 per cent, as at the end of 1878; Nottingham and Somerset, where the standards of 1871 and 1879 were the same, and South Wales and Monmouth, where the standard of 1879 was 15 per cent below that of 1871, instead of 5 per cent, as at the end of 1878. The percentages for Northumberland, Durham, Cumberland, and South Wales and Monmouth for the years 1888 to 1903 are based upon the standard of 1879. For the other districts in which a new standard was adopted in 1888 the wages shown at the end of 1887 were taken as the standard except in the case of the Forest of Dean, where the standard of 1888 was 5 per cent below that of 1871, and Somerset, where the standards of 1871 and 1888 were the same.]

## STANDARD OF 1871.

District.	Percentage above standard at end of year—							
	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
<b>FEDERATED DISTRICTS OF ENGLAND AND WALES. (c)</b>								
West Yorkshire.....	8.25	56.40	79.80	57.40	34.85	18.00	10.33	5.86
South Yorkshire.....	10.00	37.50	57.50	37.50	27.50	11.50	5.00	(b)
Southwest Lancashire.....	10.00	49.75	64.73	26.02	26.02	7.12	c 3.59	c 3.59
South Derbyshire.....	7.14	30.95	30.95	66.66	50.00	27.62	16.66	4.76
Nottinghamshire.....	6.00	46.00	70.00	55.00	25.00	25.00	15.00	5.00
North Staffordshire.....	10.00	33.00	46.00	21.00	8.50	c 1.50	c 11.50	c 11.50
Cannock Chase.....	7.14	14.29	28.57	(b)	(b)	c 7.14	c 21.42	c 28.57
North Wales.....	5.00	33.70	47.07	32.36	1.26	c 8.96	c 8.96	c 8.96
<b>OTHER DISTRICTS IN ENGLAND AND WALES.</b>								
Northumberland.....	(b)	32.00	50.00	26.00	16.00	(b)	c 12.50	c 21.25
Durham.....	(b)	38.00	58.70	30.00	23.50	7.97	c 13	c 13
Cumberland.....	5.25	54.00	54.00	34.00	14.00	5.00	5.00	5.00
South Staffordshire and East Worcester- shire (part of).....	50.00	50.00	65.00	20.00	20.00	5.00	c 10.00	c 10.00
Forest of Dean.....	5.00	30.00	40.00	25.00	15.00	10.00	(b)	c 5.00
Somerset.....	(b)	40.00	60.00	36.50	21.25	10.00	5.00	5.00
South Wales and Monmouth.....	(b)	30.00	40.00	20.00	7.50	(b)	(b)	c 5.00
<b>SCOTLAND.</b>								
East Scotland.....	22.22	88.88	88.88	22.22	(b)	c 12.50	c 27.50	c 42.50
West Scotland.....	(b)	55.50	122.20	59.72	18.06	4.17	c 8.34	c 29.17
Mid and East Lothian.....	22.22	88.88	88.88	22.22	(b)	4.50	c 10.00	c 30.00

<sup>a</sup> The federated districts include Yorkshire, Lancashire, Cheshire, Derbyshire, Nottinghamshire, Leicestershire, Warwickshire, Shropshire, North Wales, and part of Staffordshire and Worcestershire.

<sup>b</sup> At standard or basis.

<sup>c</sup> Below standard.



PER CENT OF INCREASE IN COAL HEWERS' WAGES AT THE CLOSE OF EACH YEAR OF THE PERIODS, 1871 TO 1878, 1879 TO 1887, AND 1888 TO 1901, AS COMPARED WITH THE STANDARDS OF 1871, 1879, AND 1888, RESPECTIVELY, BY DISTRICTS—Continued.

[Source: 1871 to 1900, Report on Standard Time Rates of Wages in the United Kingdom in 1900; 1901, 1902, 1903, Ninth, Tenth, and Eleventh Annual Reports on Changes in Rates of Wages and Hours of Labor. In the South Staffordshire and East Worcestershire district, 3s. 4d. (81.1 cents) per nominal day was used as the basis for all percentage changes during the entire period. In the Forest of Dean, the percentages up to 1887 are based upon the standard of 1871. In the other coal mine districts of England and Wales the standard wage of 1879 was, with four exceptions, the same as the wage paid at the end of 1878, hence the relation between the standard of 1879 and that of 1871 is indicated by the rate per cent by which wages at the end of 1878 were above or below the standard of 1871. The four exceptions are—Durham, where the standard of 1879 was 10.01 per cent below the standard of 1871, instead of 0.13 per cent as at the end of 1878; Nottingham and Somerset, where the standards of 1871 and 1879 were the same, and South Wales and Monmouth, where the standard of 1879 was 15 per cent below that of 1871, instead of 5 per cent, as at the end of 1878. The percentages for Northumberland, Durham, Cumberland, and South Wales and Monmouth for the years 1888 to 1903 are based upon the standard of 1879. For the other districts in which a new standard was adopted in 1888 the wages shown at the end of 1887 were taken as the standard except in the case of the Forest of Dean, where the standard of 1888 was 5 per cent below that of 1871, and Somerset, where the standards of 1871 and 1888 were the same.]

STANDARD OF 1879.

District.	Percentage above standard at end of year—								
	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.
<b>FEDERATED DISTRICTS OF ENGLAND AND WALES. (a)</b>									
West Yorkshire.....	(b)	c 2.50	c 2.50	7.50	7.50	7.50	c 2.50	c 2.50	c 2.50
South Yorkshire.....	(b)	(b)	(b)	10.00	10.00	10.00	(b)	(b)	(b)
Southwest Lancashire.....	(b)	(b)	10.00	21.00	21.00	8.90	8.90	8.90	8.90
South Derbyshire.....	(b)	(b)	(b)	10.00	10.00	(b)	(b)	(b)	(b)
Nottinghamshire.....	(b)	(b)	(b)	10.00	10.00	10.00	10.00	10.00	10.00
North Staffordshire.....	10.00	(b)	5.00	15.00	15.00	15.00	5.00	(b)	(b)
Cannock Chase.....	(b)	(b)	5.55	11.11	5.55	5.55	5.55	5.55	5.55
North Wales.....	(b)	(b)	7.50	15.00	15.00	15.00	15.00	15.00	15.00
<b>OTHER DISTRICTS IN ENGLAND AND WALES.</b>									
Northumberland.....	(b)	(b)	(b)	(b)	5.00	3.75	1.25	(b)	c 12.50
Durham.....	(b)	2.50	2.50	6.25	7.50	6.25	5.00	3.75	3.75
Cumberland.....	5.00	2.50	10.00	15.00	8.75	5.00	3.75	1.25	5.00
South Staffordshire and East Worcestershire (part of).....	c 2.50	c 10.00	c 2.50	10.00	10.00	(b)	(b)	(b)	(b)
Forest of Dean.....	c 5.00	c 5.00	c 5.00	c 5.00	c 5.00	c 5.00	(b)	c 2.50	(b)
Somerset.....	5.00	(b)	5.00	7.50	5.00	5.00	5.00	(b)	5.00
South Wales and Monmouth.....	(b)	5.00	10.00	15.00	17.50	17.50	10.00	5.00	2.50
<b>SCOTLAND.</b>									
East Scotland.....	30.00	15.00	15.00	25.00	25.00	5.00	c 5.00	c 15.00	c 5.00
West Scotland.....	18.75	6.25	6.25	18.75	31.25	6.25	6.25	c 6.25	c 2.00
Mid and East Lothian.....	25.00	10.00	10.00	20.00	30.00	5.00	5.00	c 5.00	c 5.00

STANDARD OF 1888.

District.	Percentage above standard at end of year—								
	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	
<b>FEDERATED DISTRICTS OF ENGLAND AND WALES. (a)</b>									
West Yorkshire.....	10.00	20.00	40.00	40.00	40.00	40.00	30.00	30.00	
South Yorkshire.....	10.00	20.00	40.00	40.00	40.00	40.00	30.00	30.00	
Southwest Lancashire.....	10.00	20.00	40.00	40.00	40.00	40.00	30.00	30.00	
South Derbyshire.....	10.00	20.00	40.00	40.00	40.00	40.00	30.00	30.00	
Nottinghamshire.....	10.00	20.00	40.00	40.00	40.00	40.00	30.00	30.00	
North Staffordshire.....	10.00	20.00	40.00	40.00	40.00	40.00	30.00	30.00	
Cannock Chase.....	10.00	20.00	40.00	40.00	40.00	40.00	30.00	30.00	
North Wales.....	10.00	20.00	40.00	40.00	40.00	40.00	30.00	30.00	
<b>OTHER DISTRICTS IN ENGLAND AND WALES.</b>									
Northumberland.....	c 7.50	20.00	31.25	30.00	20.00	20.00	17.50	7.50	
Durham.....	3.75	25.00	30.00	35.00	25.00	25.00	25.00	15.00	
Cumberland.....	10.00	30.00	40.00	40.00	40.00	40.00	30.00	30.00	
South Staffordshire and East Worcestershire (part of).....	10.00	30.00	40.00	40.00	40.00	40.00	30.00	30.00	
Forest of Dean.....	10.00	20.00	30.00	32.50	32.50	32.50	22.50	15.00	
Somerset.....	7.50	20.00	30.00	32.50	32.50	32.50	22.50	15.00	
South Wales and Monmouth.....	7.50	25.00	52.50	53.75	22.50	20.00	21.25	12.50	
<b>SCOTLAND.</b>									
East Scotland.....	5.00	37.50	50.00	50.00	25.00	37.50	25.00	12.50	
West Scotland.....	8.33	50.00	50.00	50.00	25.00	50.00	25.00	12.50	
Mid and East Lothian.....	10.00	40.00	50.00	50.00	30.00	50.00	30.00	20.00	

<sup>a</sup> The federated districts include Yorkshire, Lancashire, Cheshire, Derbyshire, Nottinghamshire, Leicestershire, Warwickshire, Shropshire, North Wales, and part of Staffordshire and Worcestershire.  
<sup>b</sup> At standard or basis.  
<sup>c</sup> Below standard.

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PER CENT OF INCREASE IN COAL HEWERS' WAGES AT THE CLOSE OF EACH YEAR OF THE PERIODS, 1871 TO 1878, 1879 TO 1887, AND 1888 TO 1901, AS COMPARED WITH THE STANDARDS OF 1871, 1879, AND 1888, RESPECTIVELY, BY DISTRICTS—Concluded.

[Source: 1871 to 1900, Report on Standard Time Rates of Wages in the United Kingdom in 1900; 1901, 1902, 1903, Ninth, Tenth, and Eleventh Annual Reports on Changes in Rates of Wages and Hours of Labor. In the South Staffordshire and East Worcestershire district, 3s. 4d. (81.1 cents) per nominal day was used as the basis for all percentage changes during the entire period. In the Forest of Dean, the percentages up to 1887 are based upon the standard of 1871. In the other coal mine districts of England and Wales the standard wage of 1879 was, with four exceptions, the same as the wage paid at the end of 1878, hence the relation between the standard of 1879 and that of 1871 is indicated by the rate percent by which wages at the end of 1878 were above or below the standard of 1871. The four exceptions are—Durham, where the standard of 1879 was 10.01 per cent below the standard of 1871, instead of 0.13 per cent as at the end of 1878; Nottingham and Somerset, where the standards of 1871 and 1879 were the same, and South Wales and Monmouth, where the standard of 1879 was 15 per cent below that of 1871, instead of 5 per cent, as at the end of 1878. The percentages for Northumberland, Durham, Cumberland, and South Wales and Monmouth for the years 1888 to 1903 are based upon the standard of 1879. For the other districts in which a new standard was adopted in 1888 the wages shown at the end of 1887 were taken as the standard except in the case of the Forest of Dean, where the standard of 1888 was 5 per cent below that of 1871, and Somerset, where the standards of 1871 and 1888 were the same.]

STANDARD OF 1888—Concluded.

District.	Percentage above standard at end of year—							
	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
<b>FEDERATED DISTRICTS OF ENGLAND AND WALES. (a)</b>								
West Yorkshire.....	30.00	30.00	32.50	40.00	50.00	60.00	50.00	45.00
South Yorkshire.....	30.00	30.00	32.50	40.00	50.00	60.00	50.00	45.00
Southwest Lancashire.....	30.00	30.00	32.50	40.00	50.00	60.00	50.00	45.00
South Derbyshire.....	30.00	30.00	32.50	40.00	50.00	60.00	50.00	45.00
Nottinghamshire.....	30.00	30.00	32.50	40.00	50.00	60.00	50.00	45.00
North Staffordshire.....	30.00	30.00	32.50	40.00	50.00	60.00	50.00	45.00
Cannock Chase.....	30.00	30.00	32.50	40.00	50.00	60.00	50.00	45.00
North Wales.....	30.00	30.00	32.50	40.00	50.00	60.00	50.00	45.00
<b>OTHER DISTRICTS IN ENGLAND AND WALES.</b>								
Northumberland.....	3.75	6.25	18.75	25.00	61.25	38.75	26.25	23.75
Durham.....	15.00	17.50	25.00	33.75	65.00	40.00	33.75	32.50
Cumberland.....	30.00	30.00	32.50	40.00	60.00	60.00	50.00	40.00
South Staffordshire and East Worcester- shire (part of).....	30.00	30.00	32.50	40.00	50.00	60.00	50.00	45.00
Forest of Dean.....	15.00	15.00	17.50	35.00	50.00	b40.00	c35.00	d30.00
Somerset.....	15.00	15.00	20.00	27.50	42.50	e47.50	f35.00	g30.00
South Wales and Monmouth.....	10.00	11.25	20.00	30.00	73.75	66.25	48.75	43.75
<b>SCOTLAND.</b>								
East Scotland.....	(f)	12.50	42.50	53.75	97.50	47.50	41.25	37.50
West Scotland.....	12.50	12.50	50.00	56.25	100.00	50.00	43.75	37.50
Mid and East Lothian.....	10.00	20.00	50.00	56.25	100.00	50.00	43.75	37.50

a The federated districts include Yorkshire, Lancashire, Cheshire, Derbyshire, Nottinghamshire, Leicestershire, Warwickshire, Shropshire, North Wales, and part of Staffordshire and Worcestershire.

b At 4 collieries the percentage above standard was stated to be 35 per cent.

c At certain collieries 30 per cent above standard.

d At certain collieries 25 per cent above standard.

e Radstock district.

f At standard or basis.

In order to convey a better idea of the course of wages given in the preceding table, the figures for each of the coal fields above enumerated have, where possible, been reduced to a uniform percentage basis for the entire period from 1871 to 1903, the standard of 1871 being represented by 100. The following table is the result of such a computation:

RELATIVE WAGES OF COAL HEWERS IN ENGLAND AND WALES, 1871 TO 1903.

[Source: Computed from the preceding table. The standard of 1871=100.0.]

End of year.	Federated districts of England and Wales.							
	West York- shire.	South York- shire.	South- west Lanca- shire.	South Derby- shire.	Notting- ham- shire.	North Stafford- shire.	Cannock Chase.	North Wales.
1871	108.25	110.00	110.00	107.14	106.00	110.00	107.14	106.00
1872	156.40	137.50	149.75	130.95	146.00	133.00	114.29	133.70
1873	179.80	157.50	164.73	180.95	170.00	146.00	128.57	147.07
1874	157.40	137.50	126.02	166.66	155.00	121.00	100.00	132.36
1875	134.85	127.50	126.02	150.00	125.00	108.50	100.00	101.26
1876	118.00	111.50	107.12	127.62	125.00	98.50	92.86	91.14
1877	110.33	105.00	96.41	116.66	115.00	88.50	78.58	91.14
1878	105.86	100.00	96.41	104.76	105.00	88.50	71.43	91.14
1879	105.86	100.00	96.41	104.76	100.00	97.35	71.43	91.14
1880	103.21	100.00	96.41	104.76	100.00	88.50	71.43	91.14
1881	103.21	100.00	106.05	104.76	100.00	92.93	75.39	97.98
1882	113.80	110.00	116.66	115.24	110.00	101.78	79.37	104.81
1883	113.80	110.00	116.66	115.24	110.00	101.78	75.39	104.81
1884	113.80	110.00	104.99	104.76	110.00	101.78	75.39	104.81
1885	103.21	100.00	104.99	104.76	110.00	92.93	75.39	104.81
1886	103.21	100.00	104.99	104.76	110.00	88.50	75.39	104.81
1887	103.21	100.00	104.99	104.76	110.00	88.50	75.39	104.81
1888	113.53	110.00	115.49	115.24	121.00	97.35	82.93	115.29
1889	123.85	120.00	125.99	125.71	132.00	106.20	90.47	125.77
1890	144.49	140.00	146.99	146.66	154.00	123.90	105.55	146.73
1891	144.49	140.00	146.99	146.66	154.00	123.90	105.55	146.73
1892	144.49	140.00	146.99	146.66	154.00	123.90	105.55	146.73
1893	144.49	140.00	146.99	146.66	154.00	123.90	105.55	146.73
1894	134.17	130.00	136.49	136.19	143.00	115.05	98.01	136.25
1895	134.17	130.00	136.49	136.19	143.00	115.05	98.01	136.25
1896	134.17	130.00	136.49	136.19	143.00	115.05	98.01	136.25
1897	134.17	130.00	136.49	136.19	143.00	115.05	98.01	136.25
1898	136.75	132.50	139.11	138.81	145.75	117.26	99.99	138.87
1899	144.49	140.00	146.99	146.66	154.00	123.90	105.55	146.73
1900	154.82	150.00	157.49	157.14	165.00	132.75	113.09	157.22
1901	165.14	160.00	167.98	167.62	176.00	141.60	120.62	167.70
1902	154.82	150.00	157.49	157.14	165.00	132.75	113.09	157.22
1903	149.65	145.00	152.24	151.90	159.50	128.33	109.32	151.97

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RELATIVE WAGES OF COAL HEWERS IN ENGLAND AND WALES, 1871 TO 1903—  
Concluded.

[Source: Computed from the preceding table. The standard of 1871=100.0.]  
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End of year.	Other districts in England and Wales.						
	Northumberland.	Durham.	Cumberland.	South Staffordshire and East Worcestershire.	Forest of Dean.	Somerset.	South Wales and Monmouth.
1871.....	100.00	100.00	105.25	150.00	105.00	100.00	100.00
1872.....	132.00	138.00	154.00	150.00	130.00	140.00	130.00
1873.....	150.00	158.70	154.00	165.00	140.00	160.00	140.00
1874.....	126.00	130.00	134.00	120.00	125.00	136.50	120.00
1875.....	116.00	123.50	114.00	120.00	115.00	121.25	107.50
1876.....	100.00	107.97	105.00	105.00	110.00	110.00	100.00
1877.....	87.50	99.87	105.00	90.00	100.00	105.00	100.00
1878.....	78.75	99.87	105.00	90.00	95.00	105.00	95.00
1879.....	78.75	99.99	110.25	97.50	95.00	105.00	85.00
1880.....	78.75	92.24	107.63	90.00	95.00	100.00	89.25
1881.....	78.75	92.24	115.50	97.50	95.00	105.00	93.50
1882.....	78.75	95.61	120.75	110.00	95.00	107.50	97.75
1883.....	82.09	96.74	114.19	110.00	95.00	105.00	99.88
1884.....	81.70	95.61	110.25	100.00	95.00	105.00	99.88
1885.....	79.73	94.49	108.94	100.00	100.00	105.00	93.50
1886.....	78.75	93.36	106.31	100.00	97.50	100.00	89.25
1887.....	68.91	93.36	110.25	100.00	100.00	105.00	87.13
1888.....	72.84	93.36	115.50	110.00	104.50	107.50	91.38
1889.....	94.50	112.49	136.50	130.00	114.00	120.00	106.25
1890.....	103.36	116.99	147.00	140.00	123.50	130.00	129.63
1891.....	102.38	121.49	147.00	140.00	125.88	132.50	130.69
1892.....	94.50	112.49	147.00	140.00	125.88	132.50	104.13
1893.....	94.50	112.49	147.00	140.00	125.88	132.50	102.00
1894.....	92.53	112.49	136.50	130.00	116.38	122.50	103.06
1895.....	84.66	103.49	136.50	130.00	109.25	115.00	95.63
1896.....	81.70	103.49	136.50	130.00	109.25	115.00	93.50
1897.....	83.67	105.74	136.50	130.00	109.25	115.00	94.58
1898.....	93.52	112.49	139.13	132.50	111.63	120.00	102.00
1899.....	98.44	120.36	147.00	140.00	128.25	127.50	110.50
1900.....	126.98	148.48	168.00	150.00	142.50	142.50	147.69
1901.....	109.27	125.99	168.00	160.00	<sup>a</sup> 133.00	<sup>b</sup> 147.50	141.31
1902.....	99.42	120.36	167.50	150.00	<sup>c</sup> 128.25	<sup>d</sup> 135.00	126.44
1903.....	97.45	119.24	147.00	145.00	<sup>d</sup> 123.50	<sup>b</sup> 130.00	122.19

<sup>a</sup> At four collieries 128.25.  
<sup>b</sup> Radstock district.

<sup>c</sup> For certain collieries 123.50.  
<sup>d</sup> For certain collieries 118.75.

The British reports on Changes in Rates of Wages and Hours of Labor published from year to year show, in addition to the percentage changes, the actual changes in wage rates of coal mine employees, together with the number of working people affected. The following table, prepared from these annual reports, shows the number of people affected by changes in wage rates and hours of labor in coal mines, and the net increase or decrease per week for each year from 1893 to 1903:

CHANGES IN WEEKLY RATES OF WAGES AND HOURS OF LABOR OF COAL MINE EMPLOYEES IN THE UNITED KINGDOM, 1893 TO 1903.

[Source: Annual Reports on Changes in Rates of Wages and Hours of Labor, 1893 to 1903. Conversion of English into United States money was made on the basis of £1=\$4.8665.]

Year.	Changes in weekly rates of wages.			Changes in weekly hours of labor.	
	Employees affected.	Total net increase per week.	Average net increase per employee affected. (a)	Employees affected.	Average reduction per employee affected per week.
1893.....	291,647	\$72,266.80	\$0.25		
1894.....	526,065	b 224,729.37	b .43	1,957	
1895.....	313,617	b 154,366.35	b .49	1,280	4.99
1896.....	202,837	b 27,545.61	b .14	174	c 5.36
1897.....	240,331	31,888.96	.13	86	2.86
1898.....	659,919	275,416.89	.42	82	1.44
1899.....	652,654	248,991.80	.38	3,398	3.48
1900.....	680,518	800,410.77	1.18	27,320	5.98
1901.....	704,681	b 277,784.93	b .39	1,036	9.68
1902.....	735,524	b 359,496.23	b .49	526	7.76
1903.....	752,190	b 158,103.83	b .21	58	3.07

a Computed.

b Decrease.

c Increase in weekly hours.

The greater number of employees affected by changes in wages, rates, and hours of labor secured these changes without resorting to strikes. This is illustrated in the two following tables, which show for the period, 1894 to 1903, the number of separate individuals employed in the coal-mining industry who were affected by changes in rates of wages, and the number of separate individuals in all mining industries, including quarrying, who were affected by changes in hours of labor, respectively, classified according to the method by which the changes were arranged:

METHODS BY WHICH CHANGES IN WAGES OF COAL MINE EMPLOYEES WERE ARRANGED IN THE UNITED KINGDOM, 1894 TO 1903.

[Source: Eleventh Annual Report on Changes in Rates of Wages and Hours of Labor, 1903.]

Year.	Separate individuals affected by changes in wages—							
	Without strikes.				After strikes. (a)			
	Under sliding scale.	By conciliation or mediation.	By arbitration.	By mutual arrangement or otherwise.	Total.	By conciliation or mediation.	By mutual arrangement or otherwise.	Total.
1894.....	95,000	330,200		65,462	490,662		35,433	35,433
1895.....	100,000	120,000		93,165	313,165		452	452
1896.....	100,000	30,000		67,362	197,362		5,475	5,475
1897.....	100,000			138,855	238,855		1,476	1,476
1898.....	125,180	10,000		496,134	633,314		26,906	26,906
1899.....	125,000	352,300		174,999	652,299		355	355
1900.....	125,000	461,250	1,000	92,232	679,482		1,086	1,086
1901.....	135,000	488,070		81,324	704,394		287	287
1902.....	140,000	505,272	100	86,380	731,752		3,772	3,772
1903.....	140,000	653,330	14,000	84,600	751,930	250	10	260

a No changes in wages of coal mine employees were effected by arbitration after strikes.

## METHODS BY WHICH CHANGES IN HOURS OF LABOR OF MINE AND QUARRY EMPLOYEES WERE ARRANGED IN THE UNITED KINGDOM, 1894 TO 1903.

[Source: Eleventh Annual Report on Changes in Rates of Wages and Hours of Labor, 1903.]

Separate individuals affected by changes in hours of labor—

Year.	Without strikes.				After strikes. (a)		
	By conciliation or mediation.	By arbitration.	By mutual arrangement or otherwise.	Total.	By conciliation.	By mutual arrangement or otherwise.	Total.
1894.....			1,953	1,953		4	4
1895.....			2,258	2,258		86	86
1896.....			500	500	50	124	174
1897.....		22	101	123		9	9
1898.....			726	726		60	60
1899.....			1,963	1,963		1,815	1,815
1900.....			27,340	27,340		270	270
1901.....	450		179	629	9	434	443
1902.....			460	460		106	106
1903.....			58	58			

<sup>a</sup> No changes in hours of labor of mine and quarry employees were effected by arbitration after strikes.

During the 10-year period from 1894 to 1903 an average of 546,837 employees in coal mines were affected each year by changes in rates of wages. In the case of 98.6 per cent of this number the changes were effected without resorting to strikes. These changes were very largely brought about by means of conciliation and mediation, especially during the last five years of the period. When changes in wage rates were brought about after strikes, they were, except in the year 1903, effected by means other than conciliation or arbitration.

During the same period an average of 3,898 persons were affected each year by changes in hours of labor in the mining and quarrying industries. In the case of 92.4 per cent the changes were brought about without resorting to strikes.

The only comprehensive official statistics of wages of coal miners published by the British Government are the results of a wage census undertaken in 1886, and the subsequent estimates based upon the percentage variations of hewers' wages above or below standard as applied to the wages of all classes of coal mine employees.

In October, 1886, the British Board of Trade undertook an enumeration of wages paid in the various industries of the United Kingdom, in pursuance of a resolution of the House of Commons. The information published,<sup>(a)</sup> as far as it relates to coal mining, shows for about 16 per cent of all employees of coal, iron-ore, and ironstone mines, the number of employees, and the actual or computed weekly wage rates paid for a normal week.

<sup>a</sup> Return of Rates of Wages in the Mines and Quarries in the United Kingdom, 1891.



The figures in the following table, showing, by districts, the average weekly wages paid in a few leading occupations on October 1, 1886, were extracted from this report:

AVERAGE WEEKLY RATES OF WAGES FOR SELECTED OCCUPATIONS IN COAL, IRON-ORE, AND IRONSTONE MINES IN THE UNITED KINGDOM ON OCTOBER 1, 1886, BY DISTRICTS.

Source: Return of Rates of Wages in the Mines and Quarries of the United Kingdom, 1891. The wages quoted are for a full week's work, exclusive of overtime. Conversion of English into United States money was made on the basis of £1 = \$4.8665.]

Districts.	Men.								Boys.	
	Deputy overmen and firemen (time workers).	Coal hewers (piece workers).	Shifters, timbermen, and setters (time workers).	Putters and trammers (piece workers).	Bankmen (time workers).	Screenmen (time workers).	Engine tenters or brakemen (time workers).	General laborers (surface) (time workers).	Drivers (time workers).	Bank and screen boys (time workers).
England and Wales:										
Northumberland and Durham.....	\$7.04	\$6.33	\$5.05	\$4.79	\$5.01	\$4.18	\$5.94	\$4.42	\$1.83	\$2.05
Cumberland and N. W. Lancashire (Furness)....	6.35	6.00	5.29	a 4.68	4.95	4.54	5.62	4.52	.....	2.58
South Lancashire.....	6.96	6.08	b 6.06	4.64	5.03	4.38	6.75	4.62	2.19	.....
Yorkshire (West and South).....	7.12	6.81	6.16	5.54	5.09	b 4.64	6.25	4.74	2.64	1.99
Mid-Derbyshire and Nottinghamshire	6.49	6.49	b 5.82	c 4.18	d 4.44	(e)	6.27	4.36	2.37	2.36
North Staffordshire	7.14	6.18	5.64	4.20	4.60	4.46	6.06	4.22	2.21	2.62
South Stafford, South Derby, Warwick, Leicester, and N. Worcester.	6.57	6.91	5.33	4.26	4.36	4.38	6.50	4.34	2.86	2.62
South Shropshire and South Worcesterhire...	5.45	a 4.50	4.22	a 3.95	4.30	f 3.71	4.70	.....	2.09	.....
North Somersetshire and Forest of Dean.....	4.95	5.37	.....	5.13	d 4.12	(e)	5.13	3.53	.....	.....
Flintshire, Denbighshire, and North Shropshire.....	.....	g 5.21	4.83	.....	d 4.06	(e)	5.54	3.89	.....	2.23
South Wales and Monmouthshire..	6.70	5.50	5.37	6.00	4.64	4.44	5.64	2.96	2.43	2.36
Scotland:										
Lanarkshire, Stirlingshire, and Dunbartonshire.....	5.41	5.52	5.03	4.93	4.29	3.91	5.21	3.83	3.04	2.90
Ayrshire, N. W. Dumfriesshire, and Cantire.....	5.52	5.17	.....	4.64	4.64	4.32	5.52	4.06	2.82	2.37
Fifehire and the Lothians.	5.25	5.27	.....	4.85	4.50	3.97	5.62	3.97	2.53	.....
Ireland:										
Counties Tipperary, Antrim, and Sligo.....	.....	3.83	.....	.....	.....	.....	.....	2.72	.....	.....

a Time workers.  
 b Some pieceworkers included.  
 c Time workers; drivers included.  
 d Including screenmen.  
 e Included with bankmen.  
 f Including tippers.  
 g Including fillers.

The following table shows, for the United Kingdom, the number of employees enumerated on October 1, 1886, and their average weekly rates of wages, by detailed occupations:

AVERAGE WEEKLY RATES OF WAGES OF EMPLOYEES IN AND ABOUT COAL, IRON-ORE, AND IRONSTONE MINES IN THE UNITED KINGDOM, ON OCTOBER 1, 1886, BY DETAILED OCCUPATIONS.

[Source: Return of Rates of Wages in the Mines and Quarries of the United Kingdom, 1891. The wages quoted are for a full week's work, exclusive of overtime. Conversion of English into United States money was made on the basis of £1 = \$4.8665.]

Occupation.	Number employed as per returns.	Average weekly rate of wages.	Occupation.	Number employed as per returns.	Average weekly rate of wages.
<b>Men, underground work:</b>			<b>Men, underground work—</b>		
Overmen—			Concluded.		
\$7.30 or over . . . . .	121	\$10.26	General laborers . . . . .	1,024	\$4.38
\$5.52 or under \$9.73 . . . . .	146	8.92	Unclassified—		
\$7.30 or under \$5.52 . . . . .	211	7.64	Time work—		
Under \$7.30 . . . . .	120	6.14	\$7.30 or over . . . . .	57	7.81
Deputy overmen and firemen . . . . .	1,380	6.57	\$6.08 or under \$7.30 . . . . .	59	6.45
Shot lighters . . . . .	84	5.96	\$4.87 or under \$6.08 . . . . .	857	5.35
Coal hewers, hand . . . . .	397	4.95	\$3.65 or under \$4.87 . . . . .	626	3.95
Coal hewers, hand, piecework . . . . .	30,473	5.96	Under \$3.65 . . . . .	9	3.33
Iron-ore and ironstone miners, hand . . . . .	88	4.06	Piecework—		
Iron-ore and ironstone miners, hand, piecework . . . . .	3,838	5.52	\$7.30 or over . . . . .	183	7.50
Iron-ore miners' laborers . . . . .	244	4.97	\$6.08 or under \$7.30 . . . . .	28	6.65
Clay getters, time and piece work . . . . .	88	5.03	\$4.87 or under \$6.08 . . . . .	80	5.80
Fillers, wagon loaders or bandmen . . . . .	1,556	5.19	\$3.65 or under \$4.87 . . . . .	73	4.06
Fillers, wagon loaders or bandmen, piecework . . . . .	520	5.90	Total . . . . .	54,060	
Corporals . . . . .	16	5.15			
Putters and trammers . . . . .	1,048	4.50	<b>Men, surface and general work:</b>		
piecework . . . . .	1,467	4.95	Inspectors on heap . . . . .	78	6.37
Drivers . . . . .	1,289	4.62	Other inspectors . . . . .	34	5.21
Drivers, piecework . . . . .	160	5.43	Bankmen . . . . .	1,175	4.60
Switch keepers and couplers . . . . .	71	4.78	Bankmen, piecework . . . . .	189	6.85
Incline brakemen . . . . .	363	4.46	Screenmen . . . . .	1,555	4.30
Riders . . . . .	40	5.17	Screenmen, piecework . . . . .	203	4.95
Cagers, onsets or hangers-on . . . . .	574	4.91	Walers, dirt pickers or trimmers . . . . .	132	4.28
Cagers, onsets or hangers-on, piecework . . . . .	167	6.41	Tipplers . . . . .	146	4.18
Wastemen . . . . .	338	5.29	Tipplers, piecework . . . . .	21	5.15
Master shifters . . . . .	62	7.34	Wighmen . . . . .	391	5.17
Shifters, timbermen or setters . . . . .	2,323	5.31	Engine tenters or brakemen . . . . .	1,245	5.80
Shifters, timbermen or setters, piecework . . . . .	152	6.47	Locomotive drivers . . . . .	138	6.23
Spraggers and chockmen . . . . .	10	5.23	Stokers . . . . .	750	4.74
Spraggers and chockmen, piecework . . . . .	44	6.89	Bankriders and incline-men . . . . .	44	4.68
Rolleywaymen or roadmen . . . . .	1,002	5.25	Horse drivers . . . . .	421	4.56
Rolleywaymen or roadmen, piecework . . . . .	43	6.93	Greasers . . . . .	16	4.32
Repairers and ropemen . . . . .	738	5.37	Shaftmen and sinkers . . . . .	144	7.08
Repairers and ropemen, piecework . . . . .	159	7.08	Enginewrights, fitters and boiler-makers—		
Brushers, stonemen, rippers, tunnelers, or driftmen . . . . .	509	5.66	\$10.95 or over . . . . .	13	12.15
Brushers, stonemen, rippers, tunnelers, or driftmen, piecework . . . . .	433	6.67	\$9.73 or under \$10.95 . . . . .	28	9.96
Engine tenters . . . . .	315	5.39	\$5.52 or under \$9.73 . . . . .	14	8.68
Furnacemen (air) . . . . .	114	4.54	\$7.30 or under \$5.52 . . . . .	84	7.46
Pumpmen . . . . .	133	5.33	\$6.08 or under \$7.30 . . . . .	136	6.57
Water leaders . . . . .	35	4.30	Under \$6.08 . . . . .	145	5.43
Lampmen and lamp cleaners . . . . .	57	4.64	Smiths . . . . .	733	5.72
Horsekeepers . . . . .	126	4.70	Smiths' strikers and helpers . . . . .	287	4.30
			Platelayers . . . . .	254	4.64
			Bricklayers . . . . .	136	6.69
			Masons . . . . .	148	5.84
			Sawyers . . . . .	154	5.23
			Carpenters . . . . .	517	5.86
			Wagonwrights . . . . .	152	5.72
			Corvers or tubmenders . . . . .	87	5.01
			Saddlers . . . . .	4	6.14
			Storekeepers and timekeepers . . . . .	91	5.43

AVERAGE WEEKLY RATES OF WAGES OF EMPLOYEES IN AND ABOUT COAL, IRON-ORE, AND IRONSTONE MINES IN THE UNITED KINGDOM, ON OCTOBER 1, 1886, BY DETAILED OCCUPATIONS—Concluded.

[Source: Return of Rates of Wages in the Mines and Quarries of the United Kingdom, 1891. The wages quoted are for a full week's work, exclusive of overtime. Conversion of English into United States money was made on the basis of £1=\$4.8665.]

Occupation.	Number employed as per returns.	Average weekly rate of wages.	Occupation.	Number employed as per returns.	Average weekly rate of wages.
Men, surface and general work—Concluded.			Boys, underground work—Concluded.		
Powder-magazine keepers.....	13	\$4.89	Pump lads and boys.....	16	\$2.47
Lampmen and lamp cleaners—			Water leaders.....	37	2.52
\$4.87 or over.....	35	5.41	Lamp cleaners.....	20	2.18
Under \$4.87.....	54	3.99	Unclassified—		
Horsekeepers.....	216	4.83	Time work—		
Watchmen.....	29	4.16	\$3.65 or over.....	48	3.69
Gatekeepers.....	18	3.14	\$2.43 or under		
Gasmakers.....	11	5.70	\$3.65.....	338	2.96
Stalthmen.....	10	4.93	Under \$2.43.....	324	1.91
Boat loaders, piecework.	47	5.05	Piecework.....	94	2.96
Ships' coal trimmers, piecework.....	7	6.91	Total.....	8,569	.....
Cokemen.....	137	5.66	Boys, surface and general work:		
Cokemen, piecework.....	412	6.51	Bank and screen boys—		
General laborers.....	1,698	4.22	\$2.43 or over.....	324	2.88
General laborers, piecework.....	44	4.97	Under \$2.43.....	267	1.87
Unclassified—			Walers, dirt pickers, or trimmers.....	385	1.76
Time work—			Weighmen's helpers.....	19	2.43
\$7.30 or over.....	74	7.95	Token boys.....	30	2.07
\$6.08 or under			Stokers.....	48	2.92
\$7.30.....	93	6.51	Horse drivers.....	25	2.37
\$4.87 or under			Greasers.....	62	2.21
\$6.08.....	294	5.41	Couplers.....	19	2.01
\$3.65 or under			Smiths' strikers and helpers.....	130	2.80
\$4.87.....	314	4.18	Platelayers' boys.....	24	3.00
Under \$3.65.....	68	2.88	Masons' boys.....	15	2.80
Piecework—			Carpenters' boys.....	24	2.53
\$6.08 or over.....	23	6.51	Mechanics' boys and apprentices.....	77	2.72
\$4.87 or under			Lamp cleaners.....	32	2.21
\$6.08.....	79	5.19	Cokemen's boys.....	26	2.41
Under \$4.87.....	28	4.64	Unclassified—		
Total.....	13,369	.....	Time work—		
Total, men.....	67,429	.....	\$3.65 or over.....	22	3.69
Boys, underground work:			\$2.43 or under		
Coal-hewers' helpers, time and piecework.....	2,249	2.96	\$3.65.....	286	2.92
Putters and trammers.....	635	2.68	Under \$2.43.....	293	1.85
Putters and trammers, piecework.....	782	3.59	Piecework.....	52	2.37
Helpers-up.....	76	2.66	Total.....	2,160	.....
Drivers.....	2,289	2.33	Total, boys.....	10,729	.....
Trappers.....	475	1.89	Total, males.....	78,158	.....
Switchkeepers and couplers.....	389	1.99	Women, surface work (unclassified):		
Brakers and rappers.....	168	2.72	\$2.43 or over.....	29	2.68
Landers.....	360	2.76	Under \$2.43.....	340	1.93
Incline brakemen's helpers.....	50	3.08	Girls, surface work (unclassified).....	119	1.36
Helpers of cagers, on-setters or hangers-on.....	93	2.94	Total, females.....	488	.....
Check or token takers.....	25	1.95	Grand total, males and females.....	78,646	.....
Shifters' helpers.....	52	3.49			
Timber leaders.....	32	3.59			
Engine-tenters' helpers.....	7	3.02			
Oilers and greasers.....	10	2.15			

\* Scotland and South Wales only.

By weekly wage rate is meant the rate paid for a full normal week. It does not necessarily represent actual earnings, as it makes no allowance for overtime or lost time. The full week is not necessarily

a week of six days, but whatever is regarded in each locality or mine as a full week. Thus in Northumberland and Durham from 36 to 42 hours were regarded as a full week for coal hewers; in South Wales and Monmouth, 54 hours; in West Scotland, 45 to 50 hours, etc. These hours are reckoned from the time of entering the pit to the time of leaving it.

The wage rate given is the net rate, that is, the amount of a normal week's earnings after deducting from the gross earnings all expenditures for help, powder, oil, candles, sharpening tools, etc.

In considering these wage rates account must also be taken of the fact that in Northumberland and Durham and in most of the federated districts some of the married men employed in coal pits received allowances of coal sufficient for domestic purposes, a small charge being made in some cases for carting. In Northumberland and Durham many married men have free cottages.

As above stated, the only official wage statistics published by the British Government since 1886, aside from the sample piece price lists and percentage changes from year to year, are the estimated average wages obtained by application of the percentage changes in hewers' wages to the average wages of all classes of coal-mine employees as established by the board of trade census of wages of October, 1886.

The results obtained by this process are shown in the following table:

ESTIMATED AVERAGE WEEKLY RATES OF WAGES OF ALL CLASSES OF COAL MINE EMPLOYEES, BY PRINCIPAL COAL-MINING DISTRICTS AND FOR THE UNITED KINGDOM, 1886 TO 1902.

[Source: Wages and Profits in Coal Mining (Parliamentary Paper No. 197, session of 1903). Conversion of English into United States money was made on the basis of £1=\$4.8665.]

Year.	Northumberland.	Durham.	Federated districts (Yorkshire, Lancashire, Midlands, etc.).	South Wales and Monmouthshire.	West Scotland.	Fife and Clackmannan.	United Kingdom.
October, 1886 (date of census of wages).....	\$5.33	(a)	\$5.39	\$4.97	\$4.91	\$4.68	\$5.15
End of—							
1886.....	5.33	\$5.33	5.39	4.85	4.91	4.68	5.13
1887.....	4.66	5.33	5.39	4.72	5.13	4.68	5.11
1888.....	4.93	5.33	5.94	4.97	5.56	4.91	5.43
1889.....	6.41	6.43	6.49	5.76	7.09	6.43	6.33
1890.....	7.00	6.69	7.56	7.04	7.69	7.02	7.18
1891.....	6.93	6.93	7.56	7.10	7.69	7.02	7.22
1892.....	6.41	6.43	7.56	5.66	6.41	5.86	6.73
1893.....	6.41	6.43	7.56	5.54	7.69	6.43	6.83
1894.....	6.27	6.43	7.02	5.60	6.41	5.86	6.45
1895.....	5.74	5.92	7.02	5.19	5.76	5.27	6.18
1896.....	5.54	5.92	7.02	5.07	5.76	4.68	6.14
1897.....	5.68	6.04	7.02	5.13	5.76	5.27	6.18
1898.....	6.33	6.43	7.16	5.54	7.69	6.67	6.63
1899.....	6.67	6.87	7.56	6.00	8.01	7.20	7.06
1900.....	8.60	8.48	8.09	8.01	10.26	9.25	8.25
1901.....	7.40	7.20	8.64	7.69	7.69	6.91	7.91
1902.....	6.73	6.87	8.09	6.85	7.52	6.61	7.38

\* Northumberland and Durham were grouped together in the return of wages in 1886.

These figures are only estimates, and, in order to enable one properly to judge their value as statistics of wage conditions, it is necessary to understand how the estimates were made.

The figures for October, 1886, represent the average weekly wage rates of all classes of working people employed in coal, iron-ore, and ironstone mines in the principal coal-mining districts. The other figures were estimated from these by applying to them the percentage changes of wages of hewers, or miners proper, in coal mines, upon the assumption that the percentage changes of the whole body of employees of coal, iron-ore, and ironstone mines are the same as those of the hewers in coal mines. To illustrate: According to the wage returns of 1886 the average weekly wage rates of all employees in the Durham district were 21s. 11d. (\$5.33). At that time the piece-price wages of hewers were  $3\frac{1}{2}$  per cent above the standard adopted in that district, namely, that of 1879. Assuming that the wages of all employees varied in the same proportion as those of the hewers in coal mines, the average wages of all employees in coal, iron-ore, and ironstone mines in the standard year (1879) were \$5.14 (or \$5.33, the wages in 1886, divided by  $1.03\frac{1}{2}$ ). In 1902 the wages of hewers in coal mines were  $33\frac{1}{2}$  per cent above the 1879 standard; hence the wages of all employees in 1902 are estimated to be \$5.14 plus  $33\frac{1}{2}$  per cent, or \$6.87.

The above table is thus based upon the assumption that the average weekly rates of wages of all coal mine employees fluctuate simultaneously with and in the same degree as the hewers' wages. The British report from which these statistics have been taken states that "the rates thus calculated are slightly too high in years of good employment, seeing that some classes of surface workers have probably not always fully shared in the general percentage advances." It is claimed, however, that the correction to be made on this account would be small.

A parliamentary document (<sup>a</sup>) which was published in 1890 shows the hours of labor of coal mine employees in the United Kingdom in that year. Nothing has since been officially published in regard to hours of labor in coal mines except the changes from year to year of all employees of mines and quarries, beginning with 1893. A summary of these changes has been given in connection with changes in wage rates.

In the table following a summary of the information presented in the aforementioned document is given.

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<sup>a</sup> Parliamentary Paper No. 284, 1890.

# 438 SPECIAL REPORT OF THE COMMISSIONER OF LABOR.

## AVERAGE HOURS OF LABOR OF COAL MINE EMPLOYEES IN THE UNITED KINGDOM IN 1890, BY DISTRICTS.

[Source: First Annual Abstract of Labor Statistics, 1893-94. The figures in this abstract were compiled from Parliamentary Paper No. 284, 1890. Hours of labor from "bank to bank" of underground employees include the time occupied in traveling between the mouth of the pit and the working places and the meal time. The net hours reported for miners and helpers is the time remaining after deducting the time occupied in traveling between the mouth of the pit and the working places and the meal time.]

Districts.	Miners and miners' helpers.			
	Number.	Hours per day from bank to bank.	Number.	Net hours per day.
England and Wales:				
Cumberland (a).....	5,885	8½ or under 8½ ..	5,885	7 or under 7½.
Yorkshire, except North Riding.....	34,742	8½ or under 9 ..	34,742	7½ or under 7½.
Lancashire and Cheshire.....	1,171	9 or under 9½ ..	1,171	7 or under 7½.
	34,301	9½ or under 9½ ..	15,744	7½ or under 8.
			18,557	8 or under 8½.
North Wales.....	959	8½ or under 8½ ..	959	7 or under 7½.
Derbyshire.....	3,421	8½ or under 9 ..	3,421	7½ or under 8.
Nottingham and Leicester.....	17,470	9½ or under 9½ ..	17,470	7½ or under 8.
	12,607	9½ ..	10,159	8 or under 8½.
			2,448	8½ or under 8½.
Salop, Worcester, and Warwick.....	1,363	7½ ..	2,117	7 or under 7½.
	2,053	8½ or under 8½ ..	1,363	7½ or under 7½.
	2,117	8½ or under 8½ ..	2,053	7½ or under 7½.
Staffordshire.....	9,752	7½ ..	9,752	7½ or under 7½.
	8,457	8½ or under 9 ..	8,457	7½ or under 7½.
Gloucester and Somerset.....	1,582	8½ or under 8½ ..	1,582	7.
	3,317	8½ or under 8½ ..	3,317	7½ or under 7½.
South Wales and Monmouth.....	44,895	9 or under 9½ ..	29,898	7½ or under 7½.
			14,604	8 or under 8½.
			403	8½ or under 8½.
Northumberland.....	11,840	7 ..	11,840	6.
North Durham.....	8,545	7½ ..	8,545	5½.
South Durham, Westmoreland, and North Riding.....	24,178	7½ ..	24,178	5½.
Scotland:				
Fife and the Lothians.....	9,060	8½ or under 8½ ..	591	7 or under 7½.
	2,598	9 or under 9½ ..	8,469	7½ or under 7½.
			2,598	7½ or under 8.
Lanark.....	19,673	9½ or under 9½ ..	11,662	7½ or under 8.
			8,011	8 or under 8½.
Ayr, Stirling, Dumbarton, Renfrew, Argyle, and Dumfries.....	205	8 or under 8½ ..	205	6½.
	3,805	8½ or under 9 ..	845	7½ or under 7½.
	8,031	9½ or under 9½ ..	10,519	7½ or under 7½.
			532	7½ or under 8.
Ireland.....	305	9½ ..	305	8½.
Total.....	272,462		272,462	

\* Coal and iron mines.



CHAPTER V.—COAL MINE LABOR IN GREAT BRITAIN. 439

AVERAGE HOURS OF LABOR OF COAL MINE EMPLOYEES IN THE UNITED KINGDOM  
IN 1890, BY DISTRICTS—Concluded.

[Source: First Annual Abstract of Labor Statistics, 1893-94. The figures in this abstract were compiled from Parliamentary Paper No. 284, 1890. Hours of labor from "bank to bank" of underground employees include the time occupied in traveling between the mouth of the pit and the working places and the meal time. The net hours reported for miners and helpers is the time remaining after deducting the time occupied in traveling between the mouth of the pit and the working places and the meal time.]

Districts.	Other underground workers.		Surface workers.	
	Number.	Hours per day from bank to bank.	Number.	Hours per day excluding meal time.
England and Wales:				
Cumberland (a).....	966	8½	2,394	9 or under 9½.
Yorkshire, except North Riding.....	1,924	8½ or under 9	12,394	9 or under 9½.
Lancashire and Cheshire.....	8,190	8½ or under 8½	10,935	9½ or under 9½.
North Wales.....	13,442	8½ or under 9	477	9½.
Derbyshire.....	121	9 or under 9½	1,401	9 or under 9½.
Nottingham and Leicester.....	16,348	9½ or under 9½	6,607	8½ or under 8½.
Salop, Worcester, and Warwick.....	5,730	9½ or under 10	3,936	8½ or under 8½.
Staffordshire.....	2,890	9 or under 9½	1,204	9½ or under 9½.
Gloucester and Somerset.....	8,206	9½ or under 9½	858	8½.
South Wales and Monmouth.....	538	9½ or under 9½	1,896	8½ or under 8½.
Northumberland.....	5,499	9½ or under 9½	8,079	8½ or under 8½.
North Durham.....	1,368	8½ or under 9	1,091	9 or under 9½.
South Durham, Westmoreland, and North Riding.....	2,025	9 or under 9½	600	9½.
Scotland:	12,073	8½ or under 9	9,041	8½ or under 9.
Fife and the Lothians.....	2,474	9 or under 9½	3,345	9 or under 9½.
Lanark.....	911	9½ or under 9½	79	9½ or under 9½.
Ayr, Stirling, Dumbarton, Renfrew, Argyle, and Dumfries.....	798	10½	125	9½.
Ireland.....	26,607	8½ or under 9	4,648	9½ or under 9½.
Total.....	2,634	9 or under 9½	4,817	9 or under 9½.
Total.....	6,481	8½	12,709	9½ or under 9½.
Total.....	4,745	10½	708	8½ or under 8½.
Total.....	4,858	8	1,462	9 or under 9½.
Total.....	4,909	10½	1,144	9½ or under 9½.
Total.....	10,767	8½	175	9½.
Total.....	12,920	10½	5,085	9 or under 9½.
Total.....	187	8½	2,219	8½ or under 9.
Total.....	3,265	8½ or under 8½	611	9 or under 9½.
Total.....	988	8½ or under 9	73	9½.
Total.....	1,522	9 or under 9½	.....	.....
Total.....	194	9½ or under 9½	.....	.....
Total.....	3,975	9½ or under 9½	.....	.....
Total.....	5,470	9½ or under 9½	.....	.....
Total.....	727	8½ or under 9	.....	.....
Total.....	2,066	9 or under 9½	.....	.....
Total.....	1,107	9½ or under 9½	.....	.....
Total.....	161	9½ or under 9½	.....	.....
Total.....	235	10½	.....	.....
Total.....	92	9½ or under 10	154	9½ or under 9½.
Total.....	91	10	.....	.....
Total.....	178,148	.....	98,257	.....

a Coal and iron mines.

The gross and net hours of 272,462 coal miners and miners' helpers and the gross hours of 178,148 other underground employees, as well as the net hours of 98,257 surface workers, are shown. This total of 548,867 coal mine employees constituted 86.8 per cent of the 632,380 persons shown in the table on page 422 to have been employed in and about mines coming under the Coal Mines Regulation Act in 1890. The gross hours include the time occupied in going from the pit's mouth to the working places and return and the meal time.

In the following table the information contained in the preceding table has been rearranged so as to show for the United Kingdom the total number of miners and other underground employees and of surface workers in each hour group:

EMPLOYEES IN AND ABOUT COAL MINES IN THE UNITED KINGDOM IN 1890,  
GROUPED ACCORDING TO AVERAGE HOURS OF DAILY LABOR.

[Source: First Annual Abstract of Labor Statistics, 1893-94. The figures in this abstract were compiled from Parliamentary Paper No. 284, 1890. Hours of labor from "bank to bank" of underground employees include the time occupied in traveling between the mouth of the pit and the working places and the meal time. The net hours reported for miners and their helpers is the time remaining after deducting the time occupied in traveling between the mouth of the pit and the working places and the meal time.]

Average hours per day.	Employees below ground.						Employees above ground. <sup>(a)</sup>	
	Miners and helpers.				Other employees.		Number.	Per cent.
	Bank to bank.		Net.		Bank to bank.			
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.		
Under 7.....			46,350	17.0				
7 or under 7½.....	44,563	16.3	10,723	3.9				
7½ or under 7¾.....			23,776	8.7				
7¾ or under 7¾.....			85,699	31.5				
7¾ or under 8.....	11,145	4.1	51,427	18.9				
8 or under 8¼.....	205	.1	51,331	18.8	22,293	12.5		
8¼ or under 8½.....	9,550	3.5	2,851	1.1	966	.5	858	0.9
8½ or under 8¾.....	15,453	5.7	305	.1	11,455	6.4	21,226	21.6
8¾ or under 9.....	50,495	18.5			30,574	17.2	11,260	11.5
9 or under 9¼.....	48,664	17.9			38,295	21.5	32,590	33.2
9¼ or under 9½.....	79,475	29.2			33,915	19.0	30,873	31.4
9½ or under 9¾.....	12,607	4.6			11,130	6.3	1,325	1.3
9¾ or under 10.....	305	.1			5,822	3.3	125	.1
10 or over.....					23,698	13.3		
Total.....	272,462	100.0	272,462	100.0	178,148	100.0	98,257	100.0

<sup>a</sup> For these employees the number of hours is exclusive of the meal time.

As the statistics of wages in the United Kingdom that are available for a series of years are such as are based upon percentage changes from the standard piece-price lists, an important element to be considered in connection with those changes is the constancy of employment from month to month and from year to year. In the two tables which follow are given the average number of days per week on which coal was mined at collieries, the monthly returns in each period relating to four complete weeks and not to entire calendar months:

AVERAGE NUMBER OF DAYS PER WEEK WORKED IN COAL MINES IN THE UNITED KINGDOM, BY MONTHLY PERIODS, 1895 TO 1903.

[Source: Tenth Annual Abstract of Labor Statistics of the United Kingdom, 1902-3. The monthly returns relate to four complete weeks and not to calendar months.]

Month ending in—	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
January .....	4.70	4.94	5.15	5.06	5.16	5.13	4.80	5.26	5.22
February .....	5.00	4.91	5.34	5.24	5.63	5.69	5.19	5.39	5.28
March .....	4.93	4.81	5.14	5.29	5.62	5.67	5.30	5.35	5.10
April .....	4.46	4.69	4.84	4.98	5.24	5.19	4.91	4.90	4.82
May .....	4.57	4.88	5.20	5.38	5.64	5.63	5.23	4.89	5.21
June .....	4.23	4.58	4.82	4.95	5.42	5.18	4.71	5.17	4.64
July .....	4.53	4.83	4.95	5.13	5.25	5.52	4.83	4.82	4.84
August .....	4.71	5.00	4.92	5.19	5.23	5.43	4.91	4.94	4.89
September .....	4.80	4.89	5.24	5.37	5.46	5.65	5.36	5.35	5.22
October .....	5.03	5.02	5.37	5.44	5.58	5.63	5.36	5.52	5.21
November .....	5.08	5.31	5.32	5.46	5.64	5.45	5.33	5.51	5.24
December .....	4.88	5.16	5.31	5.54	5.65	5.46	5.46	5.51	5.40
Average for year .....	4.74	4.92	5.13	5.25	5.46	5.47	5.12	5.22	5.06

AVERAGE NUMBER OF DAYS PER WEEK WORKED IN COAL MINES IN THE UNITED KINGDOM, BY PRINCIPAL COAL DISTRICTS, 1895 TO 1903.

[Source: Tenth Annual Abstract of Labor Statistics of the United Kingdom, 1902-3. The returns relate to 48 complete weeks each year.]

Year.	Yorkshire.	Lancashire and Cheshire.	Derbyshire.	Nottingham and Leicester.	Staffordshire.	South Wales and Monmouth.	Durham.	Northumberland.	West Scotland.	Fife.	Salop, Warwick, and Worcester.
1895 .....	4.50	4.63	4.28	4.11	4.28	5.17	5.12	4.69	5.06	5.06	4.53
1896 .....	4.78	4.90	4.38	3.95	4.65	5.28	5.23	4.79	5.21	4.92	4.83
1897 .....	5.12	5.03	4.81	4.11	4.96	5.47	5.36	5.09	5.37	5.20	5.09
1898 .....	5.26	5.23	5.07	4.52	5.04	(a)	5.45	5.18	5.32	5.25	5.31
1899 .....	5.56	5.43	5.39	4.84	5.39	5.75	5.53	5.32	5.23	5.25	5.46
1900 .....	5.57	5.42	5.53	5.04	5.39	5.61	5.53	5.35	5.33	5.29	5.47
1901 .....	4.99	4.95	5.04	4.60	4.84	5.31	5.33	5.20	5.14	5.05	5.18
1902 .....	5.00	5.02	5.12	4.77	5.07	5.64	5.38	5.25	5.17	5.22	5.18
1903 .....	4.95	4.80	4.71	4.39	4.77	5.58	5.35	5.21	5.16	5.22	4.01

<sup>a</sup> During about six months of this year the great majority of the collieries in the district were idle in consequence of a dispute.

The first table shows, by monthly periods, the average days worked per week during each month of the years 1895 to 1903. The second shows, by principal districts, the average days worked per week during each year of 48 complete weeks.

In the following table, which is reproduced from a report compiled by the commercial, labor, and statistical department of the British Board of Trade, an attempt is made to bring together for comparison the output of coal from coal mines, the value at the pit's mouth, the average value per ton, the estimated number of work people employed in mining coal, the estimated number of tons of coal raised per employee, the average rate of weekly wages, and the computed expenditure for wages and for other purposes:

OUTPUT AND VALUE OF COAL, AND PERSONS EMPLOYED, AVERAGE WEEKLY WAGES, AND ESTIMATED EXPENDITURE FOR WAGES AND FOR OTHER PURPOSES, IN COAL MINING IN THE UNITED KINGDOM, 1886 TO 1902.

[Source: Wages and Profits in Coal Mining, Parliamentary Paper No. 197, 1903. Conversion of English into United States money was made on the basis of £1=\$4.8665. The averages and percentages were computed.]

Year.	Output of coal in tons.	Value at pit's mouth.(e)	Average value per ton at pit's mouth	Estimated number of working people employed in coal mining.	Estimated number of tons of coal raised per person employed in coal mining.	Computed average rate of weekly wages.	Computed expenditure on wages.(b)		Computed remainder for other expenses and for profits.(c)	
							Amount.	Per cent of value at pit's mouth	Amount.	Per cent of value at pit's mouth
1886 .	157,518,000	\$185,637,509	\$1.18	500,800	315	\$5.13	\$128,456,134	69.20	\$57,181,375	30.80
1887 .	162,120,000	190,246,065	1.17	509,500	318	5.11	130,174,009	68.42	60,072,076	31.58
1888 .	169,935,000	209,118,372	1.23	529,600	321	5.43	143,897,539	68.81	65,220,833	31.19
1889 .	176,917,000	273,375,638	1.55	562,200	315	6.33	177,836,510	65.05	95,539,128	34.95
1890 .	181,614,000	304,763,641	2.01	612,400	297	7.18	219,795,473	60.26	144,968,168	39.74
1891 .	185,479,000	360,607,650	1.94	649,200	286	7.22	234,317,109	64.98	126,290,541	35.02
1892 .	181,787,000	321,432,325	1.77	668,000	272	6.73	224,846,900	69.95	96,585,425	30.05
1893 .	164,326,000	271,599,365	1.65	666,200	247	6.83	227,620,805	83.81	43,978,560	16.19
1894 .	188,278,000	305,275,545	1.62	688,000	274	6.45	221,815,070	72.66	83,460,475	27.34
1895 .	c 189,653,000	278,522,062	1.47	681,700	278	6.18	210,797,314	75.69	67,702,748	24.31
1896 .	c 195,352,000	278,305,402	1.42	672,400	291	6.14	206,558,593	74.22	71,746,809	25.78
1897 .	c 202,119,000	290,710,111	1.44	675,200	290	6.18	208,787,450	71.82	81,922,661	28.18
1898 .	c 202,042,000	312,268,706	1.55	686,700	294	6.63	227,659,737	72.91	84,608,969	27.09
1899 .	c 220,085,000	406,250,554	1.85	708,700	311	7.06	250,045,637	61.55	156,204,917	38.45
1900 .	c 225,170,000	592,004,859	2.63	759,900	296	8.25	313,563,195	52.97	278,441,664	47.03
1901 .	c 219,037,000	498,738,386	2.28	787,700	278	7.91	311,460,867	62.45	187,277,519	37.55
1902 .	c 227,085,000	455,110,214	2.00	806,100	282	7.38	297,114,425	65.28	157,995,789	34.72

a Amounts are given in original report in round numbers, hence the converted values differ slightly from those published in other tables.

b Assuming 50 weeks full employment for each person employed. Amounts are given in original report in thousands of pounds.

c Not including coal mined from open quarries.

These figures, which are reproduced from a British report, are nearly all estimates, and must be considered accordingly. The total output represents the number of tons of coal obtained from coal mines, exclusive of coal obtained from quarries. The manner of obtaining the average value at the pit's mouth and the total value of the product has been explained. The number of work people employed in coal mining and the quantity of coal raised per head each year are computed from the official statistics of the number employed in coal mines, after deducting the estimated number engaged in extracting minerals other than coal. The statistics of average rates of weekly wages of coal miners are based on the results of the British Board of Trade census of wages in 1886, modified by the percentage changes of hewers' wages since that date, as explained on page 437.

The figures in the remaining columns were computed by the compilers of the report above quoted from those just mentioned. The computed expenditure on wages was obtained by multiplying the average weekly rates of wages by 50, on the assumption that each person was fully employed 50 weeks each year, and this product was multiplied by the estimated number of persons employed in coal mining as given in the table. It is admitted that the result thus obtained is considerably too high for years in which there were important trade disputes, as in 1893, for example. The amount remaining for expenses other than wages and for mine owners' profits is the difference between this computed amount and the total value of the product.

### ACCIDENTS.

The statistics of coal mine accidents in the United Kingdom are as complete and cover as long a period of years as any continuous British official statistics relating to coal mining. The official reports contain data showing the number of deaths from accidents by principal causes for each year since 1851. While these are not limited to coal mines during the entire period, the other mines which are included for many of the years are not of sufficient importance to have any great effect upon the coal-mine figures, for, of the 842,066 persons reported as employed in and about all mines under the Coal Mines Regulation Act in 1903, it was estimated that 822,000 were employed in coal mining operations.

The table following shows for each year from 1851 to 1903 the number of persons employed, the number of deaths from accidents, and the death rate per 1,000 employees below and above ground in coal and stratified ironstone mines or mines under the Coal Mines Regulation Act.

444 SPECIAL REPORT OF THE COMMISSIONER OF LABOR.

PERSONS EMPLOYED, DEATHS FROM ACCIDENTS, AND DEATHS PER 1,000 EMPLOYEES IN AND ABOUT COAL, ETC., MINES IN THE UNITED KINGDOM, 1851 TO 1903.

[Source: Mines and Quarries General Reports and Statistics, 1900 and 1903. The figures for the years 1851 to 1860 relate to coal mines only, those for the years 1861 to 1872 to coal and stratified ironstone mines, and those for the period from 1873 to 1903 relate to all mines coming under the Coal Mines Regulation Act. The death rate was computed.]

Year.	Persons employed.			Deaths from accidents.			Deaths per 1,000 employees from accidents.		
	Below ground.	Above ground.	Total.	Below ground.	Above ground.	Total.	Below ground.	Above ground.	Above and below ground.
1851	171,963	44,224	216,217	940	44	984	5.47	0.99	4.55
1852	177,180	45,993	222,943	938	48	986	5.29	1.05	4.42
1853	182,427	47,041	229,668	914	43	957	5.01	.91	4.17
1854	187,685	48,289	239,084	996	57	1,045	5.26	1.18	4.43
1855	192,982	49,757	242,719	969	46	955	4.71	.92	3.93
1856	198,229	51,116	249,345	966	61	1,027	4.87	1.19	4.12
1857	203,497	52,474	255,971	1,075	54	1,119	5.23	1.03	4.37
1858	208,764	53,822	262,586	1003	38	931	4.28	.79	3.55
1859	214,031	55,191	269,222	845	60	905	3.95	1.01	3.36
1860	219,298	56,549	275,847	1,055	54	1,109	4.81	.95	4.02
1861	224,566	57,907	282,473	873	70	943	3.89	1.21	3.34
1862	231,245	59,655	291,000	1,061	52	1,133	4.67	.87	3.89
1863	237,705	61,285	299,000	851	56	907	3.58	.91	3.03
1864	244,469	63,046	307,542	798	69	867	3.26	1.09	2.82
1865	250,784	64,667	315,451	801	93	964	3.55	1.44	3.12
1866	254,927	65,736	320,663	1,377	107	1,484	5.40	1.63	4.63
1867	264,827	68,290	333,116	1,104	86	1,190	4.17	1.26	3.57
1868	275,722	71,009	346,730	934	77	1,011	3.39	1.08	2.92
1869	274,630	70,816	345,446	1,031	85	1,116	3.75	1.20	3.23
1870	278,961	71,933	350,894	911	80	991	3.27	1.11	2.82
1871	284,850	73,031	370,881	1,003	72	1,075	3.40	.95	2.90
1872	332,290	85,709	418,088	982	78	1,060	2.95	.91	2.54
1873	407,804	109,341	514,149	983	86	1,069	2.41	.81	2.08
1874	428,611	110,218	538,829	947	109	1,056	2.21	.99	1.96
1875	427,017	108,828	535,845	1,145	99	1,244	2.68	.91	2.32
1876	419,229	105,303	514,532	822	111	933	2.01	1.05	1.81
1877	395,025	99,266	494,391	1,109	99	1,208	2.81	1.00	2.44
1878	392,979	92,350	475,329	1,327	86	1,413	3.46	.93	2.97
1879	395,179	91,031	476,810	902	71	973	2.34	.77	2.04
1880	391,391	93,552	484,933	1,230	88	1,318	3.14	.94	2.72
1881	399,397	96,090	495,477	866	88	954	2.17	.92	1.93
1882	406,192	97,736	503,967	1,042	81	1,126	2.57	.86	2.23
1883	416,696	98,237	514,933	946	108	1,054	2.27	1.10	2.05
1884	422,233	98,143	520,376	848	94	942	2.01	.96	1.81
1885	424,191	96,441	520,632	1,075	75	1,150	2.53	.78	2.21
1886	423,882	96,108	519,970	864	89	953	2.04	.83	1.83
1887	428,540	97,737	526,277	916	79	995	2.14	.81	1.89
1888	438,902	110,282	549,184	804	102	906	1.83	.92	1.65
1889	483,600	118,209	601,809	969	143	1,112	2.09	1.21	1.91
1890	509,812	125,568	632,380	1,057	137	1,194	2.09	1.09	1.89
1891	536,091	131,962	667,983	882	123	1,005	1.66	.83	1.50
1892	549,312	134,330	683,642	904	112	1,016	1.65	.83	1.49
1893	549,738	133,270	683,008	940	120	1,060	1.71	.90	1.55
1894	569,678	135,562	705,240	1,015	112	1,127	1.78	.83	1.60
1895	564,638	135,646	700,284	923	119	1,042	1.63	.88	1.49
1896	557,026	135,058	692,084	902	123	1,025	1.62	.91	1.48
1897	558,305	136,908	695,213	833	97	930	1.49	.71	1.34
1898	567,124	139,770	706,894	779	129	908	1.37	.92	1.28
1899	583,009	146,000	729,009	801	115	916	1.37	.79	1.26
1900	624,223	155,829	780,052	899	113	1,012	1.44	.73	1.30
1901	647,822	158,913	806,735	950	151	1,101	1.47	.95	1.36
1902	662,901	161,960	824,791	907	117	1,024	1.37	.72	1.24
1903	676,746	165,320	842,066	917	155	1,072	1.36	.94	1.27

From 1851 to 1860 the figures relate to coal mines only; from 1861 to 1872 they relate to coal and stratified ironstone mines, and from 1873 to 1903 to mines coming under the Coal Mines Regulation Act. During this period (1851 to 1903) a marked improvement is shown in the death rate of underground workers. Thus, while the number of underground employees increased 293.7 per cent, there was a decrease in the actual number of deaths from accidents, and the death rate per thousand underground employees decreased from



5.47 in 1851 to 1.36 in 1903. In the case of surface workers, however, the death rate has varied but slightly during this period.

The next table shows the death rate each year from 1873 to 1903, measured by a selected unit of output, namely, 1,000,000 tons. The figures in this table relate to mines classed under the Coal Mines Regulation Act and may be used in connection with those for the same years in the preceding table.

DEATH RATE FROM ACCIDENTS PER 1,000,000 TONS OF OUTPUT IN AND ABOUT MINES UNDER THE BRITISH COAL MINES REGULATION ACT, 1873 TO 1903.

[Source: Mines and Quarries: General Report and Statistics, 1903. The death rate was computed.]

Year.	Minerals (a) produced by mines under the Coal Mines Regulation Act (long tons).	Deaths from accidents above and below ground.	Accident death rate per 1,000,000 tons of output.	Year.	Minerals (a) produced by mines under the Coal Mines Regulation Act (long tons).	Deaths from accidents above and below ground.	Accident death rate per 1,000,000 tons of output.
1873	143,041,246	1,069	7.47	1890	189,633,656	1,112	5.86
1874	140,713,832	1,056	7.50	1891	194,605,887	1,194	6.14
1875	147,700,313	1,244	8.42	1892	197,693,592	1,005	5.08
1876	148,989,385	933	6.26	1893	191,954,908	1,016	5.29
1877	148,846,260	1,208	8.12	1894	175,236,857	1,060	6.05
1878	145,796,138	1,413	9.69	1895	199,451,018	1,127	5.65
1879	145,386,369	973	6.69	1896	201,738,351	1,042	5.17
1880	161,496,793	1,318	8.16	1897	208,503,968	1,025	4.92
1881	168,959,931	954	5.65	1898	215,145,025	930	4.32
1882	171,334,032	1,126	6.57	1899	215,161,954	908	4.22
1883	178,783,390	1,054	5.90	1900	233,319,084	916	3.93
1884	174,872,759	942	5.39	1901	238,291,275	1,012	4.25
1885	173,223,960	1,150	6.64	1902	231,343,224	1,101	4.76
1886	170,006,959	953	5.61	1903	239,717,699	1,024	4.27
1887	173,049,795	995	5.75			1,072	4.41
1888	182,680,163	906	4.96				

a Coal, fire clay, ironstone, oil shale, and small quantities of some other minerals.

Almost the entire output here shown comes from coal mines alone. Thus, of the 243,243,586 tons of minerals raised in 1903 from all mines coming under the Coal Mines Regulation Act, 230,324,295 tons of coal and 4,190,808 tons of ironstone, fire clay, etc., were mined from coal mines. Hence the rates here shown are fairly representative of those for coal mines only.

Considered by causes, it is found that the greatest diminution in the deaths from accidents is found in the case of explosions of fire damp, as appears not only from the death rate per 1,000, but from the actual number killed as well. The greatest number of deaths is occasioned by falls of ground, the actual number showing a rather constant increase, though here, too, the death rate per 1,000 has been considerably reduced, having been uniformly less than 1 per 1,000 since 1890. Deaths from shaft accidents show decided diminution, the rate per 1,000 having been 1.27 in 1851 and 0.10 in 1903. The death rate from other causes, taken collectively, has varied but slightly during this 53-year period. The table following shows, by causes, for each year from 1851 to 1903, the number of deaths and the death rate per 1,000 underground employees from accidents in the mines above mentioned.

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DEATHS FROM ACCIDENTS AND DEATHS PER 1,000 EMPLOYEES IN COAL, ETC.,  
MINES IN THE UNITED KINGDOM, BY PRINCIPAL CAUSES, 1851 TO 1903.

[Source: Mines and Quarries: General Reports and Statistics, 1900, 1903. The figures for the years 1851 to 1860 relate to coal mines only, those for the years 1861 to 1872 to coal and stratified iron mines, while those for the period from 1873 to 1903 relate to all mines coming under the Coal Mines Regulation Act. The death rate was computed.]

Year.	Number of deaths from accidents below ground on account of—					Deaths per 1,000 employees from accidents below ground on account of—				
	Explosion of fire damp or coal dust.	Fall of ground.	Accidents in shafts.	Miscellaneous causes.	All causes.	Explosion of fire damp or coal dust.	Fall of ground.	Accidents in shafts.	Miscellaneous causes.	All causes.
1851	321	327	219	73	940	1.87	1.90	1.27	0.43	5.47
1852	264	349	209	116	938	1.49	1.97	1.18	.65	5.29
1853	214	370	236	94	914	1.17	2.03	1.29	.52	5.01
1854	210	389	290	99	988	1.12	2.07	1.64	.53	5.26
1855	148	407	229	127	909	.75	2.13	1.19	.66	4.71
1856	236	400	216	114	966	1.19	2.02	1.09	.57	4.87
1857	377	372	175	141	1,065	1.85	1.82	.86	.69	5.23
1858	215	366	172	140	893	1.03	1.76	.63	.67	4.28
1859	85	399	191	160	845	.44	1.87	.89	.75	3.96
1860	363	388	182	122	1,055	1.65	1.77	.83	.56	4.81
1861	119	427	164	130	839	.63	1.90	.73	.73	3.99
1862	190	422	137	132	881	.83	1.82	.59	1.44	4.67
1863	163	407	147	134	851	.69	1.71	.62	.56	3.58
1864	94	395	184	125	798	.38	1.62	.75	.51	3.26
1865	168	381	163	179	891	.67	1.52	.65	.71	3.55
1866	651	361	162	203	1,377	2.55	1.42	.63	.80	5.40
1867	286	449	158	211	1,104	1.08	1.69	.60	.80	4.17
1868	154	444	132	204	934	.56	1.61	.48	.74	3.39
1869	257	466	129	179	1,031	.93	1.70	.47	.65	3.75
1870	185	411	129	188	911	.66	1.48	.46	.67	3.27
1871	269	435	123	178	1,003	.91	1.47	.42	.60	3.40
1872	154	456	155	217	982	.46	1.37	.47	.65	2.96
1873	100	491	171	221	983	.25	1.20	.42	.54	2.41
1874	196	413	154	214	947	.39	.96	.36	.50	2.21
1875	288	458	172	227	1,145	.68	1.07	.40	.53	2.68
1876	95	449	129	149	822	.23	1.10	.32	.36	2.01
1877	345	448	129	187	1,109	.87	1.14	.33	.47	2.81
1878	586	460	111	161	1,327	1.53	1.22	.29	.42	3.46
1879	184	426	120	172	902	.48	1.10	.31	.45	2.34
1880	499	462	91	178	1,230	1.28	1.18	.23	.45	3.14
1881	116	450	110	190	896	.29	1.13	.27	.48	2.17
1882	250	468	116	208	1,042	.62	1.15	.29	.51	2.57
1883	134	469	97	246	946	.32	1.13	.23	.59	2.27
1884	65	482	88	213	848	.15	1.14	.21	.51	2.01
1885	341	439	76	219	1,075	.80	1.03	.18	.52	2.53
1886	129	461	86	188	864	.31	1.09	.20	.44	2.04
1887	149	470	84	212	916	.35	1.10	.19	.50	2.14
1888	49	471	75	209	804	.11	1.07	.17	.48	1.83
1889	138	465	74	292	969	.30	1.00	.16	.63	2.09
1890	290	434	88	245	1,057	.57	.86	.18	.48	2.09
1891	51	476	119	236	882	.10	.89	.22	.44	1.65
1892	123	435	91	255	904	.22	.79	.17	.47	1.65
1893	160	412	103	265	940	.29	.75	.19	.48	1.71
1894	317	444	77	177	1,015	.56	.78	.13	.31	1.78
1895	55	426	97	345	923	.10	.75	.17	.61	1.63
1896	173	424	68	237	902	.31	.76	.12	.43	1.62
1897	19	480	57	277	833	.03	.86	.10	.50	1.49
1898	27	431	64	257	779	.05	.76	.11	.45	1.37
1899	54	437	69	241	801	.09	.75	.12	.41	1.37
1900	45	493	80	281	899	.07	.79	.13	.45	1.44
1901	125	482	71	272	950	.19	.75	.11	.42	1.47
1902	63	452	102	290	907	.10	.68	.15	.44	1.37
1903	14	567	69	267	917	.02	.84	.10	.40	1.36

During the past twelve years there has been a notable scarcity of serious explosions of fire damp or coal dust. Thus, of 221 fatal explosions during the period from 1892 to 1903 there were only 10 which caused a loss of 10 or more persons each. In 1897, 1898, 1900, and 1903 there were no explosions whatever of such magnitude. This happened during only three other years of the 53-year period, namely, 1855, 1859, and 1864. There have been no fire-damp explosions causing over 100 deaths each since 1894. Such

serious explosions occurred in 1856, 1857, 1860, 1866, 1867, 1875, 1877, 1878 (2), 1880 (3), 1885, 1890, 1892, 1893, and 1894. The total number of accidents from this cause decreased almost steadily from 98 in 1851 to 11 in 1903.

The following table gives the number of fatal explosions of coal dust or fire damp in mines and the number of deaths resulting therefrom, explosions resulting in a loss of 10 or more lives each being separately shown:

EXPLOSIONS OF FIRE DAMP OR COAL DUST IN COAL, ETC., MINES IN THE UNITED KINGDOM AND DEATHS RESULTING THEREFROM, 1851 TO 1903.

[Source: Mines and Quarries: General Reports and Statistics, 1900-1903.]

Year.	Explosions, each causing a loss of 10 or more lives.		Explosions, each causing a loss of less than 10 lives.		Total explosions.	
	Number.	Deaths.	Number.	Deaths.	Number.	Deaths.
1851	4	161	94	160	98	321
1852	5	145	86	119	91	264
1853	3	88	86	126	89	214
1854	1	89	86	121	87	210
1855	.....	.....	99	146	99	146
1856	4	148	69	88	73	236
1857	3	242	71	135	74	377
1858	4	109	66	106	70	215
1859	.....	.....	70	95	70	95
1860	6	278	64	85	70	363
1861	3	36	58	83	61	119
1862	3	122	52	68	55	190
1863	4	93	47	70	51	163
1864	.....	.....	59	94	59	94
1865	2	60	62	108	64	168
1866	6	556	65	95	71	651
1867	3	204	53	82	56	286
1868	3	96	41	56	44	154
1869	5	187	43	70	48	257
1870	4	88	52	97	56	185
1871	5	179	47	90	52	269
1872	3	72	59	82	62	154
1873	1	18	43	82	44	100
1874	4	109	40	57	44	166
1875	4	225	37	63	41	288
1876	1	41	72	42	73	95
1877	5	23	56	45	61	245
1878	5	289	40	56	56	345
1879	5	540	26	46	31	586
1880	3	112	32	72	35	184
1881	4	447	24	52	28	499
1882	2	73	29	43	31	116
1883	5	192	30	58	35	250
1884	2	88	23	46	25	134
1885	2	28	26	37	30	65
1886	3	301	22	40	25	341
1887	4	98	17	31	21	129
1888	2	112	21	42	23	154
1889	1	30	15	20	16	50
1890	3	107	16	31	19	138
1891	2	263	20	27	22	290
1892	2	20	21	31	23	51
1893	1	112	11	11	12	123
1894	1	139	14	21	15	160
1895	1	290	21	27	22	317
1896	1	13	19	42	20	55
1897	3	140	22	33	25	173
1898	.....	.....	12	19	12	19
1899	.....	.....	12	27	12	27
1900	1	19	22	36	23	54
1901	1	.....	26	45	26	45
1902	1	81	20	44	21	125
1903	1	16	22	47	23	63
1903	.....	.....	11	14	11	14
Total for 53 years	136	6,840	2,165	3,447	2,301	10,287

<sup>a</sup> Including five deaths caused by explosions in mines under the Metalliferous Mines Regulation Act.  
<sup>b</sup> Including one death caused by an explosion in a mine under the Metalliferous Mines Regulation Act.

The death rates from accidents in coal mines per 1,000 employees and per 1,000,000 tons of output are shown, by principal coal fields, for the years 1894 to 1903 in the following tables. There is very little difference between the rates there shown and the rates for the same years in all mines under the Coal Mines Regulation Act as given in the preceding tables.

DEATHS PER 1,000 EMPLOYEES FROM ACCIDENTS IN EACH PRINCIPAL COAL FIELD IN THE UNITED KINGDOM, 1894 TO 1903.

[Source: 1894 to 1896, Annual General Reports upon the Mineral Industry, 1894-1896; 1897 to 1903, Mines and Quarries: General Reports and Statistics, 1900-1903. The figures in this table relate only to coal mines exclusive of all other mines which come under the Coal Mines Regulation Act, hence there is a slight difference between these figures and those found in preceding tables.]

Year.	Scotch coal field.	North-ern coal field.	York-shire, etc., coal field.	Lanca-shire and Cheshire coal field.	Mid-land coal fields.	Small detached coal fields.	North Wales coal field.	South Wales coal field.	Irish coal field.	United King- dom.
1894.....	1.26	1.03	0.91	1.14	1.27	1.06	2.06	3.87	.....	1.60
1895.....	1.73	1.05	.95	1.45	2.51	1.25	1.63	1.94	6.28	1.48
1896.....	1.56	1.11	1.27	1.23	1.47	.75	1.91	2.36	.....	1.48
1897.....	1.55	1.12	.93	1.47	1.17	2.10	1.29	1.75	.....	1.32
1898.....	1.72	1.09	.95	1.50	1.70	.92	1.73	1.23	4.08	1.28
1899.....	1.49	1.16	.84	1.38	1.12	1.13	1.17	1.64	2.01	1.24
1900.....	1.49	1.07	.87	1.35	1.59	1.53	2.22	1.65	.....	1.29
1901.....	1.52	1.02	.91	1.34	1.41	.90	1.42	2.19	1.07	1.36
1902.....	1.60	.98	.96	1.11	1.22	1.15	1.57	1.68	.....	1.24
1903.....	1.61	.95	1.01	1.29	1.30	1.33	1.28	1.61	2.63	1.26

DEATHS FROM ACCIDENTS PER 1,000,000 TONS OF MINERALS RAISED FROM COAL MINES IN EACH PRINCIPAL COAL FIELD IN THE UNITED KINGDOM, 1894 TO 1903.

[Source: 1894 to 1896, Annual General Reports upon the Mineral Industry, 1894-1896; 1897 to 1903, Mines and Quarries: General Reports and Statistics, 1897-1903. The figures in this table relate only to coal mines, exclusive of all other mines which come under the Coal Mines Regulation Act, hence there is a difference between these figures and those found in preceding tables.]

Year.	Scotch coal field.	North-ern coal field.	York-shire etc., coal field.	Lanca-shire and Cheshire coal field.	Mid-land coal fields.	Small detached coal fields.	North Wales coal field.	South Wales coal field.	Irish coal field.	United King- dom.
1894.....	5.03	3.29	3.41	4.16	4.18	5.28	8.07	14.31	.....	5.78
1895.....	5.11	3.52	3.58	5.50	8.30	6.20	6.89	7.35	46.02	5.27
1896.....	4.37	3.62	4.60	4.37	4.63	3.67	7.41	8.65	.....	5.05
1897.....	4.27	3.48	3.26	5.23	3.52	9.70	4.98	6.15	.....	4.37
1898.....	4.76	3.33	3.17	4.96	5.04	4.05	6.07	5.91	29.21	4.30
1899.....	4.19	3.59	2.74	4.54	3.42	4.93	4.27	5.41	15.23	3.95
1900.....	4.28	3.47	2.88	4.62	5.00	6.15	8.77	6.15	.....	4.22
1901.....	4.58	3.44	3.28	5.06	4.95	4.32	6.00	8.38	9.22	4.53
1902.....	4.70	3.29	3.43	4.14	4.35	5.49	6.43	6.27	.....	4.35
1903.....	4.72	3.21	3.64	4.88	4.74	6.46	5.21	6.04	18.22	4.47

The following table shows by age groups, for coal mines only, the number of persons killed by accidents below and above ground, and the number killed, arranged according to sex and age, each year from 1894 to 1903:

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DEATHS BY ACCIDENT IN COAL MINES IN THE UNITED KINGDOM, BY SEX AND AGE GROUPS, 1894 TO 1903.

[Source: 1894 to 1896, Annual General Reports upon the Mineral Industry, 1894-1896; 1897 to 1903, Mines and Quarries: General Reports and Statistics, 1897-1903.]

DEATHS BELOW AND ABOVE GROUND, BY AGE GROUPS.

Year.	Total employees below ground.	Below ground (males).					Age not reported.	Total deaths.
		Under 16 years of age.	16 to 20 years of age.	20 to 30 years of age.	30 to 60 years of age.	60 years of age or over.		
1894.....	559,824	49	116	291	493	45	4	998
1895.....	554,017	92	101	249	419	41	3	905
1896.....	545,572	56	89	215	415	43	67	885
1897.....	547,203	61	95	185	415	48	2	806
1898.....	556,364	59	94	169	384	49	4	759
1899.....	571,806	72	63	197	398	41	2	773
1900.....	613,541	64	93	204	472	46	1	880
1901.....	636,400	55	100	239	486	46	1	927
1902.....	651,505	63	116	231	439	41	.....	890
1903.....	666,144	51	105	237	462	38	2	895

Year.	Total employees above ground.	Above ground (males and females).					Age not reported.	Total deaths.
		Under 16 years of age.	16 to 20 years of age.	20 to 30 years of age.	30 to 60 years of age.	60 years of age or over.		
1894.....	133,266	16	15	20	47	11	.....	109
1895.....	133,354	9	12	23	51	20	1	116
1896.....	133,118	18	6	39	40	18	1	122
1897.....	134,328	6	12	21	37	21	.....	97
1898.....	137,297	9	19	27	55	16	2	128
1899.....	143,399	12	17	20	46	18	.....	113
1900.....	153,360	13	17	21	49	13	.....	113
1901.....	166,248	12	16	38	59	22	1	148
1902.....	159,282	10	16	34	42	12	1	115
1903.....	162,824	16	13	39	63	21	1	153

DEATHS ABOVE GROUND, BY SEX AND AGE GROUPS.

Year.	Male employees above ground.	Males.					Age not reported.	Total deaths.
		Under 16 years of age.	16 to 20 years of age.	20 to 30 years of age.	30 to 60 years of age.	60 years of age or over.		
1894.....	128,800	14	13	20	47	11	.....	105
1895.....	128,625	9	12	23	50	20	1	115
1896.....	128,695	18	6	39	40	18	1	122
1897.....	129,921	6	11	20	37	21	.....	95
1898.....	132,726	7	16	26	55	16	2	122
1899.....	138,745	12	16	20	46	18	.....	112
1900.....	148,590	13	17	21	49	13	.....	113
1901.....	151,119	11	15	37	58	22	1	144
1902.....	154,003	10	16	34	42	12	1	115
1903.....	157,501	15	12	39	63	21	1	151

Year.	Female employees above ground.	Females.					Age not reported.	Total deaths.
		Under 16 years of age.	16 to 20 years of age.	20 to 30 years of age.	30 to 60 years of age.	60 years of age or over.		
1894.....	4,466	2	2	.....	.....	.....	.....	4
1895.....	4,729	.....	.....	.....	1	.....	.....	1
1896.....	4,422	.....	.....	.....	.....	.....	.....	.....
1897.....	4,407	.....	1	1	.....	.....	.....	2
1898.....	4,571	2	3	1	.....	.....	.....	6
1899.....	4,654	.....	1	.....	.....	.....	.....	1
1900.....	4,770	.....	.....	.....	.....	.....	.....	.....
1901.....	5,129	1	1	1	1	.....	.....	4
1902.....	5,279	.....	.....	.....	.....	.....	.....	.....
1903.....	5,323	1	1	.....	.....	.....	.....	2

The next table shows, in the same way, the death rate from accidents per 1,000 employees:

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DEATHS FROM ACCIDENTS PER 1,000 EMPLOYEES IN COAL MINES IN THE UNITED KINGDOM, BY SEX AND AGE GROUPS, 1894 TO 1903.

[This death rate was computed from the preceding table and the one on page 423.]

DEATHS PER 1,000 EMPLOYEES BELOW AND ABOVE GROUND, BY AGE GROUPS.

Year.	Below ground.			Above ground.		
	Under 16 years of age.	16 years of age or over.	Of all ages.	Under 16 years of age.	16 years of age or over.	Of all ages.
1894.....	1.05	1.85	1.78	1.32	0.77	0.82
1895.....	2.08	1.59	1.63	.73	.88	.87
1896.....	1.33	1.65	1.62	1.40	.86	.92
1897.....	1.43	1.48	1.47	.45	.75	.72
1898.....	1.38	1.36	1.36	.64	.97	.93
1899.....	1.63	1.33	1.35	.80	.79	.79
1900.....	1.36	1.44	1.43	.84	.72	.74
1901.....	1.21	1.48	1.46	.78	.97	.95
1902.....	1.40	1.36	1.37	.66	.73	.72
1903.....	1.14	1.36	1.34	1.04	.93	.94

DEATHS PER 1,000 EMPLOYEES ABOVE GROUND, BY SEX AND AGE GROUPS.

Year.	Male employees—			Female employees—		
	Under 16 years of age.	16 years of age or over.	Of all ages.	Under 16 years of age.	16 years of age or over.	Of all ages.
1894.....	1.20	0.78	0.82	4.44	0.50	0.90
1895.....	.77	.91	.89	.....	.24	.21
1896.....	1.45	.89	.95	.....	.....	.....
1897.....	.47	.76	.73	.....	.52	.45
1898.....	.52	.96	.92	3.18	1.01	1.31
1899.....	.84	.80	.81	.....	.25	.21
1900.....	.88	.75	.76	.....	.....	.....
1901.....	.75	.97	.95	1.35	.68	.78
1902.....	.70	.75	.75	.....	.....	.....
1903.....	1.03	.95	.96	1.29	.22	.38

These tables show that the death rate of children either below or above ground is not, as a rule, higher or lower than that of adult workers, and that the death rate in one case fluctuates in about the same degree as it does in the other, some years showing a higher death rate for children and other years a higher death rate for adults. As the number of women employed at surface work in mines is very small, the figures showing death rate of women have but little value. They seem to indicate, however, that the death rate among female employees is lower than that among males.

A comparison of the death rate per 1,000 employees in mines under the Coal Mines Regulation Act with those under the Metalliferous Mines Act is shown in the following table for the years 1873 to 1903:



## COMPARISON OF DEATH RATE PER 1,000 EMPLOYEES IN COAL AND METALLIFEROUS MINES IN THE UNITED KINGDOM, 1873 TO 1903.

[Source: Mines and Quarries: General Report and Statistics, 1903. The death rate was computed from the number of employees and the number killed as given in the source quoted. Some of the figures here shown do not, therefore, agree with the death rate as reported in the original. The figures relate to mines coming under the Coal Mines Regulation Act and the Metalliferous Mines Regulation Act, respectively.]

Year.	Below ground.		Above ground.		Above and below ground.	
	Coal mines.	Metalliferous mines.	Coal mines.	Metalliferous mines.	Coal mines.	Metalliferous mines.
1873.....	2.41	2.19	0.81	0.87	2.06	1.66
1874.....	2.21	2.61	.99	.63	1.96	1.83
1875.....	2.68	2.86	.91	.82	2.32	2.05
1876.....	2.01	1.88	1.05	.26	1.81	1.22
1877.....	2.81	2.52	1.00	.47	2.44	1.69
1878.....	3.46	2.25	.93	.38	2.97	1.50
1879.....	2.34	1.98	.77	.43	2.04	1.36
1880.....	3.14	2.22	.94	.62	2.72	1.69
1881.....	2.17	2.70	.92	.42	1.93	1.80
1882.....	2.57	2.19	.86	.83	2.23	1.66
1883.....	2.37	2.59	1.10	.35	2.05	1.71
1884.....	2.01	1.88	.96	.34	1.81	1.27
1885.....	2.53	2.33	.78	.37	2.21	1.56
1886.....	2.04	2.22	.93	.61	1.83	1.58
1887.....	2.14	2.19	.81	.06	1.89	1.34
1888.....	1.83	2.49	.92	.40	1.65	1.66
1889.....	2.09	2.15	1.21	.50	1.91	1.47
1890.....	2.09	1.53	1.09	.47	1.89	1.09
1891.....	1.65	1.99	.93	.31	1.60	1.29
1892.....	1.65	1.95	.83	.51	1.49	1.36
1893.....	1.71	2.92	.90	.21	1.55	1.82
1894.....	1.78	2.00	.83	.43	1.60	1.36
1895.....	1.63	2.39	.88	.51	1.49	1.62
1896.....	1.62	1.71	.91	.51	1.48	1.21
1897.....	1.49	2.11	.71	.52	1.34	1.46
1898.....	1.37	1.34	.92	.43	1.28	.96
1899.....	1.37	2.43	.79	.41	1.26	1.69
1900.....	1.44	1.60	.73	.42	1.30	1.10
1901.....	1.47	1.49	.95	.15	1.36	.92
1902.....	1.37	1.44	.72	.23	1.24	.94
1903.....	1.35	1.20	.94	.33	1.27	.84

An examination of this table shows a considerably higher death rate in and about mines under the Coal Mines Regulation Act than in and about mines under the Metalliferous Mines Act during the earlier years of the period. This difference, however, shows a gradual diminution from year to year, and during four of the last eleven years the death rate in and about metalliferous mines has exceeded that in and about coal mines. But while the death rate of mine workers generally has been greater in the case of coal mines, the death rate of underground workers has been greater in the metalliferous mines, there being but twelve out of the last thirty-one years during which the death rate underground in coal mines exceeded that in metalliferous mines. The death rate of surface workers is very much higher in the coal mines than in the metalliferous mines during nearly the entire period.

Statistics are not available which permit an accurate comparison between the death rate in mines and in other industries. While figures are given in the British reports showing the actual number of deaths, the total number of employees can only be approximately ascertained, except in the mining and quarrying industries. In the following table are given the actual number of employees killed by accidents in the principal industries, and the rate per 1,000 employees, as nearly as it could be approximated from the available figures:

TOTAL DEATHS AND DEATHS PER 1,000 EMPLOYEES FROM ACCIDENTS IN COAL MINES AND IN VARIOUS OTHER INDUSTRIES IN THE UNITED KINGDOM, 1897 TO 1902.

[Source: Mines and Quarries: General Report and Statistics, 1902; statistics of other industries, Seventh and Ninth Annual Abstracts of Labor Statistics, 1899-1900, 1901-1902. The death rate in the case of the factories and railway service was computed.]

Year.	Coal mines.		Metaliferous mines.		Quarries over 20 feet deep.		Factories.		Railway service.		Shipping <sup>1</sup> (merchant vessels).	
	Total deaths	Deaths per 1,000 employees.	Total deaths	Deaths per 1,000 employees.	Total deaths	Deaths per 1,000 employees.	Total deaths	Deaths per 1,000 employees. (a)	Total deaths	Deaths per 1,000 employees. (b)	Total deaths	Deaths per 1,000 employees.
1897.....	930	1.34	49	1.46	123	1.00	513	0.13	539	1.01	1,631	7.48
1898.....	908	1.28	33	.96	134	1.00	575	.15	522	.98	1,139	5.19
1899.....	916	1.26	56	1.59	117	1.19	675	.17	555	1.04	1,743	7.88
1900.....	1,012	1.30	38	1.10	127	1.35	802	.20	612	1.15	1,436	6.40
1901.....	1,101	1.36	30	.92	98	1.04	769	.20	539	.94	1,514	6.72
1902.....	1,024	1.24	29	.94	119	1.23	840	.21	468	.81	1,397	6.07

<sup>a</sup> The death rate in factories for all the years was based upon returns of 1898-99, or 3,929,213 employees.

<sup>b</sup> The death rate in the railway service was based upon returns for December 31, 1898, or 534,141 employees, for the years 1897 to 1900, as published in the Seventh Annual Abstract of Labor Statistics, 1899-1900; and upon returns for December 31, 1901, or 575,834 employees, for the years 1901 and 1902, as published in the Ninth Annual Abstract of Labor Statistics, 1901-1902.

<sup>c</sup> Preliminary figures, subject to revision.

It appears from the above table that, with the exception of the merchant shipping service, coal mining is the most dangerous of the groups of occupations given. According to the death rate in 1902, as approximated, the industries appear to rank as follows: (1) Merchant shipping service; (2) coal mining; (3) quarrying; (4) metaliferous mining; (5) railway service; (6) factories.

Statistics of nonfatal accidents are usually unsatisfactory, owing to the difficulty of determining whether an accident is sufficiently grave to be reported to the authorities. The British Coal Mines Regulation Act, 1887, section 35, states that the following accidents should be reported:

(1) Loss of life or any personal injury whatever to any person employed in or about a mine occurring by reason of any explosion of gas, or of any explosive, or of any steam boiler.

(2) Loss of life or any serious personal injury to any person employed in or about the mine occurring by reason of any accident whatever.

Thus the cases of accidents reported in the British reports include all deaths, all personal injuries from explosions, no matter how trivial, and all ~~serious personal~~ injuries from other causes. The difficulty lies in the various interpretations that can be placed upon the word "serious" as applied to injuries other than those received on account of explosions. On account of this difficulty the statistics of nonfatal accidents published in the British mine reports are not reproduced in this report.

### MINERS' RELIEF FUNDS.

One of the most important phases of the friendly society movement in Great Britain has been the effort to establish societies for the permanent relief of the victims of mining accidents, including the relief of their widows and orphans. The experience of the friendly societies had shown that the accident and mortality rate of miners was so much above the average rate for the majority of workmen that the societies were obliged to protect themselves by charging miners a higher rate for sickness and accident benefits, while some of the societies excluded miners from membership entirely. The occurrence of several accidents of unusual magnitude between 1870 and 1880 drew attention to the necessity of some form of insurance to provide for the widows and orphans of deceased miners. An effort had been made to solve the problem by establishing at each mine "pit clubs," or assessment benefit societies, which paid certain amounts on the death of a member, but the assessments were necessarily high, an accident of any magnitude invariably brought bankruptcy to the club, and appeals to the public for assistance were becoming so frequent that they produced results only in cases of great disasters. There was no adequate relief for the numerous cases in which one or two lives were lost in an accident and which caused the greater part of the distress in the coal regions.

The first attempt to solve the problem was the founding of the Northumberland and Durham Miners' Permanent Relief Fund in 1862. This society has served as a model for the others which have been founded since that date and which have been singularly successful in providing relief for much of the distress caused by accident. On account of the availability of its reports a description of the North Staffordshire society is given for the purpose of presenting the principal features of a typical relief society. This society has followed closely the general plan of the Northumberland and Durham society. The North Staffordshire Coal and Ironstone Workers' Permanent Relief Society was founded in 1870 with the assistance of £3,000 (\$14,599.50) received from the trustees of a fund subscribed to aid the sufferers of a severe explosion which had occurred a few

years before. As stated in the rules of the society, its object is to raise funds by subscriptions from members and donations from others in order to make provision for members killed or injured in accidents. In case of fatal accidents this provision takes the form of (a) a sum at the death of a member, (b) a weekly allowance to the widows and orphan children of married members, (c) a weekly allowance to parents over 50 years of age of unmarried members. In cases of nonfatal accidents the relief takes the form of a weekly allowance.

The society is composed of two classes of members: (a) Honorary members, who pay dues and have a vote in the management of the society but receive no benefits, and (b) ordinary members, who pay the usual weekly dues and are entitled to the benefits named below. A committee of management, composed of honorary and of ordinary members, conducts the affairs of the society. All the society's property, money, etc., is vested in three trustees, for the use and benefit of the society. To avoid litigation five arbitrators are elected each year who decide all disputes arising within the society. The members at each colliery are organized into local lodges, each having its complement of officers and its representative to the annual general meeting which elects the committee of management. The local officers collect dues, visit members receiving benefits, and see that the rules of the society are properly carried out. The committee of management is required to have a valuation of the assets and liabilities of the society made at least once in every 5 years, as specified in the Friendly Societies Act of 1875.

The expenses of management are defrayed by the subscriptions of honorary members and by one-half penny per week out of each full member's contribution. All funds for the administration of the society are kept in a separate account.

The following table shows the dues and benefits of seven of the miners' permanent relief societies:

CONTRIBUTIONS AND BENEFITS OF MINERS' PERMANENT RELIEF SOCIETIES IN GREAT BRITAIN.

[Source: Compiled from the rules of the societies named. Conversion of English into United States money was made on the basis of £1=\$4.8665.]

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Name of society.	Contributions.		Benefits.		
	Entrance fee.	Weekly dues.	Nonfatal accidents (weekly).	Fatal accidents.	
				Unmarried persons.	
			Funeral benefit.	Dependent parent (weekly).	
Northumberland and Durham.....		\$0.08 (a).....	\$1.23 for 26 wks.; \$1.95 thereafter.	\$111.93	\$1.22. (b)
North Staffordshire..	\$0.24	\$0.08 (c).....	\$1.33 for first year; \$0.91 thereafter.	97.33	\$0.97 5 yrs.; \$0.49 second 5 yrs.
Lancashire and Cheshire.	.24	\$0.10 for surface men; \$0.12 for underground men.	\$2.43 for 2 wks; \$1.70 for 5 yrs.	73.00	
West Riding of Yorkshire.	.16	\$0.08.....	\$1.46 for 26 wks.; \$1.95 thereafter.	111.93	\$1.22.
North Wales.....		\$0.06 for surface men; \$0.08 for underground men.	\$1.46 for 2 wks.; \$1.70 thereafter.	97.33	
Midland counties.....	.37	\$0.06.....	\$1.46 for 26 wks.; \$1.95 thereafter. <sup>d</sup>	73.00	
Midland district (e).....		\$0.02.....		73.00	

Name of society.	Benefits.					Superannuation (weekly).
	Fatal accidents.					
	Married persons.					
	Funeral benefit.	Widow's allowance (weekly).	Children's allowance (weekly).	Extra allowance if children are without mother (weekly).		
Northumberland and Durham.....	\$24.33	\$1.22.....	\$0.49	\$0.37 each child...		\$0.97.
North Staffordshire.....	24.33	\$0.97 for 5 yrs.; \$0.47 second 5 yrs.	.49	\$0.49 for 1st child; \$0.37 for 2d child; \$0.37 for 3d child. <sup>f</sup>		
Lancashire and Cheshire.....	24.33	\$0.97.....	.49	\$0.49 for 1st child; \$0.37 for 2d child; \$0.37 for 3d child. <sup>f</sup>		
West Riding of Yorkshire.....	24.33	\$1.22.....	.49	\$0.37 each child...		
North Wales.....	24.33	\$1.22.....	.61	\$0.49 for 1st child; \$0.37 for 2d child; \$0.37 for 3d child. <sup>f</sup>		
Midland counties.....	24.33	\$1.22.....	.49	\$0.37 each child...		\$0.73 to \$1.46.
Midland district (e).....	e 24.33	\$1.22.....	.61			

<sup>a</sup> \$0.03 of this amount is the contribution for the superannuation fund.

<sup>b</sup> This allowance is also paid to a dependent brother, sister, son, or daughter.

<sup>c</sup> Where the employer contributes not less than 20 per cent on the payments of his men the latter's dues are \$0.07.

<sup>d</sup> The \$1.95 per week is paid until the beneficiary reaches 60 years of age, when the amount is reduced to \$0.97 per week. If 60 years of age when disabled, the \$1.95 is paid for one year, after which the reduction takes place.

<sup>e</sup> Insures against fatal accidents only.

<sup>f</sup> The total amount paid to any one family under this benefit may not exceed \$1.22 per week.

<sup>g</sup> In addition to this amount there is also a cash benefit of \$12.17 called "cash allowance to widow."

Most of the societies provide for a class of "half members," who pay half the regular dues and are entitled to half the benefits. As a rule this class is restricted to young persons and females, and forms an unimportant part of the total membership.

The financial status of the various societies is shown by the accompanying table, compiled from the reports of eight societies for the years ending December 31, 1899 and 1903, and from the reports of one society for the years ending December 31, 1899 and 1904:

NUMBER OF MEMBERS, TOTAL RECEIPTS, PRINCIPAL EXPENDITURES, AND ACCUMULATED FUNDS OF PERMANENT RELIEF SOCIETIES IN GREAT BRITAIN.

[Source: Compiled from annual reports of the societies named. Conversion of English into United States money was made on the basis of £1=\$4.8665.]

Name of society.	Year established.	Year.	Number of members.	Receipts for the year. <sup>(a)</sup>	Expenditures.				Reserve funds at close of year.
					Burial money paid.	Disablement allowances.	Widows' and orphans' allowances.	Superannuation.	
Northumberland and Durham.....	1862	1899	130,552	\$555,297	\$10,740	\$163,020	\$105,438	\$193,041	\$1,174,830
		1903	152,691	732,162	9,485	186,663	109,872	245,602	1,472,037
North Staffordshire...	1870	1899	5,366	22,903	219	7,422	9,168	.....	107,379
		1903	6,512	27,321	657	12,294	7,705	.....	128,026
Lancashire and Cheshire.....	1872	1899	44,323	219,385	2,932	166,312	63,813	.....	509,377
		1903	46,780	268,336	2,920	123,392	56,513	.....	498,177
West Riding of Yorkshire.....	1877	1899	20,854	100,719	1,188	46,234	17,364	460	195,633
		1903	27,950	123,663	1,956	68,454	16,959	128	254,761
North Wales.....	1878	1899	12,903	60,157	779	31,398	20,323	.....	107,238
		1904	10,935	61,009	973	29,381	20,378	.....	98,968
Midland counties.....	1878	1899	7,648	28,879	572	11,011	4,971	2,630	41,443
		1903	10,209	36,925	195	16,543	6,330	4,035	44,822
Monmouthshire and South Wales.....	1881	1899	30,269	269,911	5,054	116,011	101,819	.....	989,893
		1903	18,982	202,909	2,500	75,571	87,345	18,123	1,031,207
Midland district.....	1883	1899	24,782	30,594	956	.....	18,733	.....	214,769
		1903	31,827	39,554	2,093	.....	20,260	.....	259,699
Thorncliffe and Rockingham.....	1889	1899	3,245	31,896	679	6,856	575	508	72,582
		1903	3,749	50,400	525	7,347	1,325	2,032	113,957

<sup>a</sup> Including balance carried forward from previous year.

Some of the societies publish summary tables showing their status for each year of their existence. The figures given below are reproduced from the report of the West Riding of Yorkshire society for 1903, and show its growth since 1877:



STATISTICAL SUMMARY OF THE WEST RIDING OF YORKSHIRE MINERS' PERMANENT RELIEF FUND FRIENDLY SOCIETY, 1877 TO 1903.

[Source: 27th Annual Report of the West Riding of Yorkshire Miners' Permanent Relief Fund Friendly Society. Conversion of English into United States money was made on the basis of £1=\$4.9665.]

Year.	Membership.			Deaths from accidents.					Widows and children.			
	Full.	Half.	Total.	Half members.	Un-married.	Wid-owers.	Mar-ried.	Total.	Number ad-mitted to benefits.		Number on the fund Dec. 31.	
									Wid-ows.	Chil-dren.	Wid-ows.	Chil-dren.
1877...	3,687	254	3,941		1		4	5	4	12	4	12
1878...	4,861	382	5,243		3		2	5	2		6	11
1879...	6,341	515	6,856	2	3		12	17	12	34	18	44
1880...	8,934	791	9,725	2	8		9	20	9	20	23	60
1881...	10,964	1,019	11,983	1	7	1	14	24	14	39	35	94
1882...	12,619	1,277	13,896	4	5	1	15	25	15	31	49	118
1883...	14,709	1,429	16,138	6	16		33	55	33	63	78	165
1884...	14,097	1,249	15,346	3	10		21	34	20	57	86	206
1885...	14,017	1,357	15,374	3	10	1	13	27	14	28	91	208
1886...	16,616	1,702	18,318	4	17	1	29	51	29	58	106	242
1887...	18,791	1,819	20,610	2	12	3	38	55	38	89	134	290
1888...	18,123	1,870	19,993	5	14		26	45	26	48	51	310
1889...	10,610	1,189	11,799	8	13		34	55	34	51	173	313
1890...	12,462	1,370	13,832	1	7	2	20	30	20	45	172	315
1891...	13,597	1,528	15,125	2	10	1	25	38	25	39	178	314
1892...	14,067	1,394	15,461	2	10		20	32	20	47	181	315
1893...	13,940	1,348	15,288	1	4		11	16	11	19	175	295
1894...	15,091	1,536	16,627	1	10	1	11	23	11	29	175	274
1895...	15,611	1,553	17,164	4	10		13	27	13	20	173	235
1896...	16,989	1,596	18,585	4	5		21	30	21	35	180	224
1897...	17,969	1,576	19,545	6	10	1	15	32	15	32	181	216
1898...	18,665	1,435	20,100	4	10	1	19	34	19	38	187	207
1899...	19,373	1,481	20,854	6	4		16	26	16	25	189	198
1900...	21,127	1,415	22,542	2	5		17	24	17	34	188	196
1901...	23,024	1,463	24,487	2	11		19	32	19	31	187	192
1902...	24,678	1,586	26,264	3	15		20	28	10	11	182	182
1903...	26,204	1,746	27,950	2	12	1	24	39	24	58	195	206
Total				80	242	16	491	829	491	983		

Year.	Permanently disabled members.						Minor accidents.						Aged and infirm members.	
	Number admitted to benefits.			Number on the fund Dec. 31.			Number of members injured.			Average cost per accident. (a)	Number admitted to benefits.	Number on the fund Dec. 31.		
	Full.	Half.	Total.	Full.	Half.	Total.	Full.	Half.	Total.					
1877...							368	26	394	\$4.43				
1878...	12		12	8		8	788	45	833	5.40				
1879...	16		16	11		11	997	58	1,055	5.65				
1880...	23	4	27	23	1	24	1,261	95	1,356	5.28				
1881...	32		32	34	1	35	1,789	120	1,909	5.29				
1882...	37	2	39	45	1	46	2,124	188	2,312	5.45	17	16		
1883...	51	3	54	67	1	68	2,422	203	2,625	5.20	20	33		
1884...	60	2	62	95		95	2,675	194	2,869	5.65	15	40		
1885...	54		54	108		108	2,244	171	2,415	5.82	10	43		
1886...	63	3	66	133	3	136	3,081	280	3,361	5.48	3	40		
1887...	82	3	85	152	3	155	3,831	356	4,187	5.44	1	38		
1888...	80	2	82	159	4	163	3,701	357	4,058	5.52	6	36		
1889...	65	5	70	157	3	160	3,473	361	3,834	5.28	1	33		
1890...	38	1	39	134	2	136	2,622	258	2,880	5.10		20		
1891...	43		43	131	1	132	2,101	274	2,375	5.41	1	35		
1892...	41	4	45	125	2	127	2,228	258	2,486	5.50		21		
1893...	42	1	43	130	1	131	1,617	136	1,753	6.27		18		
1894...	28	3	31	129	2	131	2,774	286	3,060	4.96	1	15		
1895...	51		51	139		139	2,967	267	3,234	5.25		14		
1896...	63	3	66	160	3	163	3,475	308	3,783	5.35	1	11		
1897...	82	3	85	193	3	196	3,929	338	4,267	5.39	1	10		
1898...	81	2	83	209	1	210	3,939	341	4,280	5.32		8		
1899...	77	2	79	232	2	234	3,581	330	3,911	5.65		6		
1900...	100		100	258	2	260	3,754	328	4,082	5.91		3		
1901...	113	2	115	280	2	282	3,974	266	4,240	6.25		3		
1902...	118	7	125	298	5	303	4,379	263	4,642	6.46		2		
1903...	114	3	117	293		293	4,981	281	5,262	6.47		3		
Total	1,566	55	1,621				74,715	6,368	81,083		77			

(a) Computed.

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INCOME OF THE WEST RIDING OF YORKSHIRE MINERS' PERMANENT RELIEF FUND FRIENDLY SOCIETY, 1877 TO 1903.

[Source: 27th Annual Report of the West Riding of Yorkshire Miners' Permanent Relief Fund Friendly Society. Conversion of English into United States money was made on the basis of £1=\$4.8665.]

Year.	Members' contributions.	Honorary donations and subscriptions.	Colliery owners' percentages and donations.	Interest.	Rents from property.	Relief fund surpluses.	Sundries.	Drawn from accumulated funds.	Total.
1877	\$8,202.14	\$1,246.07	\$856.26	\$46.92		\$13,139.55			\$23,490.94
1878	14,656.97	1,064.74	1,972.94	758.06			\$6.33		18,478.06
1879	17,940.77	887.41	1,636.18	1,080.04	\$18.25		6.20		21,568.85
1880	24,853.11	806.62	1,811.58	2,140.04	73.00	909.71	28.55		30,622.61
1881	32,874.43	837.65	3,855.63	2,232.14	36.50		5.01		39,841.36
1882	40,975.79	768.54	3,175.45	2,541.43	70.16		31.81		47,563.18
1883	47,267.67	250.62	4,162.88	2,655.26	185.54				54,521.97
1884	48,122.02	276.42	3,750.41	3,151.46	281.59	7,299.75	40.15		62,921.80
1885	39,602.40	469.37	3,446.21	3,674.98	251.48		18.25		47,462.69
1886	51,797.83	275.57	3,201.75	3,505.58	218.22		18.72		59,017.67
1887	59,955.28	191.86	2,457.62	4,063.95	285.14			\$463.94	67,417.79
1888	58,281.28	298.44	2,811.40	3,856.84	252.19	9,733.00	3.89		75,237.04
1889	57,491.78	386.52	3,492.00	3,887.77	185.77		284.08	4,496.63	70,224.55
1890	50,697.41	766.96	4,345.91	3,791.80	283.35		130.54		60,015.97
1891	57,454.47	700.23	1,438.48	4,760.75	243.57		8.15		64,605.65
1892	61,049.84	946.53	2,429.93	3,923.90	249.04		241.82		68,841.06
1893	43,938.55	582.76	1,120.80	4,004.42	250.87		2.92	3,399.07	53,299.39
1894	63,850.25	875.69	2,088.66	4,172.27	231.40		125.25		71,343.52
1895	66,160.33	694.69	2,690.87	4,369.65	250.87		141.17		74,307.58
1896	71,499.39	825.60	2,175.49	4,852.00	250.87		150.62		79,753.97
1897	76,380.49	888.14	1,341.37	5,869.30	250.87		214.59		84,944.76
1898	79,087.80	698.37	549.63	5,834.34	250.87		211.31		86,622.32
1899	79,736.77	513.17		7,226.61	250.87		221.00		87,948.42
1900	85,130.55	988.63		6,869.43	251.11		228.46		93,488.18
1901	91,625.35	548.99		7,308.12	251.11		4.87		99,736.44
1902	93,565.27	556.97		7,518.46	252.57		751.37		102,644.64
1903	103,656.69	697.86		8,482.19	251.60		495.61		113,582.95

EXPENDITURES OF THE WEST RIDING OF YORKSHIRE MINERS' PERMANENT RELIEF FUND FRIENDLY SOCIETY, 1877 TO 1903.

[Source: 27th Annual Report of the West Riding of Yorkshire Miners' Permanent Relief Fund Friendly Society. Conversion of English into United States money was made on the basis of £1=\$4.8665.]

Year.	Legacies.	Wid-ows and children.	Disablement.		Super-annuation.	Re-turned contributions.	Management.		Sundries and depre-ciation.	Accu-mulated funds.	Total.
			Minor.	Perma-nent.			Local.	Gen-eral.			
1877	\$209.26	\$155.24	\$1,747.07			\$172.77	\$491.54	\$223.94		\$20,491.12	\$23,490.94
1878	320.13	601.90	4,499.73	\$453.88		161.73	962.03	2,216.56		9,262.10	18,478.06
1879	808.89	1,233.78	5,964.75	1,207.95		172.23	1,146.40	2,093.93		8,940.92	21,568.85
1880	1,171.57	2,532.10	7,165.56	2,071.67		348.48	1,507.13	2,171.76	\$132.16	13,522.18	30,622.61
1881	996.09	3,755.97	10,090.20	3,266.40		550.33	1,898.34	2,408.90	87.94	16,787.19	39,841.36
1882	1,187.79	5,170.53	12,605.57	4,077.15	\$719.27	752.81	2,535.73	3,064.66	58.72	17,390.95	47,563.18
1883	3,056.16	7,225.13	14,807.05	6,580.16	1,907.67	780.61	2,947.60	2,985.01	83.09	14,149.49	54,521.97
1884	1,805.47	10,425.67	16,221.75	8,972.85	2,794.59	540.83	3,190.64	3,727.64	163.43	15,078.93	62,921.80
1885	1,459.08	11,113.34	14,046.42	10,996.34	2,955.33	290.49	2,909.26	2,929.25	13.87	709.31	47,462.69
1886	2,895.57	11,994.14	18,322.98	12,847.24	3,006.67	335.14	3,358.11	3,424.17	75.61	2,759.04	59,017.67
1887	2,541.18	14,775.26	22,759.65	16,623.80	2,827.27	369.79	3,762.01	3,276.15	482.68		67,417.79
1888	2,425.22	16,663.02	22,418.87	17,548.44	2,306.35	372.65	3,852.71	3,885.23	580.82	5,183.73	75,237.04
1889	2,647.38	18,574.66	20,179.43	17,808.18	2,198.24	350.75	3,812.82	4,108.42	454.77		70,224.55
1890	1,401.55	19,322.20	11,824.99	16,060.42	1,954.10	384.72	3,199.68	3,792.51	149.50	1,926.30	60,015.97
1891	1,776.27	19,133.92	12,851.09	13,991.51	1,749.71	418.58	3,451.20	3,746.72	955.66	6,530.99	64,605.65
1892	1,722.74	19,797.12	13,660.63	13,945.60	1,438.05	273.05	3,619.36	3,876.90	98.67	10,408.94	68,841.06
1893	773.77	19,242.67	10,988.19	13,679.73	1,230.21	188.36	2,873.47	4,234.18	88.81		53,299.39
1894	1,385.49	18,485.56	15,191.39	13,535.36	1,140.18	239.27	3,813.92	3,615.42	82.35	13,854.58	71,343.52
1895	1,669.21	17,799.71	16,977.15	14,386.02	899.08	206.38	3,943.75	3,459.88	447.66	14,518.74	74,307.58
1896	1,304.22	17,416.60	20,226.27	16,422.49	787.36	229.70	4,218.67	3,590.89	367.74	15,190.03	79,753.97
1897	1,859.00	17,591.51	22,988.62	18,673.73	660.63	249.12	4,460.17	4,144.90	70.71	14,246.37	84,944.76
1898	1,839.54	17,606.27	22,753.69	22,904.99	608.31	279.70	4,723.89	4,453.62	63.63	11,388.68	88,622.32
1899	1,187.43	17,363.87	22,108.02	24,125.84	459.88	254.64	4,842.23	3,942.21	57.32	13,606.98	87,948.42
1900	1,090.10	17,281.27	24,107.91	26,788.79	268.87	281.36	5,087.62	4,074.21	51.54	14,456.51	93,488.18
1901	1,810.34	17,062.84	26,487.02	30,245.30	192.23	272.24	5,494.07	5,120.27	220.55	12,831.58	99,736.44
1902	2,009.86	16,328.57	29,972.77	33,823.15	189.79	261.05	5,662.07	5,371.20		9,026.18	102,644.64
1903	1,956.33	16,959.10	33,897.36	34,556.37	127.75	290.37	6,191.26	5,273.97		14,330.44	113,582.95

One of the prominent features of the system on which the societies are organized is the division of power between the local agency, composed entirely of workmen, and the central committee of management, composed partly of workmen and partly of employers, who are enrolled as honorary members. As a rule, it may be said that the central body manages the funds and directs the general policy of the society, while the local bodies supervise the collecting of dues, payment of benefits, and conduct of members and beneficiaries. This admirable arrangement is one of the strong features of the permanent relief societies. The control of the member receiving benefits is left to his fellows, who are most likely to have an intimate knowledge of the facts of each case, who are best qualified to detect instances of malingering, and whose natural sympathy for a fellow-worker is sufficiently counterbalanced by having the strongest pecuniary interest in keeping the funds of the society as free from burdens as possible. On the other hand, the work of supervision and the control of the society's general policy are aided by the experience of the men of wealth and of standing in the business world who serve as honorary members on the committee of management.

The actuarial standing of the societies is being gradually established on a firmer basis. When the societies were organized, the reports of the mine inspectors contained the only material from which data bearing on the accident rate could be secured. In making a report to the Monmouthshire and South Wales society, Mr. F. G. P. Neison, the actuary who is regarded as an authority on this subject, found that the experience of this society from 1880 to 1898 brought the risks to the following basis per 1,000 employees:

- (a) Fatal accidents will be at the rate of  $3\frac{1}{2}$  per annum.
- (b) Accidents of from 2 to 26 weeks' duration are at the rate of 130 per annum and average  $3\frac{1}{2}$  weeks each.
- (c) Accidents of over 26 weeks' duration occur at the rate of 4 per annum.

The experience of the Lancashire and Cheshire society since 1873 has been as follows:

DEATH RATE FROM ACCIDENT, ETC., IN THE LANCASHIRE AND CHESHIRE MINERS' PERMANENT RELIEF SOCIETY, 1873 TO 1899.

[Source: Report of the 27th Annual Meeting of the Lancashire and Cheshire Miners' Permanent Relief Society, pp. 29-31.]

Period of years.	Deaths from accident per annum per 1,000 members.	Per cent of members killed who were married.	Per cent of claimants of those temporarily disabled.	Average duration of claims for temporary disablement. (weeks).	Number of new permanent disablement cases per 1,000 members per annum.
1873-1876.....	3.24	59.0	18.0	2.8	2.7
1877-1881.....	3.04	57.0	20.0	3.0	3.3
1882-1886.....	2.56	58.0	19.9	3.4	3.8
1887-1891.....	2.17	58.0	16.2	3.8	3.6
1892-1896.....	1.88	63.0	17.2	4.7	4.7
1897-1899 (June 30).....	1.82	63.0	18.9	4.3	5.7

The administration of the relief for the permanently disabled miners has caused much difficulty in the operations of the societies, especially since the passage of the Workmen's Compensation Act of 1897.<sup>(a)</sup> The provisions of that act placed upon the employers certain liabilities for accident to their employees. To reduce this liability to a minimum, employers of mining labor are reported to have generally refused to take any but young, alert men into their service, so that those advanced in years have found it more or less difficult to secure employment. In consequence, whenever an aged or infirm miner met with an accident every effort would be made to have the injury classed as a permanent disablement, with the right to the benefits for that class, practically making an old-age pension out of the disablement allowance. Since the passage of the act many employers have discontinued their contributions to the relief societies on the ground that the liabilities imposed on them by the act were sufficient to protect the workmen, and were in addition such an unknown quantity that employers could not in justice be expected to assume any further burdens on this score. The situation was further complicated by the withdrawal of a large number of miners from membership in the societies because they considered themselves sufficiently protected by the provisions of the act.

At the 1900 meeting of the Lancashire and Cheshire society the board of management reported that a serious actuarial deficit existed in the accounts of the society, due entirely to the drain on its funds through the misuse of the permanent disablement allowance. An increase in the dues and a decrease in the benefits was the only remedy, though this action was expected to cause more members to withdraw from the society. In the same year the North Wales society found itself confronted by a similar deficit. The reports of the other societies, however, do not show that they have yet found it necessary to revise their schedules in connection with this part of their operations.

On the other hand the expenses for the relief of temporary disablement, for the relief of widows and orphans, and for burial allowances, have not exceeded the anticipated rates. The superannuation feature causes a heavy expenditure in the Northumberland and Durham society only, where in 1899 it was £39,667 (\$193,041) and in 1903 \$50,468 (\$245,602), over one-third of the total receipts for each of those years; in the Midland Counties society it amounted to about one-tenth and one-ninth of the annual receipts for the two periods respectively, while in the West Riding of Yorkshire and the Thorncliffe and Rockingham societies it formed an unimportant part of the annual disbursements. In the case of the Northumberland and Durham society, the superannuation expenditures in 1899 encroached on the

<sup>a</sup> Bulletin of the United States Department of Labor, No. 32, pp. 103-132.

invested funds of the superannuation department to the extent of £2,165 (\$10,537). In 1903, as the result of an increase in the superannuation dues, the invested funds of this department showed an increase over the preceding year of £9,635 (\$46,886). The rules of the societies provide that at any time the committee of management may reduce this benefit if the contributions are insufficient to meet the claims.

The above-mentioned Workmen's Compensation Act of 1897 provides that employers may insure themselves in any relief scheme, provided that it is on the whole not less favorable to the general body of workmen than the provisions of the act. Under this clause the Thorncliffe and Rockingham society and the Monmouth and South Wales society have relief funds or "schemes," in which the employers may contribute amounts covering the cost of an insurance which the workmen may accept in lieu of the protection of the compensation act. The Thorncliffe and Rockingham society includes nearly all of the employees of the corporation owning collieries at Thorncliffe, Rockingham, and Tankersley, and is practically a mutual accident insurance association organized under the provisions of the compensation act of 1897.

Owing to the fact that membership in these societies is voluntary, and that they are partially dependent on voluntary contributions from outside sources, it is doubtful if their resources would be sufficient to meet an unusual strain such as might arise from an accident causing the death of a large number of persons, or a prolonged period of industrial depression. It would enhance the stability of the societies if some plan of reinsurance of risks on a broader basis could be devised. For this purpose meetings of representatives of the societies were held in 1878 and in 1880, which resulted in the organization of the Central Association for Dealing with Distress Caused by Mining Accidents. Since then this association has been joined by all the permanent relief societies, and has been active in promoting the welfare of the societies in many ways. Soon after its organization the society commissioned Mr. Neison to formulate a plan for the reinsurance of risks. The plan which he presented applied to fatal accidents only and provided for the assessment of sums varying between 6 d. and 2 s. (\$0.12 and \$0.49) per year on each member, the amount being graduated according to the risk in the various districts. Out of the fund arising from these assessments should be paid to any society the sum of £100 (\$486.65) per death for accidents in which more than five deaths occurred. Though approved in principle, for a variety of reasons the plan was never put into force. Another effort of the Central Association has been directed toward securing for the societies the surplus of those funds which have been contributed by the public on the occasion of great mining catastrophes. Several of



these funds have proved to be in excess of the amount required to provide for the dependents of the victims and have left amounts of various sizes, which the trustees of the funds have generally turned over to infirmaries or other institutions for the benefit of miners. It is claimed by the permanent relief societies that it would be a more rational procedure to maintain the surplus of the fund intact and apply the earnings to insuring miners against similar accidents in the future. The Central Association has succeeded in having £11,800 (\$57,424.70) of the Hartley Colliery accident fund of 1862 turned over to the use of the societies. There are certain legal difficulties, however, which stand in the way of the application of such a procedure to all the surplus funds, and thus far the association has not succeeded in having the obstacles removed. The 1899 report of the Northumberland and Durham Society states that the home secretary had declined to assume the responsibility of making any arrangement to facilitate the transfer of these surplus funds. The remedy of an act of Parliament has not yet been obtained.

#### MINE WORKERS' UNIONS.

Miners' organizations existed in Great Britain as early as the beginning of the nineteenth century. These were mostly local organizations formed for the purpose of securing better conditions of employment. In 1810, however, a secret, oath-bound brotherhood of mine workers inaugurated an extensive coal mine strike.

The first large mine workers' organization in Great Britain of which any account is given in official reports was the Miners' Association of Great Britain and Ireland, founded at Wakefield in 1841. Miners from most of the coal mines of the north of England joined the association, and its membership in 1844 was said to exceed 100,000. In that year a strike was instituted in which about 40,000 mine workers took part. The strike was a complete failure, and as a result the organization was so weakened that in a few years it practically ceased to exist. Other organizations, however, were formed and trade unions gradually became general among the coal mine workers.

The first permanent organization was founded in 1856. Of the other coal miners' associations in existence at the close of the year 1901, one was founded in 1858; two each year in 1863, 1864, and 1869; one in 1870; three in 1872; two each in 1874 and 1875; one each in 1876 and 1879; two in 1880; one each in 1883 and 1885; four in 1886; five in 1887; two in 1888, 1889, and 1891; one in 1892; two each in 1893 and 1895; one in 1896; two each in 1897 and 1898, and one each in 1899, 1900, and 1901.

At the present time coal miners are probably the best organized of any of the working people in the United Kingdom. Their form of organization is that of the county and district union, each composed



of a number of local branches. These county or district unions are again organized into larger federations, in which the units of membership are the unions which are federated.

The largest of the district organizations is the Durham Miners' Union, with a membership of 70,585 at the close of 1901, exclusive of 11,000 "half members" or boys. It was founded in 1869, and comprises 188 local branches. The second in membership is the Yorkshire Miners' Union, consisting of 148 local branches and having a membership of 60,000 at the close of 1901. It was founded in 1858. In 1898 a union was formed of nine miners' organizations in South Wales and Monmouth under the name of the South Wales Miners' Federation, which at the end of 1901 comprised 402 local branches and had a combined membership of 124,097. In the British reports this organization is classed with the miners' unions and not with the federations.

At the close of the year 1901 there were in the United Kingdom 50 coal miners' unions, with an aggregate membership of 491,388, four unions of other mine workers, with an aggregate membership of 13,635, and five unions of quarrymen, with an aggregate membership of 9,513.

The following table gives the name, year of organization, number of branches, and membership of each miners' and quarrymen's union in the United Kingdom in 1901:

TRADE UNIONS OF MINE WORKERS AND QUARRYMEN IN THE UNITED KINGDOM AND THEIR MEMBERSHIP AT THE END OF 1901.

[Source: Report on Trade Unions, 1901.]

Title of union.	Year organized.		Branches	Members- hip.
	Regis- tered.	Unregis- tered.		
Coal mining:				
England and Wales—				
Northumberland—				
Northumberland Miners.....	1863		65	24,138
Northumberland Colliery Enginemen and Fire- men.....	1864		10	855
Northumberland Colliery Mechanics.....	1875		28	810
Northumberland Deputies.....	1876		51	1,001
Durham—				
Durham Miners.....	1869		188	70,585
Durham County Enginemen and Boiler Minders..	1872		32	2,217
Durham Cokemen and Laborers.....	1874		82	3,262
Durham Deputy Overmen.....	1875		90	1,263
Durham Colliery Mechanics.....	1879		73	3,037
Cumberland—				
Cumberland Miners.....	1872		23	5,223
Cumberland County Colliery Enginemen.....	1889		1	130
Yorkshire—				
Yorkshire Miners.....	1858		148	60,000
Ardale Oaks Surface-men.....		1872	1	84
Lancashire and Cheshire—				
Wigan, Bolton and District Colliery Enginemen.	1856		2	256
St. Helen's Colliery Enginemen.....	1864		1	160
Farnworth Enginemen, Boilermen, and Firemen.	1891		1	32
Radcliffe Enginemen, Boilermen, and Firemen..	1891		1	57
Chowbent Colliery Enginemen.....		1893	1	88
Lancashire Cokemen and Laborers.....	1895		4	400
Lancashire and Cheshire Miners' Federation.....	1897		98	39,763
Wigan and District Labor Union (b).....	1898		6	83
Ascrington Colliery Enginemen.....		1900	1	24

<sup>a</sup> Excluding "half members" (boys), of whom there were 11,000 in 1901.

<sup>b</sup> Coal and ironstone miners in West Lothian and Renfrewshire.

TRADE UNIONS OF MINE WORKERS AND QUARRYMEN IN THE UNITED KINGDOM  
AND THEIR MEMBERSHIP AT THE END OF 1901—Concluded.

[Source: Report on Trade Unions, 1901.]

Title of union.	Year organized.		Branches	Member-ship.
	Regis-tered.	Unregis-tered.		
Coal mining—Concluded.				
England and Wales—Concluded.				
Midland counties—				
South Staffordshire and East Worcestershire Amalgamated Miners	1863		58	1,800
North Stafford Miners' Federation	1869		42	10,105
Engineers, Smiths, and Carpenters, Ilkeston		1874	1	57
Derbyshire Miners	1880		82	24,286
Nottinghamshire Miners	1880		45	20,839
Miners' Protection Society for parts of Staffordshire, Worcestershire, and Salop	1883		21	1,000
Warwickshire Miners	1885		32	5,250
Forest of Dean Miners		1886	32	2,530
Shropshire Miners		1886	1	600
Bristol Miners	1887		10	2,423
Cannock Chase Miners, Enginemen, and Surface men	1887		30	4,000
Coalville and District Miners	1887		12	3,289
Pelsall District Miners	1887		33	2,343
Somersetshire Miners		1888	19	2,832
South Derbyshire Amalgamated Miners	1888		12	2,632
Underground Colliery Firemen, Shotlighters, and Underlookers (Staffordshire)		1901	3	67
North Wales—				
Denbighshire and Flintshire Miners' Federation	1892		27	7,617
South Wales and Monmouthshire—				
South Wales Colliery Winding Enginemen	1895		2	298
South Wales Miners' Federation	1898		402	124,097
Scotland—				
Fife and Kinross Miners		1870	39	11,000
Amalgamated Miners and Manual Workers (a)		1886	612	1,200
Ayrshire Miners' Federal Union		1886	26	7,337
Clackmannanshire Miners		1887	5	1,083
Mid and East Lothian Miners		1889	17	3,260
Kirkintilloch and District Miners		1893	4	725
Lanarkshire Miners' County Union		1896	112	30,000
Scottish Central Miners		1897	650	4,100
Stirlingshire Miners		1899	12	2,750
Total coal mining			2,048	491,388
Other mining:				
Cleveland Miners and Quarrymen	1872		29	6,758
Dalton and District United Workmen's Association	1888		7	928
Cumberland Iron Ore Miners and Quarrymen	1888		6	2,449
Scottish Shale Miners and Manual Workers		1900	14	3,500
Total other mining			56	13,635
Quarrying:				
Quarrymen's Trade Association (Gateshead)	1840		2	301
North Wales Quarrymen	1874		12	4,761
Saltmakers of Great Britain and Ireland	1886		51	3,242
National Union of Quarrymen	1887		14	974
Cumberland Limestone Quarrymen		1901	2	235
Total quarrying			81	9,513
Total mining and quarrying			2,185	514,536

a Coal and ironstone miners in West Lothian and Renfrewshire.  
b Estimated.

In the next table, which shows the membership each year from 1880 to 1901, the coal mine workers are grouped according to mine districts.

MEMBERSHIP OF COAL MINE WORKERS' TRADE UNIONS IN GREAT BRITAIN, 1880 TO 1901, BY DISTRICTS.

[Source: Annual Reports on Trade Unions, 1894, 1900, 1901.]

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Year.	England and Wales.							Scotland	Great Britain.
	Northumberland.	Durham.	Cumberland.(a)	Yorkshire.(b)	Lancashire and Cheshire.(c)	Midland counties.(d)	North Wales.		
1880	10,707	34,064	1,000	2,900	606	602	230		49,999
1881	10,795	33,405	600	5,000	1,065	675	170		51,710
1882	10,381	40,607	1,500	11,000	3,637	1,113	400		68,538
1883	11,387	39,874	1,500	12,000	3,311	1,715	300		70,087
1884	12,920	41,450	2,000	8,000	2,742	2,306	211		69,829
1885	13,378	37,796	2,000	7,000	2,619	2,079	183		66,655
1886	14,077	32,438	2,000	8,000	2,312	2,117	393	4,000	65,337
1887	12,988	32,216	2,300	8,000	2,907	3,382	407	2,000	64,410
1888	12,706	39,574	2,300	10,000	5,584	4,318	426	1,200	76,108
1889	15,565	51,727	2,316	35,000	10,603	14,347	415	1,600	132,702
1890	17,601	43,323	3,259	50,000	12,146	21,820	743	3,003	154,128
1891	18,016	62,104	3,481	62,000	30,410	38,056	1,232	3,260	210,084
1892	18,340	55,977	4,061	55,000	29,960	63,174	1,462	15,559	227,316
1893	18,587	55,499	3,099	55,000	32,806	62,718	5,414	12,999	262,779
1894	19,102	63,865	3,088	55,114	23,860	60,223	7,531	15,150	261,779
1895	21,920	64,694	2,383	50,497	28,386	59,079	4,191	12,611	259,118
1896	21,988	66,581	2,358	50,169	26,918	56,165	2,885	22,091	266,562
1897	23,051	68,219	2,304	50,063	27,561	56,259	2,212	19,846	266,994
1898	23,817	68,613	3,383	50,075	31,786	58,251	2,732	73,074	287,735
1899	24,989	73,846	3,384	51,072	31,802	67,947	3,689	107,776	440,209
1900	26,348	76,671	5,465	54,451	39,029	89,134	5,871	128,145	482,743
1901	26,304	80,364	5,453	60,084	40,863	84,453	7,617	124,395	491,388

a Reported as West Cumberland Miners' Association, 1880 to 1895.

b Reported separately as Yorkshire Miners' Association, and Yorkshire and Derbyshire Colliery Deputies' Association, 1880 to 1895.

c Reported as Lancashire, 1880 to 1895.

d Reported as Midland and Southwestern counties, 1880 to 1895.

e Excluding 1,676 half members.

f Excluding 1,710 half members.

g Excluding 11,000 half members.

The growth of these organizations in the 22 years has been remarkable. While the earlier reports may have lacked completeness and the membership shown for those years may in consequence be too small, the table shows that during this period the mine workers' membership has increased about tenfold. The Northumberland, Durham, and Cumberland districts have been well organized throughout this period, but in all the other districts the thorough organization of the mine workers did not take place until ten or twelve years ago. This is particularly true of the Welsh and Scotch coal mine workers.

The coal miners' unions in England and Wales are mostly registered under the trades unions acts of 1871 and 1876, but none of the unions in Scotland existing in 1901 had availed itself of the privileges of these laws. By registration, which is voluntary on the part of trade unions, they assume certain obligations to the State, such as filing copies of constitutions and rules, making annual financial reports, etc. They are left absolutely free, however, to form such organizations as they desire, but the rules must contain information concerning a number of matters, such as objects of the union, investment of funds, etc. On the other hand, the unions after registration can sue and

be sued, can be represented by trustees, and can hold property in their corporate names. The members of registered unions are individually protected against dishonest officers through the obligation placed upon the latter to make reports, and through the facility offered by the acts for recovering by an action at law any money or property misappropriated by them.<sup>(a)</sup>

In the following table are shown the number of unions and branches in the mining and quarrying industries, and the number and membership of registered and unregistered unions from 1895 to 1901, the years for which returns are published:

NUMBER AND MEMBERSHIP OF REGISTERED AND UNREGISTERED MINERS' AND QUARRYMEN'S UNIONS IN THE UNITED KINGDOM, 1895 TO 1901.

[Source: Annual Reports on Trade Unions, 1895-1901.]

Year.	Unions.	Branches.	Registered.		Unregistered.	
			Unions.	Members.	Unions.	Members.
1895.....	78	(a)	54	231,802	24	36,582
1896.....	86	1,711	56	230,144	30	54,662
1897.....	64	1,543	43	215,880	21	66,552
1898.....	58	1,776	39	276,456	19	76,370
1899.....	60	2,029	42	370,974	18	53,909
1900.....	59	2,092	44	432,840	15	68,450
1901.....	59	2,185	40	442,864	19	71,672

<sup>a</sup> Not reported.

While the original purpose of the mine workers' unions—the securing of better conditions of employment and safety in mines—is still paramount, other features, such as benefit funds for unemployment, sickness, superannuation, accident, funeral, and other purposes, have been instituted in all the larger miners' associations.

Statistics of income and expenditure are available for only the most important of the miners' organizations. In the following table are shown for each of the 13 largest miners' unions the total membership, the amount of the income and expenditures during the year, and the funds on hand at the close of the year:

<sup>a</sup> For a more extended discussion of trade-union registration, see Bulletin of the United States Department of Labor, No. 25 pp. 773 to 781.

## MEMBERSHIP, RECEIPTS, EXPENDITURES, AND FUNDS ON HAND OF 13 PRINCIPAL COAL MINERS' UNIONS IN GREAT BRITAIN, 1892 TO 1901.

[Source: Report on Trade Unions, 1901. Conversion of English into United States money was made on the basis of £1—\$4.8665.]

Name of union and year.	Members- hip at close of year.	Receipts.	Expendi- tures.	Funds at end of year.
<b>Northumberland Miners:</b>				
1892	17,059	\$78,409.05	\$69,517.95	\$124,139.55
1893	17,367	88,701.70	63,541.89	149,299.35
1894	17,772	92,760.36	49,482.57	192,577.14
1895	20,522	56,942.92	51,672.50	197,847.56
1896	19,894	62,719.45	37,968.43	222,598.58
1897	20,884	63,775.48	66,393.66	219,980.40
1898	21,594	64,617.39	40,129.16	244,468.63
1899	22,667	68,963.17	24,789.95	288,641.85
1900	23,950	76,199.66	25,320.40	339,521.11
1901	24,138	77,494.15	30,717.35	386,297.90
<b>Durham Miners:(a)</b>				
1892	50,000	528,623.56	621,310.92	176,950.81
1893	50,000	510,525.05	499,579.63	197,896.23
1894	58,274	374,053.79	275,954.88	295,995.13
1895	58,400	403,676.17	444,608.31	255,063.00
1896	59,153	455,674.73	418,373.01	292,364.72
1897	60,738	382,029.98	318,682.75	355,711.95
1898	60,954	382,273.31	288,938.71	449,046.55
1899	64,563	411,170.59	251,233.06	608,964.08
1900	66,500	440,403.65	241,271.34	808,116.39
1901	70,585	475,875.57	305,878.99	978,112.97
<b>Durham Colliery Enginemen and Boiler Mind- ers:</b>				
1892	1,689	17,906.52	30,109.04	9,256.08
1893	1,597	9,046.82	7,703.67	10,599.24
1894	1,800	8,438.51	6,185.32	12,852.43
1895	1,649	8,370.38	6,491.91	14,730.90
1896	1,638	8,501.77	7,742.60	15,490.07
1897	1,641	8,633.17	6,720.64	17,402.60
1898	1,655	9,153.88	5,625.67	20,930.82
1899	1,847	9,966.59	5,654.88	25,242.54
1900	2,062	11,708.80	6,418.91	30,532.42
1901	2,217	13,163.88	7,528.47	36,167.83
<b>Durham Cokemen and Laborers:</b>				
1892	2,819	19,840.72	22,755.75	1,863.87
1893	2,659	8,530.97	9,465.34	929.50
1894	2,440	7,806.34	7,207.29	1,328.55
1895	2,632	6,394.58	5,289.88	2,433.25
1896	2,708	8,375.25	9,645.40	1,163.09
1897	2,800	6,895.83	5,168.22	2,890.70
1898	2,850	7,489.54	5,528.34	4,851.90
1899	3,673	9,285.28	4,652.38	9,484.81
1900	3,713	10,793.90	6,199.92	14,078.78
1901	3,262	9,596.74	7,903.20	15,772.33
<b>Cumberland Miners:</b>				
1892	4,961	101,836.38	101,695.25	3,820.20
1893	3,669	49,565.30	52,154.28	1,231.22
1894	3,088	26,731.68	25,914.11	2,048.80
1895	2,383	9,913.06	9,825.46	2,136.39
1896	2,274	9,080.89	6,462.71	4,754.57
1897	2,732	10,910.69	9,207.42	6,467.85
1898	3,811	13,631.06	13,139.55	6,949.36
1899	3,812	15,076.42	9,869.26	12,156.52
1900	5,340	17,538.87	15,903.72	13,791.66
1901	5,223	23,393.27	20,799.42	16,385.50
<b>Yorkshire Miners:</b>				
1892	55,000	356,446.79	132,568.33	797,259.23
1893	55,000	628,206.75	1,307,910.81	117,555.17
1894	55,000	575,911.34	310,482.70	382,963.82
1895	50,379	321,266.86	248,468.89	455,781.79
1896	50,000	304,034.69	187,379.72	572,436.66
1897	50,000	290,953.44	196,124.82	667,265.28
1898	50,000	289,627.25	285,887.41	670,005.12
1899	51,000	321,549.12	186,102.72	835,451.52
1900	54,475	386,799.15	156,876.50	1,065,374.18
1901	60,000	434,213.46	364,544.65	1,135,042.99
<b>Derbyshire Miners:</b>				
1892	17,847	92,117.98	45,910.56	140,500.72
1893	18,986	109,549.78	246,726.68	3,323.82
1894	17,908	146,048.53	67,873.08	81,499.28
1895	19,675	87,667.80	42,951.73	126,115.35
1896	15,142	84,531.11	24,201.11	186,445.35
1897	15,286	86,054.32	29,276.87	243,222.80
1898	16,323	88,974.22	40,966.20	291,230.83
1899	20,329	108,557.02	18,273.71	381,514.13
1900	24,330	131,230.04	24,551.49	458,192.68
1901	24,286	161,378.01	45,131.92	604,438.77

<sup>a</sup> Exclusive of "half members," of whom there were 11,000 in 1901.

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MEMBERSHIP, RECEIPTS, EXPENDITURES, AND FUNDS ON HAND OF 13 PRINCIPAL COAL MINERS' UNIONS IN GREAT BRITAIN, 1892 TO 1901—Concluded.

[Source: Report on Trade Unions, 1901. Conversion of English into United States money was made on the basis of £1—\$4.8665.]

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Name of union and year.	Member-ship at close of year.	Receipts.	Expenditures.	Funds at end of year.
<b>Nottinghamshire Miners:</b>				
1892	17,011	\$46,450.74	\$29,164.94	\$67,128.50
1893	18,835	126,100.75	189,209.52	4,019.73
1894	16,580	199,190.71	191,204.79	12,005.65
1895	13,363	71,853.87	24,006.44	59,853.08
1896	14,642	72,841.77	16,915.96	115,778.90
1897	14,609	77,026.96	25,709.72	167,096.15
1898	15,287	82,068.66	44,796.13	204,368.67
1899	16,766	93,694.73	33,700.51	264,362.88
1900	19,968	104,731.93	19,568.20	349,526.63
1901	20,839	120,713.63	37,364.99	432,875.18
<b>Warwickshire Miners:</b>				
1892	4,000	17,139.81	14,205.31	15,120.21
1893	4,137	31,953.44	42,620.81	4,452.85
1894	4,209	20,439.30	12,053.52	12,808.63
1895	4,209	20,750.76	6,117.19	27,442.19
1896	4,500	24,833.75	11,363.54	40,922.40
1897	4,600	25,597.79	10,857.16	55,663.03
1898	5,000	25,179.27	12,096.12	68,744.18
1899	5,000	22,896.88	9,494.54	82,146.52
1900	5,000	26,780.35	12,862.16	96,064.71
1901	5,250	30,264.76	16,842.96	109,486.52
<b>Cannock Chase Miners, Enginemmen, and Sur- facemen:</b>				
1892	6,840	28,678.29	24,994.34	28,761.02
1893	6,497	60,320.27	76,837.17	12,244.11
1894	5,723	22,239.81	15,543.60	18,940.42
1895	4,865	13,645.67	5,246.09	27,340.00
1896	3,500	9,791.40	7,085.62	30,045.77
1897	3,002	6,350.91	7,071.02	31,325.66
1898	3,420	14,239.38	10,287.78	35,277.26
1899	4,052	17,806.62	11,139.42	41,944.36
1900	4,026	18,736.03	11,450.87	49,229.51
1901	4,000	17,324.74	13,006.15	53,546.10
<b>Coalville and District Miners:</b>				
1892	2,758	14,740.63	8,813.23	23,928.58
1893	2,859	26,760.22	47,599.24	5,119.56
1894	2,731	21,140.08	9,144.15	17,115.48
1895	2,541	10,886.36	3,865.66	24,016.18
1896	2,499	10,034.72	4,044.06	30,006.84
1897	2,443	12,536.11	2,905.30	39,637.64
1898	2,990	14,784.43	8,015.13	46,406.94
1899	2,431	14,906.09	3,304.35	58,008.68
1900	3,301	19,281.07	3,051.30	74,238.46
1901	3,289	20,312.77	3,026.96	91,524.26
<b>Fife and Kinross Miners:</b>				
1892	6,500	23,962.65	10,288.32	67,313.43
1893	6,500	21,699.72	28,556.62	60,456.53
1894	8,000	110,737.21	156,156.25	15,037.48
1895	7,000	23,806.92	9,003.03	29,841.38
1896	6,500	20,560.06	7,976.19	42,426.15
1897	6,500	19,709.33	10,214.78	51,920.69
1898	6,500	21,806.79	12,818.36	60,909.11
1899	8,000	27,958.04	10,146.65	78,720.50
1900	11,500	44,153.76	16,268.71	106,605.55
1901	11,000	40,109.69	23,573.33	123,141.92
<b>Mid and East Lothian Miners:</b>				
1892	3,413	3,654.74	2,949.10	6,691.44
1893	3,400	4,681.57	1,270.16	10,102.85
1894	3,670	44,226.75	50,869.53	3,460.08
1895	3,000	8,122.19	6,316.72	5,265.55
1896	2,500	6,199.92	2,657.11	8,808.36
1897	2,500	7,319.22	4,097.59	12,029.99
1898	2,540	9,246.35	5,338.55	15,937.79
1899	2,750	8,175.72	3,834.80	20,278.70
1900	3,250	11,163.75	5,241.22	26,201.24
1901	3,260	11,514.14	6,949.36	30,766.01
<b>Total, 13 unions:</b>				
1892	189,897	1,329,707.86	1,114,263.04	1,462,733.64
1893	191,536	1,677,672.34	2,563,175.82	677,230.16
1894	196,956	1,649,524.51	1,178,101.79	1,048,652.89
1895	190,609	1,043,197.54	863,983.81	1,227,866.62
1896	183,950	1,077,180.31	741,805.46	1,563,241.46
1897	187,735	999,793.23	692,429.95	1,870,604.73
1898	192,924	1,022,091.53	773,569.11	2,119,127.16
1899	208,890	1,130,006.16	542,196.23	2,706,937.09
1900	227,415	1,299,520.96	544,984.74	3,461,473.32
1901	237,349	1,435,354.71	883,299.75	4,013,558.28



The chief expenditures of the miners' unions are in the form of unemployment, dispute, sick and accident, and funeral benefits. In the following table are shown the expenditures of 15 principal miners' and quarrymen's unions for each of these benefits during the years 1892 to 1901. Of these 15 unions, 13, for which the statistics are given in the preceding table, are coal mine workers' unions, and the 2 others are unions of metalliferous miners and quarrymen.

EXPENDITURES OF FIFTEEN PRINCIPAL MINERS' AND QUARRYMEN'S UNIONS IN GREAT BRITAIN, 1892 TO 1901.

[Source: Report on Trade Unions, 1901.]

Year.	Membership at end of year.	Unemployment benefits.		Dispute benefits.		Sick and accident benefits.	
		Amount.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.
1892.....	198,527	\$37,170.33	3.3	\$630,625.40	55.3	\$77,820.20	6.8
1893.....	199,556	303,839.93	11.7	1,722,682.80	66.4	108,944.14	4.2
1894.....	201,205	129,633.83	10.9	316,497.69	26.7	96,488.10	8.1
1895.....	194,879	331,145.86	38.1	201,487.70	23.2	117,053.92	13.4
1896.....	193,081	206,753.38	27.8	192,119.69	25.5	120,260.95	16.0
1897.....	198,563	121,063.92	15.7	211,079.57	27.5	153,051.43	19.9
1898.....	199,942	66,841.38	8.5	244,050.11	31.1	136,339.86	17.4
1899.....	214,994	49,867.03	9.1	89,110.48	16.2	155,440.88	28.3
1900.....	237,355	21,505.06	3.8	56,762.86	10.2	164,740.76	29.5
1901.....	248,868	86,268.45	9.0	328,167.56	34.4	172,459.03	18.1

  

Year.	Funeral benefits.		Other benefits and grants. <sup>(a)</sup>		Working and other expenses.		Total expenditures.
	Amount.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.	
1892.....	\$37,666.71	3.3	\$170,103.64	14.9	\$186,494.02	16.4	\$1,139,880.30
1893.....	45,487.17	1.8	258,839.40	10.0	153,411.55	5.9	2,593,104.79
1894.....	37,924.63	3.2	323,627.12	27.3	282,446.79	23.8	1,186,618.16
1895.....	39,131.53	4.5	24,794.82	2.8	156,526.11	18.0	870,139.93
1896.....	40,318.95	5.4	22,789.82	3.0	167,996.45	22.3	752,239.24
1897.....	41,082.99	5.3	68,053.14	8.9	174,186.63	22.7	768,517.68
1898.....	42,124.42	5.4	121,652.77	15.5	173,300.93	22.1	784,309.47
1899.....	46,475.08	8.4	24,950.55	4.5	184,338.15	33.5	560,182.16
1900.....	48,626.07	8.7	39,228.86	7.0	227,932.26	40.8	558,795.86
1901.....	61,721.82	6.5	55,439.17	5.8	250,031.04	26.2	964,087.06

<sup>a</sup> Including grants to members, grants from one union to another, payments to federations, trades councils, congresses, etc.

While the amount expended during the period for dispute benefits greatly exceeds the amount for any of the other items, there appears to be a tendency to increase in the amount paid for sick, accident, and funeral benefits, a tendency which is noticeable in most of the other trade unions in the United Kingdom. Superannuation benefits, although quite common in other trades, had not been organized in any of the principal coal miners' unions in 1901.

The expenditure per member for these items in the 15 principal miners' and quarrymen's unions shows the extent of the burden which is imposed upon each mine worker in carrying out the purposes of the unions. This is given in the table following.

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EXPENDITURES PER MEMBER OF FIFTEEN PRINCIPAL MINERS' AND QUARRYMEN'S UNIONS IN GREAT BRITAIN, 1892 TO 1901.

[Computed from preceding table.]

Year.	Membership at end of year.	Unemployment benefits.	Dispute benefits.	Sick and accident benefits.	Funeral benefits.	Other benefits and grants.	Working and other expenses.	All expenditures.
1892.....	198,527	\$0.19	\$3.17	\$0.39	\$0.19	\$0.86	\$0.94	\$5.74
1893.....	199,556	1.52	8.63	.54	.23	1.30	.77	12.99
'894.....	201,205	.64	1.57	.48	.19	1.61	1.40	5.89
1895.....	194,579	1.70	1.04	.80	.20	.13	.80	4.47
1896.....	193,081	1.08	1.00	.62	.21	.12	.67	3.90
1897.....	196,563	.61	1.06	.77	.21	.34	.88	3.67
1898.....	199,942	.33	1.22	.68	.21	.61	.67	3.92
1899.....	214,994	.23	.41	.72	.22	.12	.86	2.56
1900.....	237,355	.06	.24	.69	.20	.17	.96	2.25
1901.....	248,868	.35	1.32	.69	.25	.22	1.00	3.83

In addition to the individual unions, there were at the close of the year 1901 (a) a national federation of mine workers, consisting of 3 minor federations and 10 unions, representing an affiliated membership of 344,412, or over two-thirds of the trade unionists in the mining and quarrying industries of Great Britain; (b) 9 minor federations comprising 33 unions with a total membership of 205,745.

The Miners' Federation of Great Britain was founded in 1888. While it does not interfere with the financial autonomy or internal administration of its constituent unions, it effectively centralizes the parliamentary policy of the whole body of its members.

The following table shows the membership of each miners' federation from 1897 to 1901, the number of unions affiliated at the end of the year 1901, and the year when each federation was formed:

STATISTICS OF MINE WORKERS' FEDERATIONS IN GREAT BRITAIN, 1897 TO 1901.

[Source: Report on Trade Unions, 1901.]

Name of federation.	Year of formation.	Trade unionists represented in each federation at the end of—					Number of unions and branches affiliated in 1901.	
		1897.	1898.	1899.	1900.	1901.	Entire unions.	Branches of other unions.
Miners' Federation of Great Britain.....	1889	148,562	159,360	238,300	363,335	344,412	13	.....
Midland Counties.....	1886	13,482	15,550	17,324	22,200	22,824	7	.....
Southwestern Counties.....	1894	4,000	4,000	4,000	4,900	5,030	2	.....
Scotland.....	1894	15,700	20,950	32,350	48,950	50,700	8	.....
Northumberland Workmen's Federation Board.....	1882	20,432	22,491	24,482	24,690	25,949	3	.....
Durham Mining Federation Association.....	1878	66,868	67,363	72,594	75,239	78,828	4	.....
Durham, Lancaster, and Yorkshire Cokemen's Federation.....	1900	.....	.....	.....	4,065	3,662	2	.....
Cumberland and North Lancaster Federation.....	1891	5,442	6,942	9,702	9,856	9,344	4	6
Iron Ore Miners.....	1890	1,702	1,816	4,068	4,161	3,428	2	.....
National Colliery Surface Workers.....	1894	3,625	(b)	7,078	5,790	5,980	1	59

<sup>a</sup> Includes 3 federations.

<sup>b</sup> Dissolved 1898; reorganized 1899.

The coal mine workers are the most extensively organized workmen of the United Kingdom. During the four years 1898 to 1901 their aggregate trade union membership has been greater than that of any other industry.

The following table gives a comparison for the years 1892 to 1901 of the trade union membership of the different groups of organized industries in the United Kingdom:

MEMBERSHIP OF TRADE UNIONS IN THE UNITED KINGDOM, BY GROUPS OF INDUSTRIES, 1892 TO 1901.

[Source: Report on Trade Unions, 1901.]

Year.	Coal mining.	Total mining and quarrying.	Metal engineering and ship-building.	Building trades.	Textiles.	Clothing.	Transportation.	Other unions.	Total membership.
1892.....	257,316	315,272	279,392	157,971	204,172	83,270	154,658	308,563	1,503,298
1893.....	282,779	318,112	266,634	172,870	205,647	80,738	141,731	294,559	1,480,291
1894.....	261,779	307,546	263,628	178,721	214,425	81,737	123,103	267,865	1,437,025
1895.....	259,118	280,215	269,019	179,283	218,878	78,510	119,741	262,840	1,408,486
1896.....	266,562	279,977	303,368	193,341	218,016	76,933	134,397	289,444	1,495,476
1897.....	266,994	283,054	319,523	214,929	218,722	75,780	183,057	318,688	1,613,753
1898.....	340,966	354,640	309,120	232,126	214,562	71,124	146,933	320,956	1,649,461
1899.....	409,209	426,565	331,875	249,965	220,721	67,317	163,151	344,303	1,803,897
1900.....	482,743	505,056	338,205	253,270	220,939	67,701	169,272	356,171	1,910,614
1901.....	491,388	514,536	334,913	248,648	219,256	66,291	166,434	372,702	1,922,780

### LABOR DISPUTES.

Information regarding coal mine disputes was not regularly gathered in Great Britain until the year 1888, when the labor department of the British Board of Trade began the publication of annual reports on strikes and lockouts. The only information of an official character regarding mining disputes prior to 1888 is such as is published in parliamentary reports, and is of a fragmentary character.

In the British report on strikes and lockouts for 1888 a compilation is presented of the principal strikes that have occurred in various industries from the earliest dates for which information was available up to and including the year 1887. The information was obtained from reports of parliamentary commissions, from trade union reports, from newspaper files, and from private works. The following information regarding disputes from 1765 to 1887 in the coal-mining industry has been extracted from this compilation.

The earliest authentic record of any coal mine dispute in Great Britain is that of an unsuccessful strike of several weeks' duration in 1765 in Northumberland against the yearly bond system.

In 1810 a strike of seven weeks' duration occurred in Northumberland during which 300 miners were imprisoned. The strike was against a variation of the yearly bond service and resulted in a compromise.

In 1817 an unsuccessful strike of 140 miners occurred in Ayrshire, the cause being a demand for increased wages.

In 1824 a strike lasting 9 weeks and involving 1,400 miners occurred likewise in Ayrshire. The strike was for an advance in wages and it was unsuccessful. During the same year a strike occurred in Renfrewshire and Sterling for an advance in wages, which was successful.

In 1831 a general strike of the miners of Northumberland and Durham took place. The strike, which was for a number of different causes, lasted from 9 to 10 weeks and resulted in much violence and destruction of property. It was finally successful.

In 1832 another strike occurred in the same locality, the object of which was to maintain the union. It lasted 5 months, resulted in much violence and loss of life, and was unsuccessful.

In 1843 a strike occurred in Wingate, Durham, but the details concerning this strike are unknown. During the same year a strike occurred in Thornly, Durham, against an alleged unfair weighing machine, which lasted 2 weeks and proved unsuccessful. During the progress of this strike 68 men were sentenced to 6 weeks' imprisonment for a breach of contract.

In 1844 occurred the largest coal miners' strike up to that time. This was the result of the organization of the miners of Northumberland and Durham, the immediate cause being a demand for alterations in the terms of the yearly bond. The strike lasted 18 weeks and involved from 30,000 to 40,000 miners, and resulted in an estimated loss of from £15,000 (\$72,997.50) to £20,000 (\$97,330) in wages. The strike was a complete failure, new men being obtained from other localities.

From 1849 to 1853 a large number of minor strikes occurred in the Northumberland and Durham districts, some of which were attended with much violence. They were generally unsuccessful.

In 1858, 800 miners in West Yorkshire struck for increased wages and later 2,400 miners were locked out. The dispute was finally compromised after many months. The estimated loss was £47,000 (\$228,725.50) to the mine owners and £53,725 (\$261,452.71) in wages.

In 1861 a strike occurred in Cramlington, Northumberland, for an advance in wages. It resulted in a compromise. In this colliery there had been at that time 23 strikes in 22 years.

In 1863 a strike occurred in Wilmington, Durham, owing to a dispute as to the weight of coal sent to the bank. This strike lasted 5 months, involved 1,200 miners, and resulted in a loss of £25,000 (\$121,662.50) in wages. The strikers were unsuccessful, many of them were evicted from their houses, and their places were filled by persons from other sections.

In 1864 a strike of 37,000 miners occurred in South Yorkshire as a result of a demand for increased wages. It lasted 18 weeks and caused a loss of about £60,000 (\$291,990) in wages. The result of

this strike is not known. The same year a strike in South Staffordshire against a reduction of wages involved 20,000 miners and lasted 18 weeks. The result of this strike is likewise unknown.

In 1865 a strike in Cramlington, Northumberland, for an advance of wages lasted 20 weeks, involved 600 working people, and resulted in a loss of £12,000 (\$58,398) in wages. The strike was unsuccessful. The strikers were evicted from their houses, and their places were filled by others. During the strike £4,290 (\$20,877.29) was subscribed in aid of the strikers.

Strikes occurred in South Wales in 1871, 1872, and 1873. The first lasted 12 weeks, involved 18,000 mine workers, and resulted in a loss of £216,000 (\$1,051,164) in wages. The second lasted 1 week, affected 2,000 working people, and resulted in an estimated loss of £2,000 (\$9,733). The third lasted 11 weeks, involved 70,000 mine workers, and resulted in a loss of £770,000 (\$3,747,205) in wages. The results of these strikes are not known.

In 1874, 20,000 miners in Yorkshire struck against a reduction in wages. The strike lasted 6 weeks, resulted in a loss of about £150,000 (\$729,975), and was compromised, an arbitrator being appointed who awarded the miners one-half of their demand.

In 1875 a strike lasting 4 months and involving 70,000 mine workers and 50,000 iron workers took place in South Wales. It was unsuccessful and resulted in a loss of £840,000 (\$4,087,860).

In 1877, 30,000 miners in West Lancashire struck against a reduction of wages. The strike lasted 6 weeks, was unsuccessful, and resulted in a loss of £250,000 (\$1,216,625). The same year a strike in Fife and Clackmannan for the same cause lasted seven weeks, involved 6,000 miners, caused a loss of £190,000 (\$924,635) in wages, and was unsuccessful.

In 1879, 70,000 mine workers in Durham struck against a reduction of wages. This strike lasted 6 weeks and was settled by arbitration after a loss of about £400,000 (\$1,946,600) in wages.

In 1880 and 1881, during a period of 7 weeks, from 50,000 to 60,000 mine workers were engaged in a strike against being compelled to contract out of the Employers' Liability Act. The employees were compelled to give way after suffering a loss of about £756,000 (\$3,679,074) in wages.

In 1885, 20,000 mine workers in Yorkshire struck against a reduction in wages. The strike was unsuccessful after lasting 9 weeks. It cost the union £10,000 (\$48,665) and resulted in a wage loss of £150,000 (\$729,975).

In 1887, 14,000 mine workers in Northumberland struck against a reduction in wages. This strike was likewise unsuccessful after a duration of 17 weeks and a wage loss of £220,000 (\$1,070,630). During the strike the union spent £30,000 (\$145,995), and £10,800 (\$52,558.20) was received by outside subscriptions in aid of the miners. The same year a strike of 15,000 mine workers occurred in Ayrshire and Lanarkshire for an advance in wages. It lasted 6 weeks and

proved successful. The wage loss was estimated at £50,000 (\$243,-325). Some rioting occurred during the strike and a number of men were evicted. [tool.com.cn](http://tool.com.cn)

In 1888 the publication of annual official statistics of strikes and lockouts was begun by the British labor department, and therefore for that year and the years following more complete information is available.

There were 137 strikes in the coal-mining industry reported in 1888, most of them being the result of a general movement among coal miners for increased wages. The demands were generally granted, resulting in increases of 5 and 10 per cent in wages. The largest strike, however, which occurred in Fifeshire, Scotland, and involved 20 collieries and 4,200 persons, was against a reduction of 10 per cent in wages. This strike failed completely.

The following table shows the number of disputes and persons affected in the coal-mining industry in 1888 by causes and results:

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1888.

[Source: Report on the Strikes and Lockouts of 1888 by the Labor Correspondent to the Board of Trade.]

Cause or object.	Total strikes.	In favor of employees.			In favor of employers.		
		Strikes.	Strikes for which number of persons was reported.	Persons affected.	Strikes.	Strikes for which number of persons was reported.	Persons affected.
For advance in wages.....	94	82	69	41,661	5	4	1,801
Against reduction in wages and other reductions.....	15	2			9	7	6,046
Against introduction of new lamps.....	3				1	1	220
Alteration of working and residential arrangements.....	18	7	7	3,566	7	5	1,941
Dissatisfaction with rules, hours of labor, etc.....	5	5	2	170			
For reinstatement of certain men, etc.....	2	1					
Total.....	137	97	78	45,397	22	17	10,008

Cause or object	Compromised.			Indefinite or unsettled.			Total strikes for which number of persons was reported.	
	Strikes.	Strikes for which number of persons was reported.	Persons affected.	Strikes.	Strikes for which number of persons was reported.	Persons affected.	Strikes.	Persons affected.
For advance in wages.....	5	4	1,340	2			77	44,802
Against reduction in wages and other reductions.....	1	1	80	3	2	1,300	10	7,426
Against introduction of new lamps.....	1	1	200	1			2	420
Alteration of working and residential arrangements.....	3	1	72	1			13	5,579
Dissatisfaction with rules, hours of labor, etc.....							2	170
For reinstatement of certain men, etc.....	1	1	520				1	520
Total.....	11	8	2,212	7	2	1,300	105	58,917



The year 1889 was not marked by any large strikes, there being out of a total of 113 disputes only 12 which involved 1,000 persons or over. As in the year preceding, the strikes were mostly due to demands for increased wages, and these demands were granted, either wholly or in part, in most cases. The following table shows the number of coal mine strikes and persons affected in 1889, arranged by causes and results:

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1889.

[Source: Report on the Strikes and Lockouts of 1889 by the Labor Correspondant to the Board of Trade.]

Cause or object.	Total strikes and lock-outs.	In favor of employees.			In favor of employers.		
		Strikes and lock-outs.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lock-outs.	Strikes and lockouts for which number of persons was reported.	Persons affected.
For advance in wages.....	65	37	24	9,651	4	3	268
Against reduction in wages.....	7	3	3	291	1		
For reduction in hours.....	6	2	1	750	1	1	1,054
Against increase in work, hours, etc.	4	2	2	150			
Against alteration in conditions of work.....	7	2	2	976	2	2	363
Defense of union delegates.....	3	1	1	370	2	2	695
For reinstatement of colleagues.....	2				2	2	1,020
Dissatisfaction with conditions of work.....	8	2	2	135	2	2	1,702
Dissatisfaction with fellow-workers.....	2	2	2	790			
Dispute as to price for new work.....	1						
Dispute as to amount of recent advance.....	2	1	1	100	1	1	3,020
Dispute between classes (work and price).....	1	1					
Against deductions, fines, etc.....	2				1	1	38
Refusal of men's check weighman.....	1				1	1	298
Refusal of men to accept a scale of deductions for waste.....	1						
Men locked out for attempting to use a blasting powder prohibited by employer.....	1						
Total.....	113	53	38	13,213	17	15	8,458

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STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1889—Concluded.

[Source: Report on the Strikes and Lockouts of 1889 by the Labor Correspondent to the Board of Trade.]

Cause or object.	Compromised.			Indefinite or unsettled.			Total strikes and lockouts for which number of persons was reported.	
	Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes.	Persons affected.
For advance in wages.....	20	18	5,635	4	2	151	47	15,705
Against reduction in wages.	2	2	1,035	1	1	40	6	1,366
For reduction in hours.....	3	3	3,350				5	5,154
Against increase in work, hours, etc.....	2	2	260				4	410
Against alteration in conditions of work.....	3	3	1,828				7	3,167
Defense of union delegates.							3	1,065
For reinstatement of colleagues.....							2	1,020
Dissatisfaction with conditions of work.....	4	4	2,610				8	4,447
Dissatisfaction with fellow-workers.....							2	790
Dispute as to price for new work.....	1	1	75				1	75
Dispute as to amount of recent advance.....							2	3,120
Dispute between classes (work and price).....								
Against deductions, fines, etc.....	1	1	195				2	233
Refusal of men's check weighman.....							1	298
Refusal of men to accept a scale of deductions for waste.....				1	1	78	1	78
Men locked out for attempting to use a blasting powder prohibited by employer.....	1	1	24				1	24
Total.....	37	35	15,012	6	4	269	92	36,952

In 1890 occurred the largest general coal strike recorded up to that time. It was undertaken to enforce a demand for an advance of 10 per cent in wages. The strike involved 151 coal mines in 50 different localities in Yorkshire, Cheshire, Derbyshire, Nottinghamshire, Leicestershire, Staffordshire, and North Wales, and affected 107,484 mine workers. The strike lasted from March 15 to 24. An advance of 5 per cent was granted, with a promise of an additional 5 per cent in August. The full advance had been given in a few cases prior to the settlement. The settlement was affected by means of conciliation.

Aside from this general strike there were not many important disturbances. Of a total of 89 disputes reported in 1890, only 10 involved more than 1,000 persons each.

The following table gives a summary of the disputes in 1890, showing the number of disputes and persons affected, grouped according to causes and results: [www.com.cn](http://www.com.cn)

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1890.

[Source: Report on the Strikes and Lockouts of 1890 by the Labor Correspondent to the Board of Trade.]

Cause or object.	Total strikes and lockouts.	In favor of employees.			In favor of employers.		
		Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.
For advance in wages.....	35	13	12	112,310	8	8	1,084
For advance in wages and other concessions.....	1						
Against reductions in wages.....	6	3	2	141	2	2	1,592
For reductions in hours.....	3				1	1	165
For alteration and improvement in arrangements of work, rules, etc.....	7	2	1	18	2	2	439
Against alteration in arrangements of work, rules, etc.....	8	3	2	1,810	4	4	439
Disputes as to previous arrangements of wages, etc.....	4	4	3	813			
Against fines, deductions, etc.....	2	2	1	58			
Against charge for conveyance to work.....	1						
For reinstatement of or in support of colleagues.....	3				3	3	6,237
For grant of houses rent free.....	1						
For full payment during enforced idleness of pit or difficulty of work.....	3				1	1	517
Against employment of foreigners.....	1						
Against employment of or objection to nonunion men.....	4	2	2	770	1		
Refusal of employer to accept checkweighmen.....	1				1	1	189
Objection to superior officials.....	1						
Sympathy.....	1				1	1	216
Cause not known.....	3				1		
Objection to a man working after hours.....	1	1					
Employers closed pit, locking out their men, being unable to afford an advance awarded by sliding scale committee.....	1						
Alleged refusal of men to work regularly; were refused admittance to cages.....	1						
Locked out as punishment for adoption of certain "idle" days.....	1				1		
Total.....	89	30	23	115,920	26	23	10,878

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STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1890—Concluded.

[Source: Report on the Strikes and Lockouts of 1890 by the Labor Correspondent to the Board of Trade.]

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Cause or object.	Compromised.			Indefinite or unsettled.			Total strikes and lockouts for which number of persons was reported.	
	Strikes and lock-outs.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lock-outs.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lock-outs.	Persons affected.
For advance in wages.....	13	10	5,391	1	1	200	31	118,985
For advance in wages and other concessions.....	1	1	80				1	80
Against reduction in wages.....	1	1	180				5	1,893
For reduction in hours.....	2	2	2,253				3	2,418
For alteration and improvement in arrangements of work, rules, etc.....	2	2	363	1			5	820
Against alteration in arrangements of work, rules, etc.....				1			6	2,249
Disputes as to previous arrangements of wages, etc.....							3	813
Against fines, deductions, etc.....							1	58
Against charge for conveyance to work.....	1	1	450				1	450
For reinstatement of or in support of colleagues.....							3	6,237
For grant of houses rent free.....	1	1	158				1	158
For full payment during enforced idleness of pit or difficulty of work.....	1	1	24	1			2	541
Against employment of foreigners.....				1				
Against employment of or objection to nonunion men.....	1	1	2,500				3	3,270
Refusal of employer to accept checkweighmen.....							1	189
Objection to superior officials.....	1	1	76				1	76
Sympathy.....							1	216
Cause not known.....				2	2	232	2	232
Employers closed pit, locking out their men, being unable to afford an advance awarded by sliding scale committee.....	1							
Alleged refusal of men to work regularly; were refused admittance to cages.....				1	1	50	1	50
Locked out as punishment for adoption of certain "idle" days.....								
Total.....	25	21	11,455	8	4	482	71	138,735

No important strikes occurred in the year 1891 in the coal-mining industry. A sympathetic strike involving 11,000 mine workers in the county of Durham took place in February. It was in sympathy with the men in one of the collieries who had undertaken a strike to compel all the deputy oremen in the pit to join the miners' union. The miners' union, however, disapproved of this sympathetic strike and it came to an end after an average duration of about three days. Many of the strikers were afterwards fined for breach of contract.

There were, all together, 120 strikes of coal mine workers during this year, of which 10 affected over 1,000 employees each.

The following table shows the number of strikes and persons affected in 1891, arranged according to causes and results:

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1891.

[Source: Report on the Strikes and Lockouts of 1891 by the Labor Correspondent to the Board of Trade.]

Cause or object.	Total strikes.	In favor of employees.			In favor of employers.		
		Strikes.	Strikes for which number of persons was reported.	Persons affected.	Strikes.	Strikes for which number of persons was reported.	Persons affected.
For advance in wages.....	28	5	4	492	7	6	1,756
For advance in wages as compensation for increased work or altered working arrangements.....	5	2	2	234			
Against proposed reduction in wages.	20	7	6	990	5	3	251
Against existing or altered working arrangements, causing reductions in wages.....	7	1	1	220	1	1	14
Against fines or deductions from wages.....	9	4	4	1,837	2	1	186
Objection to working with nonunion men.....	6	4	4	2,278	1	1	140
Against alteration in working arrangements, shifts, etc.....	14	8	3	663	1	1	30
For alteration in working arrangements, shifts, etc.....	5	3	3	838			
Dissatisfaction with defective or insufficient working arrangements.....	5	1	1	579	1	1	270
In defense of or sympathy with checkweighmen or other colleagues.....	8	3	2	1,480	1		
Sympathy with strikers in other collieries.....	2				1	1	11,220
For reduction in hours.....	1						
Against withdrawal of certain privileges or allowances.....	2	2	2	621			
Dispute as to previous arrangements and working prices.....	2	1	1	30			
Dissatisfaction with checkweighman and system of coal weighing.....	1						
Cause not known.....	5	1			2	1	130
Total.....	120	42	33	10,262	22	16	13,997

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STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1891—Concluded.

[Source: Report on the Strikes and Lockouts of 1891 by the Labor Correspondent to the Board of Trade.]

Cause or object.	Compromised.			Indefinite or unsettled.			Total strikes for which number of persons was reported.	
	Strikes.	Strikes for which number of persons was reported.	Persons affected.	Strikes.	Strikes for which number of persons was reported.	Persons affected.	Strikes.	Persons affected
For advance in wages.....	13	10	3,067	3			20	5,315
For advance in wages as compensation for increased work or altered working arrangements.....	2	2	71	1	1	400	5	705
Against proposed reduction in wages.....	5	5	1,004	3	2	250	16	2,495
Against existing or altered working arrangements, causing reduction in wages.....	4	3	266	1			5	500
Against fines or deductions from wages.....	2	2	470	1	1	400	8	2,893
Objection to working with nonunion men.....				1	1	328	6	2,746
Against alteration in working arrangements, shifts, etc.....	4	4	864	1			8	1,557
For alteration in working arrangements, shifts, etc.....	2	2	6,517				5	7,355
Dissatisfaction with defective or insufficient working arrangements.....	3	3	1,010				5	1,859
In defense of or sympathy with checkweighmen or other colleagues.....	3	3	4,130	1			5	5,610
Sympathy with strikers in other collieries.....				1	1	3,350	2	14,570
For reduction in hours.....	1	1	2,032				1	2,032
Against withdrawal of certain privileges or allowances.....							2	621
Dispute as to previous arrangements and working prices.....	1	1	2,295				2	2,325
Dissatisfaction with checkweighman and system of coal weighing.....				1	1	80	1	80
Cause not known.....				2			1	130
Total.....	40	36	21,726	16	7	4,808	92	50,793

In 1892 an important strike occurred in the county of Durham, in which 75,000 persons and 150 mining establishments were involved. It was undertaken to resist a proposed reduction of 10 per cent in wages, which the employers afterwards wished to increase to a total reduction of 13½ per cent. The strike lasted from March 12 to June 1 and was settled by the mediation of the Bishop of Durham. The reduction of 10 per cent was accepted by the strikers, with the agreement to submit future wage disputes to a conciliation committee. About the same time 8,555 miners in Cumberland were engaged in a dispute to resist a reduction of from 5 to 12 per cent in wages. After being out 60 days they submitted to the reduction, the settlement being effected by the arbitration of the mayor of Carlisle. These were the only important coal strikes during the year.



Of a total of 96 disputes in 1892, 14 affected over 1,000 persons each. The following table shows the number of coal mine strikes and lockouts and persons affected in 1892, by causes and results:

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1892.

[Source: Report by the Chief Labor Correspondent on the Strikes and Lockouts of 1892.]

Cause or object.	Total strikes and lockouts.	In favor of employees.			In favor of employers.		
		Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.
For advance in wages.....	15	4	2	1,138	3	2	45
For advance in wages as compensation for increased work or altered working arrangements.....	12	6	6	1,732	1	1	6
Against reduction in wages.....	18	3	3	514	6	6	11,359
Against reduction in wages caused by existing or proposed altered working arrangements and conditions.....	7	3	3	501	1	1	1,240
Disputes as to fines or deductions from wages.....	8	1	1	150	.....	.....	.....
Disputes as to previous wages arrangements and working prices.....	6	.....	.....	.....	1	1	860
Against increase in hours without corresponding increase in pay.....	4	2	2	250	.....	.....	.....
Objection to nonunion men or belonging to other miners' organizations.....	5	2	2	1,450	1	1	800
Against alteration in working arrangements, etc.....	8	4	1	100	3	3	700
In defense or for reinstatement of colleagues.....	5	3	2	660	2	2	272
For alteration and improvement in working conditions, etc.....	5	.....	.....	.....	2	2	198
Dissatisfaction with officials.....	1	.....	.....	.....	1	1	650
Refusal to accede to wish of employers that work should commence at an earlier hour.....	1	.....	.....	.....	.....	.....	.....
Refusal to contract out under certain provisions of truck act.....	1	1	1	2,827	.....	.....	.....
Total.....	96	29	23	9,322	21	20	16,130

## STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1892—Concluded.

[Source: Report by the Chief Labor Correspondent on the Strikes and Lockouts of 1892.]

Cause or object.	Compromised.			Indefinite or unsettled.			Total strikes and lockouts for which number of persons was reported.	
	Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lockouts.	Persons affected.
For advance in wages.....	6	6	2,962	2	1	260	11	4,405
For advance in wages as compensation for increased work or altered working arrangements.....	3	2	460	2	2	241	11	2,439
Against reduction in wages.....	5	5	76,000	4	1	28	15	87,901
Against reduction in wages caused by existing or proposed altered working arrangements and conditions.....	1	1	180	2	1	24	6	1,945
Disputes as to fines or deductions from wages.....	5	4	4,926	2	1	1,300	6	6,376
Disputes as to previous wages arrangements and working prices.....	2	1	230	3	1	60	3	1,150
Against increase in hours without corresponding increase in pay.....	2	1	346				3	596
Objection to nonunion men or belonging to other miners' organizations.....	2	2	2,080				5	4,330
Against alteration in working arrangements, etc.....	1	1	340				5	1,140
In defense or for reinstatement of colleagues.....							4	932
For alteration and improvement in working conditions, etc.....				3			2	198
Dissatisfaction with officials.....							1	650
Refusal to accede to wish of employers that work should commence at an earlier hour.....				1	1	600	1	600
Refusal to contract out under certain provisions of truck act.....							1	2,827
Total.....	27	23	87,524	19	8	2,513	74	115,489

The year 1893 was the most remarkable in the history of British coal mining in regard to the magnitude of the labor disputes. There were 139 strikes and lockouts, affecting an aggregate of no less than 503,061 mine workers. This condition of affairs was due to the unsettled state of the coal trade in that year. The largest strike, which involved about 1,500 establishments and affected about 300,000 mine workers, was undertaken to resist a reduction of 25 per cent in the standard rates of wages. The miners' federation called out the mine workers in Lancashire, Cheshire, Yorkshire, Cumberland, Derbyshire, Leicestershire, Nottinghamshire, part of Staffordshire, Warwickshire, the Forest of Dean, North Wales, Somerset, and

Monmouth, which were generally called the "federated districts." The strike lasted from July 28 to November 17, when a settlement was effected at a conference of coal owners' and miners' representatives in London under the presidency of Lord Rosebery. As a result of this settlement, work was resumed at the old rate of wages until February 1, 1894, a conciliation board to be formed to arrange changes of wages after that date. A definite agreement was reached by the conciliation board on July 19, 1894. As this is the most important coal strike in the history of Great Britain or any other country and as the issues raised were of such a nature as to make it memorable, a digest of an account contained in the British report on strikes and lockouts for 1893 is given.

During the years of prosperous trade between 1888 and 1890 the miners of the greater portion of the federation districts had received advances of wages amounting in all to 40 per cent upon the rates prevailing in 1888. Owing to changes in the condition of the coal trade after that period the operators made reductions in wage rates in 1891 and 1892 amounting in Northumberland to 16½ per cent, in Durham to 15 per cent, in Cumberland to 20 per cent, in Fife and Kinross to 37½ per cent, and in South Wales under the sliding scale to 42½ per cent. During this interval the leaders of the federation refused to accept the economic theory that wages must depend upon prices and formulated the theory that prices must depend upon wages. They held that the miner must be assured a "living wage" and that the market price of coal must be a secondary consideration. It was felt, therefore, that when it became necessary to reduce the wages in the federation districts a great struggle would arise. On June 30, 1893, a notice was served by the operators of a reduction of 25 per cent of the standard of 1888 or of about 18 per cent of the current wages, the reduction to take effect not later than July 28. The federation refused to accept the reduction and rejected a proposal to arbitrate, maintaining that the existing rate was the lowest on which it was possible to maintain a reasonable standard of life. The result was a general strike of the miners in the federated districts who received notice of reduction of wages. On July 28 over 200,000 underground workers and many surface men left their work, and by the third week in August the number of persons affected had increased to nearly 300,000.

The Northumberland and Durham miners, whose wages had already been reduced, were not affected by this reduction; and while they were affiliated with the federation, they did not join in the strike. The stoppage of nearly one-half of the entire coal fields of the United Kingdom had the effect of causing a considerable rise in the price of coal from the coal mines in operation, and, in consequence, the miners in Durham and Northumberland demanded an increase in wages equivalent to all of the reductions made since 1891. These demands

were refused, but the miners failed to carry a vote to strike, and continued their work. Another demand for an advance in wages was made in Northumberland in September, and on November 4 an advance of 5 per cent was conceded. In Durham an offer of an advance of 5 per cent for three months by the coal owners was accepted October 12.

While Cumberland was not included in the general strike, many of the miners in that district struck on August 11 for an advance of 20 per cent. An advance of 10 per cent was granted, and the men returned.

In the middle of August the North Wales miners gave notice to cease work, and most of them joined the strike movement.

In Scotland advances were also asked, but, being refused, several strikes occurred during the period of the English strike.

The South Wales district, where a sliding wage scale existed, was not directly affected by the general strike, although a dispute arose in a portion of that district in consequence of the small amount of advance given by the scale, namely, 1½ per cent. This strike, while affecting about 90,000 workers, lasted but a few weeks and failed almost completely.

The early stages of the general strike were comparatively uneventful, but feeling gradually began to run high, and in some districts acts of violence were committed. The strike funds were soon exhausted, and in many districts great distress was experienced before the middle of September. The stoppage of the supply of coal also seriously affected the other trades and caused much distress.

Until August 22 the federation maintained the policy of permitting those members who received no notice of reduction to continue their work. There was much difference of opinion as to the wisdom of this course. On that date, however, a resolution was passed at a meeting of the delegates "that no pit in the federation be allowed to work until a general settlement is made for all to commence at one and the same time." This decision was not favorably received in some sections, and in Staffordshire an arrangement was made under which 10,000 men returned to work provisionally under the old rate.

At the meeting of August 22 a resolution was adopted by the mine workers suggesting as a basis of settlement an agreement to resume work at once and not to ask for an advance of wages until prices reached the 1890 level, if the owners withdraw the notice of 25 per cent reduction. This proposition was refused by the mine owners at a meeting in London on August 29, the refusal being accompanied by a declaration that the owners' offer to refer the whole dispute to arbitration was still open.

Two days later the miners' federation met in London and decided to submit to a ballot vote of the men the following propositions:

1. Will you agree to a 25 per cent reduction of wages or any part thereof?
2. Will you accept the employers' offer of arbitration?
3. Shall all men resume work who can do so at the old rate of wages?

The vote was almost unanimous in the negative on the first two propositions, while upon the third about three-fifths voted in the negative.

Owing to the great demand for coal on the one hand and the distress of the miners' families on the other, the policy adopted August 22 was reversed on September 29, at a meeting of the federation, and men were allowed to return to work on local or partial settlements at the old rates of pay. Men so returning to work were required to pay a levy of 1s. (\$0.24) per day in aid of those still on strike. At the same meeting it was also resolved not to meet the federation of coal owners to discuss the question of reduction.

On October 2 a meeting of the mayors of Sheffield, Leeds, Bradford, Nottingham, Derby, and Barnsley, was held in Sheffield, at which it was decided to invite the coal owners' and miners' federations to send representatives to a joint conference to be held on October 9. This invitation was accepted by both parties, the former sending three representatives and a secretary and the latter four representatives and a secretary. The conference was opened by the mayor of Sheffield, but he and the other mayors immediately retired, leaving the disputants alone to discuss their differences. No agreement, however, could be reached, and then the mayor of Sheffield submitted proposals which the six mayors considered would form a satisfactory settlement of the dispute.

This proposal provided among other things that the miners be allowed to commence work at the old rate of wages, but that they submit to a reduction of 10 out of the 40 per cent advanced since 1888, six weeks after the pits are opened for work, or about December 4, 1893, that all men be allowed, where possible and practicable, to return to their former places; that representatives of the miners' and coal owners' federations should meet at an early date to formulate a scheme for the establishment of a tribunal of conciliation, with a view of dealing with the question of wages, etc.

In response, the mine owners proposed, at a meeting at Derby on October 10, to allow the miners to commence work at a reduction of 15 out of the 40 per cent advanced since 1888, and agreed to the proposition to allow them to return where possible and practicable to their former places and to endeavor to formulate a scheme of conciliation as suggested.

The mine workers, at a conference at Birmingham on October 12, voted to respond that no reduction of wages is necessary and none can

be accepted; and further, that "we call upon all men to stay away from any colliery unless and until opened at the old rate of wages."

Within a few days after the mine owners' conference some operators took independent action and opened their pits on the terms offered by the committee of mayors. In the midlands, including Nottinghamshire, arrangements were made under which about 30,000 men returned to work.

At a meeting of the Coal Owners' Federation at Manchester on October 18 it was resolved to notify the Miners' Federation that the coal owners confirm the resolution passed at Derby, that the men may resume work at 15 per cent reduction off the advances given, but that they agree that this reduction should not be taken by either side as a final settlement, the whole question of the reduction or no reduction to be submitted to a committee formed by an equal number of coal owners' and of workmen's representatives, with an independent chairman. They also proposed that a committee of the owners meet a committee of the miners to discuss these resolutions.

Accordingly a conference of both parties was held at Westminster, on November 3 and 4, where the following proposals were submitted to the conference by the coal owners and by the miners, respectively:

(1) *Coal owners.*

There shall be a meeting of an equal number of coal owners' and miners' representatives, with the general secretary of each body as ex officio members, and three other persons appointed to act as conciliators, and at such meeting or such adjourned meetings as may be agreed upon an endeavor shall be made to arrange terms of settlement. The gentlemen appointed to act as conciliators shall be agreed upon between the coal owners' and the miners' representatives within ——— days from this date, or, if not so agreed upon, some person in high official position shall be requested to nominate them, and they shall be appointed by the joint committee. The duty of the conciliators in the first instance shall be to consider and inquire into the causes of difference which may arise between the coal owners' representatives and the miners' representatives, and endeavor to bring about a settlement of such differences. If a settlement is not arrived at by arrangement or conciliation within ——— from the first meeting of the joint committee and conciliators, any difference which shall remain unsettled shall be decided by a majority of the conciliation board, including the conciliators.

Pending the final settlement, work to be immediately resumed on the following terms:

(a) The 15 per cent off the advances now in dispute shall not be retained by the employers or paid to the workmen, but shall be paid by each coal owner who is a party to this arrangement each week into a separate account at the bank to the joint credit of the conciliators, to abide the decision of the conciliation board.



(b) When the final settlement of the present dispute has been arrived at, the amount so paid into the bank, with any accretions, shall be distributed to the employers or the workmen in accordance with the terms of settlement.

The coal owners suggest the above as a means of settling the dispute and as an arrangement whereby work might be resumed pending a settlement, so that each party may be in a position to have the full benefit of any arrangement which may be agreed or decided upon, as if it had been made on the day that work was resumed; and the coal owners are quite prepared to consider the establishment of such a tribunal for a settlement not only of the present but also of future difficulties.

(2) *Miners.*

(1) That the men resume work at the old rate of wages until April 1, 1894.

(2) That the minimum or standard rate of wages be 30 per cent above the wages rate of January 1, 1888.

(3) That a board of conciliation be formed to deal with wages questions in the future from the above-named date—that is, April 1, 1894.

(4) That the board, when formed, should have power to determine the rate of wages on and from April 1, 1894.

(3) *Coal owners' alternative proposals.*

(1) A board of conciliation, consisting of 10 representatives of owners and 10 representatives of miners from different districts of the federation, should be formed forthwith, to meet next Wednesday.

(2) The board should proceed first to choose a chairman umpire, to be independent of both sides, failing which at that meeting such chairman umpire should be appointed by some person of high official position.

(3) The board should have powers to deal with the present difficulty and to decide the rate of wages from the resumption of work, and to deal with the general wages question.

(4) To settle the present difficulty each party to be entitled to bring what evidence it pleases before the board at two full days' sittings of the board, and after that has been done the chairman umpire may be called upon by either side to give his decision as to the rate of wages from the above date, and his decision shall be binding on both parties.

(5) That the pits shall restart work immediately after the decision of the board on the terms of the decision.

No settlement was effected at this conference, but the miners' delegates met afterwards and decided to submit the owners' proposals to the men in the various districts, who subsequently rejected them.

The chief centers of the dispute at this time were Lancashire and Yorkshire. In the Midlands, as already mentioned, there was an extensive resumption of work. In Nottinghamshire, North Staffordshire, and Leicestershire the ma-

men had resumed work on the old terms, with the understanding that they would abide by the terms of the general settlement afterwards made. In the other districts the resumption was much less general, only a few collieries having resumed in Lancashire and Yorkshire.

By the close of October the stoppage of work had assumed the dimensions of a national calamity, and called for exceptional measures of intervention with a view to bring about a settlement. Accordingly, on November 13 the Government, through Mr. Gladstone, sent messages to the secretaries of both the federations, writing them to send representatives to a conference to be held under the chairmanship of Lord Rosebery, the functions of the latter to be not that of an arbitrator or umpire, but simply that of an advisor and conciliator. Both parties promptly accepted this invitation and a conference was called to meet November 17. In both cases the representatives to the conference had power to effect a settlement, subject to the assent of their respective general committees.

On the same day the following terms of settlement were agreed to:

"(1) That a board of conciliation be constituted forthwith, to last over the year at the least, consisting of an equal number of coal owners' and miners' representatives, 14 each. They shall, before the first meeting, endeavor to elect a chairman from outside, and should they fail will ask the speaker of the House of Commons to nominate one, the chairman to have the casting vote. That the board, when constituted, shall have power to determine from time to time the rate of wages on and from February 1, 1894. The first meeting to be on Wednesday, December 13, 1893, at the Westminster Palace Hotel.

"(2) That the men resume work at once at the old rate of wages until February 1, 1894. It is agreed that all collieries, so far as practicable, be reopened for work forthwith, and that, so far as practicable, no impediment be placed in the way of a return of the men to work."

As a result of this conference work was resumed in all the mines as soon as they could be put into proper condition.

The conciliation board formed in accordance with the terms of this agreement met on December 13. The board could not agree as to the chairman, and Lord Shand was accordingly appointed by the speaker. The first subsequent meeting was held on January 15, and it adjourned until February 14 without acting upon the proposal to reduce wages on February 1. On April 3, the first meeting attended by Lord Shand, he decided against the miners in their

(a) that a minimum wage be provided for in the constitution of the board.

paid by no further of importance was done until July 19, 1894, when a new agreement was adopted: conciliators,

“First. (1) That the present rate of wages be reduced as from August 1, 1894, by taking off the last two advances of 5 per cent each, and that the wages remain at that rate until January 1, 1896; (2) that for a period of two years from August 1, 1894, the rate of wages shall not be lower than 30 per cent above the rate of wages of 1888 nor more than 45 per cent above the rate of wages of 1888; (3) that from January 1, 1896, to August 1, 1896, the rate of wages shall be determined by the conciliation board within the above-named limits; (4) that the conciliation board shall be continued for this purpose for two years from August 1, 1894.

“Second. That the above terms shall apply to the collieries whose names, firms, or companies shall be handed to Mr. Thomas Ashton [secretary of the Miners’ Federation] by Mr. T. Ratcliffe Ellis [secretary of the Mine Owners’ Federation] on or before July 31, 1894.

“Third. That the new rate of wages shall be paid on the Friday or Saturday, August 10 or 11, next.”

The following table shows the number of firms or companies in each district that agreed to the terms of the settlement:

District.	Number of firms or companies.	District.	Number of firms or companies.
Lancashire.....	100	Leicestershire.....	10
Yorkshire:		Cannock Chase.....	13
South.....	45	Warwickshire:	
West.....	53	Nuneaton district.....	9
North Wales.....	19	Tamworth district.....	6
North Staffordshire.....	29	Cheshire.....	4
Derbyshire.....	45	Shropshire.....	1
Nottinghamshire.....	18		

Many coal owners outside the Coal Owners’ Federation and not included in the above accepted this agreement.

An important coal miners’ strike, involving 32,000 persons, began in the west of Scotland on November 23, for an advance of 1 shilling (\$0.24) per day in wages. In a conference between the miners’ delegates and the employers on December 9 it was agreed to return to work on the employers’ terms, namely, at the existing rate of wages until February 1, 1894.

Of the 139 coal mine strikes and lockouts that occurred during 1893, 22 affected 1,000 persons or over. Of this number 6 affected over 5,000 persons each.

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The following table shows the number of strikes and persons affected in 1893, by causes and results:

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STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1893.

[Source: Report by the Chief Labor Correspondent on the Strikes and Lockouts of 1893.]

Cause or object.	Total strikes and lockouts.	In favor of employees.			In favor of employers.		
		Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.
For advance in wages.....	32	8	8	22,690	9	7	37,401
Against reduction in wages.....	40	10	7	301,039	17	13	7,090
Against reduction in wages in consequence of altered or improved working arrangements.....	6	1			3	3	281
Against alteration in working arrangements.....	16	5	4	3,200	5	5	1,193
Against alteration in working arrangements causing reduction in wages.....	8	3	3	1,191	3	3	1,405
Objection to nonunion men, and to compel them to join unions.....	5	2	2	1,077	3	3	899
In sympathy with strikes in other collieries and districts.....	6	1	1	136	3	3	2,755
Objection to fellow-workers or their action (apart from unionism).....	4	1	1	5,000	3	3	565
Dispute as to interpretation or fulfillment of previous wages settlement.....	5	3	3	1,400	2	2	102
For alteration or improvement in working arrangements.....	5				1	1	47
In defense of and for reinstatement of colleagues.....	6	1	1	1,200	1	1	225
Against increase in hours of labor.....	2	1	1	800			
Dispute between classes of work people as to "idle" days.....	1						
Dispute as to identity of seam.....	1						
Objection of employers to reduction of days work per week.....	2				1	1	700
Total.....	139	36	31	337,733	51	45	52,663

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1893—Concluded.

[Source: Report by the Chief Labor Correspondent on the Strikes and Lockouts of 1893.]

Cause or object.	Compromised.			Indefinite or unsettled.			Total strikes and lockouts for which number of persons was reported.	
	Strikes and lock-outs.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lock-outs.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lock-outs.	Persons affected.
For advance in wages.....	11	10	100,120	4	2	126	27	160,337
Against reduction in wages.	10	9	6,334	3	3	854	32	315,317
Against reduction in wages in consequence of altered or improved working arrangements.....	2	2	606				5	887
Against alteration in working arrangements.....	6	6	2,452				15	6,845
Against alteration in working arrangements causing reduction in wages.....	1	1	350	1			7	2,946
Objection to nonunion men and to compel them to join unions.....							5	1,976
In sympathy with strikers in other collieries and districts.....				2			4	2,891
Objection to fellow-workers or their action (apart from unionism).....							4	5,565
Dispute as to interpretation or fulfillment of previous wages settlement.....							5	1,502
For alteration or improvement in working arrangements.....	3	3	279	1			4	326
In defense of and for reinstatement of colleagues.....	3	3	542	1	1	90	6	2,057
Against increase in hours of labor.....				1			1	800
Dispute between classes of work people as to "idle" days.....				1	1	140	1	140
Dispute as to identity of seam.....				1				
Objection of employers to reduction of days work per week.....	1	1	772				2	1,472
Total.....	37	35	111,455	15	7	1,210	118	503,061

During the year 1894 there were 227 coal mine labor disputes, the largest number reported for any year of the period since 1888. They were, however, with a few exceptions, small and local in character, and largely arose in connection with the 10 per cent reduction agreed to by the conciliation board. Only 3 affected over 5,000 employees. Of the whole number, 34 affected 1,000 persons and over each.

The greatest dispute of the year was a strike of the Scottish miners, which involved about 500 mines, affected about 70,000 persons, and lasted from June 25 to October 22. It was undertaken to restore the rate existing before the reduction of 1s. (\$0.24) per day made in May, and was unsuccessful.

In brief, the history of this important strike was as follows:

During the latter part of 1893 wages at Scottish mines had been advanced 1s. (\$0.24) to 2s. 1d. (\$0.49) per day. In 1894 a still further advance of 6d. (\$0.12) per day and the establishment of a conciliation board were demanded. The price of coal having fallen by this time, the owners gave notice of a contemplated reduction in wages. The miners then adopted the policy of restricting production and refused to work more than 4 days per week. This failed through want of cohesion.

Since the English strike of 1893, the Fife and Kinross miners' association became affiliated with the federation, and the Scottish Federation was formed by unions of the Scottish districts, which federation in turn joined the Miners' Federation of Great Britain.

In May, notices were given by the owners of reductions of 15 per cent, which was afterwards changed to 12½, in wages on the east coast of Scotland and of 1s. (\$0.24) per day in the west of Scotland. Efforts made by the Scottish Federation to meet the coal owners in conference were unsuccessful. The result was the inauguration of desultory strikes in the western coal fields involving altogether about 35,000 persons. These strikes ended by the acceptance by the strikers of a reduction of 6d. (\$0.12) per week.

At a meeting of the Scottish Federation, held in Glasgow May 7, it was decided that the men should not stand out at that time and that the question of ultimate action should be referred to a conference of the Miners' Federation of Great Britain. At a meeting of the latter on May 29 and 30 it was unanimously resolved "that all districts belonging to this federation where reductions have recently taken place, be requested to give a proper notice for the same to be returned," and that a levy be made to support them. This resolution was submitted by a national convention of Scottish miners, held on May 30, to a vote of the miners of Scotland. The resolution was approved by a majority vote and the miners were instructed to lodge notices, so that the strike to recover the reduction of 1s. (\$0.24) in west Scotland and of 12½ per cent in Fife and Clackmannan might begin on June 25.

At meetings held by mine owners on June 6 and June 20 it was decided to resist the demands of the men. Attempts at conciliation by the Edinburgh Chamber of Commerce were rejected by both parties. The British Federation voted a levy of 6d. (\$0.12) per head upon all its members in support of the Scottish miners, and this was later increased to 1s. (\$0.24) per head.

The strike began at the appointed time, June 25, and within a few days at least 70,000, or about 95 per cent, of the coal miners in Scotland were on strike. The two main questions at issue were (1) the rate of wages at which work should be resumed, and (2) the period



of time, if any, during which this rate should not be reduced. It was hoped that a settlement might be made similar to that which was then being made in England, but the Scotch owners would not recognize any principle which fixes wages for any considerable period irrespective of the price of coal.

On July 20 the Miners' Federation proposed a meeting with the mine owners, but on July 25 a committee of the latter refused to deal with or recognize that body, expressing a willingness to meet their own workmen in their own respective districts. On August 7 the Miners' Federation advised that the men resume work at any collieries where a settlement could be made on the lines of that made by the conciliation board and the British Federation.

On August 7 the lord provost succeeded in arranging a meeting between 7 representatives of the miners and 7 nonassociated employers. The latter offered to reopen the pits at the old rate of wages, this rate not to be reduced for a year. The miners' representatives offered to recommend the acceptance of a raise of 6d. (\$0.12) per day, no reduction to be made for 18 months. This meeting proved futile, neither proposition being accepted.

On August 25 at a conference of delegates of the Scottish miners it was decided to take a ballot on the question (1) whether the miners were "in favor of continuing the strike till the reduction of a shilling (\$0.24) be restored or till the coal masters agreed to meet the representatives of the miners and discuss the lines of a settlement," or (2) whether they agreed to the recommendation of the Miners' Federation of Great Britain "that in any colliery, district, or association where a settlement can be arrived at on the lines of the settlement made by the English conciliation board, that the miners be recommended to accept such, the same being that half of the last reduction of a shilling be restored and that such wage remain for two years."

The ballot was in favor of the latter proposition. The coal owners, however, evinced no disposition to accept the proposed compromise, still maintaining their willingness to meet representatives of their own men, but refusing to concede the terms of the federation. A meeting of representatives of miners and owners in Fife and Clackmannan was held on September 10, but nothing was accomplished. On September 12 a meeting was arranged by the lord provost of Glasgow between nonassociated coal owners and delegates of the miners, but it proved futile.

About the middle of September there were signs of a break in the ranks of the strikers. In west Scotland many of the miners in the various districts returned to work. By September 23 from 13,000 to 15,000 men, mostly in Lanarkshire, had resumed their work. Strenuous efforts were made by the strikers to prevent their return,

and some rioting and disturbance ensued. The movement continued, however, and the week beginning September 30 saw the practical break-up of the strike in the west of Scotland, where by October 1 about 25,000 had returned to work. Only 2,900 were reported to be working on the federation terms. Desertions continued in the west of Scotland, but the miners in Fife and the Lothians remained firm. On October 17, however, the East and Midlothian miners decided to return to the mines. On October 18 the Westlothian miners decided to resume work. On October 19 a ballot of the miners of Fife and Kinross declared in favor of returning to work on Monday, October 22. Thus the strike ended in complete failure on that date, after a continuance of 17 weeks.

Almost the whole burden of financial support of the strikers fell upon the English federation. Out of a total fund of £88,503 10s. 3½d. (\$430,702.35) received from various sources, £76,175 (\$370,705.64) was furnished by the English federation.

The following table gives a summary of the number of strikes and lockouts and persons affected in 1894, arranged by causes and results:

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1894.

[Source: Report by the Chief Labor Correspondent on the Strikes and Lockouts of 1894.]

Cause or object.	Total strikes and lockouts.	In favor of employees.			In favor of employers.		
		Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.
For advance in wages.....	31	5	5	2,351	10	9	71,493
Against reduction in wages.....	99	19	19	9,277	26	23	7,710
Against alteration in working arrangements calculated to cause reduction in wages.....	12	1	1	50	2	2	886
For advance in wages in consequence of difficulty or change in method of working.....	5	2	2	885	2	2	1,081
Dispute as to previously arranged wages settlement.....	2	1	1	750	1	1	6,000
For reduction in hours of labor.....	2	1	1	2,480			
Against increase in hours of labor.....	2						
Objection to work with nonunion men or to action of certain unionists.....	12	9	9	10,027	1	1	72
Against alteration in method of working, number of days per week, and working arrangements generally.....	25	9	9	5,063	6	6	1,632
For alteration or improvement in working arrangements.....	12	3	3	622	6	6	3,615
Against system of fines, penalties, etc., for dirty coal.....	5				3	3	1,292
In defense and for reinstatement of colleagues.....	13	5	5	5,400	4	4	3,247
Objection to action or presence of certain fellow-workers.....	2				2	2	249
Objection to action or conduct of officials.....	3	2	2	280	1	1	560
Demarcation of work dispute between classes.....	1						
Full details of cause not known.....	1						
Total.....	227	57	57	37,165	64	60	97,837

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1894—Concluded.

[Source: Report by the Chief Labor Correspondent on the Strikes and Lockouts of 1894.]

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Cause or object.	Compromised.			Indefinite or unsettled.			Total strikes and lockouts for which number of persons was reported.	
	Strikes and lock-outs.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lock-outs.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lock-outs.	Persons affected.
For advance in wages . . . . .	11	11	3,085	5	5	841	30	77,770
Against reduction in wages . . . . .	44	42	65,064	10	4	1,422	88	83,463
Against alteration in working arrangements, calculated to cause reduction in wages . . . . .	9	9	2,569				12	3,505
For advance in wages in consequence of difficulty or change in method of working . . . . .	1						4	1,966
Dispute as to previously arranged wages settlement . . . . .							2	6,750
For reduction in hours of labor . . . . .	1	1	1,500				2	3,980
Against increase in hours of labor . . . . .	1			1				
Objection to work with non-union men or to action of certain unionists . . . . .	2	1	440				11	10,539
Against alteration in method of working, number of days per week, and working arrangements generally . . . . .	7	6	1,233	3	3	1,440	24	9,368
For alteration or improvement in working arrangements . . . . .	2	1	430	1			10	4,667
Against system of fines, penalties, etc., for dirty coal . . . . .	2	2	569				5	1,861
In defense and for reinstatement of colleagues . . . . .	4	4	2,170				13	10,817
Objection to action or presence of certain fellow-workers . . . . .							2	249
Objection to action or conduct of officials . . . . .							3	820
Demarcation of work dispute between classes . . . . .				1	1	14	1	14
Full details of cause not known . . . . .				1				
Total . . . . .	84	77	77,050	22	13	3,717	207	215,769

In 1895 there were no general disputes, the largest strike involving but one establishment and affecting 6,000 working people. There were, however, 174 strikes, of which 21 affected between 1,000 and 5,000 persons. About one-third of these disputes took place in Scotland. The bulk of the mining disputes this year arose out of questions directly connected with rates of wages.

The following table shows for the coal-mining industry the number of strikes and lockouts and persons affected in 1895, arranged by causes and results:

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1895.

[Source: Report by the Chief Labor Correspondent on the Strikes and Lockouts of 1895.]

Cause or object.	Total strikes and lockouts.	In favor of employees.			In favor of employers.		
		Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.
For advance in wages.....	36	5	5	760	15	15	4,634
For advance in wages and other concessions.....	3						
Against proposed reduction in wages.....	46	5	5	1,454	18	18	3,184
Against reduction in wages on change of system.....	8				2	2	219
For increase in wages on account of difficulties, altered system, etc.....	2	1	1	1,089			
Against deductions from wages in consequence of dirt in coal and other matters.....	17	3	3	1,309	3	3	901
Against stoppage of various allowances.....	1						
Objection to nonunion men.....	4	2	2	597	1	1	580
Against defaulting unionists.....	2	2	2	1,600			
Against alterations in working systems.....	22	7	7	3,485	7	7	4,114
For alteration and improvement in working conditions.....	14	7	7	3,662	3	3	923
For alteration in hours of labor.....	1				1	1	402
Against proposed increase in hours of labor.....	1	1	1	606			
In defense or for reinstatement of fellow work people.....	8	1	1	200	4	4	2,434
Sympathy with other men in dispute.....	4						
Against requirement to do work alleged not to belong to them.....	2				1	1	200
Objection to action of officials.....	1						
Cause not known.....	2						
Total.....	174	34	34	14,780	55	55	17,591

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1895—Concluded.

[Source: Report by the Chief Labor Correspondent on the Strikes and Lockouts of 1895.]

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Cause or object.	Compromised.			Indefinite or unsettled.			Total strikes and lockouts for which number of persons was reported.	
	Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lockouts.	Strikes and lockouts for which number of persons was reported.	Persons affected.	Strikes and lockouts.	Persons affected.
For advance in wages.....	16	16	9,444				36	14,847
For advance in wages and other concessions.....	3	3	8,257				3	8,257
Against proposed reduction in wages.....	21	20	8,147	2	2	570	45	13,355
Against reduction in wages on change of system.....	5	5	1,369	1	1	40	8	1,628
For increase in wages on account of difficulties, altered system, etc.....	1	1	545				2	1,634
Against deductions from wages in consequence of dirt in coal and other matters.....	11	11	6,664				17	5,874
Against stoppage of various allowances.....	1	1	6,000				1	6,000
Objection to nonunion men.....	1	1	500				4	1,677
Against defaulting unionists.....							2	1,609
Against alterations in working systems.....	8	8	1,974				22	9,573
For alteration and improvement in working conditions.....	4	3	2,175				13	6,760
For alteration in hours of labor.....							1	402
Against proposed increase in hours of labor.....							1	606
In defense or for reinstatement of fellow work people.....	3	3	2,482				8	5,116
Sympathy with other men in dispute.....	4	4	3,679				4	3,679
Against requirement to do work alleged not to belong to them.....	1	1	178				2	378
Objection to action of officials.....	1	1	200				1	200
Cause not known.....				2	2	182	2	182
Total.....	80	78	48,614	5	5	792	172	81,777

In 1896 there were likewise no general strikes. There were 159 coal mine disputes of which all but 17 involved less than 1,000 persons each. The following table shows the number of disputes and persons affected in 1896, according to causes and results:

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1896.

[Source: Report by the Chief Labor Correspondent on the Strikes and Lockouts of 1896.]

Cause or object.	In favor of employees.		In favor of employers.		Compromised.		Total strikes and lock-outs.	Total persons affected.
	Strikes and lock-outs.	Persons affected.	Strikes and lock-outs.	Persons affected.	Strikes and lock-outs.	Persons affected.		
For increase of wages.....	4	1,768	10	5,907	8	1,772	22	9,447
Against decrease of wages...	4	506	21	4,412	19	6,254	44	11,172
Disputes as to tonnage rates, etc.....	2	110	4	1,247	12	3,356	18	4,713
Other disputes affecting wages.....	1	400	2	306	.....	.....	3	706
For decrease of hours of labor.....	.....	.....	1	95	.....	.....	1	95
Against increase of hours of labor.....	.....	.....	1	124	1	300	2	424
Other disputes affecting hours of labor.....	.....	.....	1	1,150	.....	.....	1	1,150
For alteration and improvement in working arrangements.....	2	1,073	5	1,179	.....	.....	7	2,252
Against alteration in working arrangements.....	7	3,366	6	2,483	6	3,938	19	9,787
Other disputes affecting working arrangements.....	2	562	3	290	10	4,022	15	4,844
Disputes as to the employment of other classes of work people.....	.....	.....	1	48	1	1,100	2	1,148
Disputes on questions of trade unionism.....	4	3,004	.....	.....	.....	.....	4	3,004
Sympathetic disputes.....	1	609	3	1,485	2	2,045	6	4,119
Other causes or objects.....	5	2,630	3	687	7	4,501	15	7,818
Total.....	32	14,028	61	19,363	66	27,288	159	60,679

The number of coal-mining disputes in 1897 was 116. All these were of a local character, the highest number of persons involved in any one dispute being 3,000. Most of these local strikes arose out of disputes regarding temporary allowances. The miners are usually paid by the ton produced, but owing to various unforeseen difficulties in mining the coal, this tonnage rate sometimes operates unfairly, and to meet these conditions temporary allowances are made to supplement the tonnage rate. It is in determining the allowance which is a fair equivalent for the extra labor involved that many of the local disputes arise each year. Thus in 1897, 35 out of 80 wage disputes arose out of this question of allowances. The disputes in such cases are not for increased wages, but for a readjustment which will enable miners to earn what they would receive without these added difficulties. Such disputes are usually either wholly or partly successful.

The following table shows the causes and results of coal mine disputes in the United Kingdom in 1897:



STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1897.

[Source: Report by the Chief Labor Correspondent on the Strikes and Lockouts of 1897. Disputes involving less than 10 employees and those which lasted less than 1 day have been omitted, except when the aggregate duration exceeded 100 working days.]

Cause or object.	In favor of employees.		In favor of employers.		Compromised.	
	Strikes and lock-outs.	Persons affected.	Strikes and lock-outs.	Persons affected.	Strikes and lock-outs.	Persons affected.
For increase of wages.....	1	275	8	3,688	10	4,731
Against decrease of wages.....	2	780	8	1,588	1	22
Relating to system of payment of wages.....	4	854	3	1,689		
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....	11	3,000	5	890	15	3,441
Other disputes affecting wages.....	5	1,577			3	313
Disputes affecting hours of labor.....					1	778
For reinstatement of discharged work people.....	1	1,050	4	2,343		
Against employment of certain officials.....			1	200		
For change in existing working arrangements.....			3	3,742	2	2,376
Against change in existing working arrangements.....	3	953	1	40	3	730
Other disputes relating to working arrangements, rules, and discipline.....	4	2,068	2	431	2	626
Disputes on questions of trade unionism.....	6	5,879				
Sympathetic disputes.....	1	1,200	2	680		
<b>Total.....</b>	<b>38</b>	<b>17,636</b>	<b>37</b>	<b>15,291</b>	<b>37</b>	<b>13,017</b>

Cause or object.	Indefinite or unsettled.		Total strikes and lock-outs.	Total persons affected.	Aggregate duration in working days of disputes in 1897. (a)
	Strikes and lock-outs.	Persons affected.			
For increase of wages.....			19	8,694	142,217
Against decrease of wages.....			11	2,390	73,194
Relating to system of payment of wages.....			7	2,543	(b)
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....	4	2,017	35	9,348	412,161
Other disputes affecting wages.....			8	1,890	c 74,217
Disputes affecting hours of labor.....			1	778	2,334
For reinstatement of discharged work people.....			5	3,393	48,295
Against employment of certain officials.....			1	200	2,000
For change in existing working arrangements.....			5	6,118	26,252
Against change in existing working arrangements.....			7	1,723	14,134
Other disputes relating to working arrangements, rules, and discipline.....			8	3,125	17,115
Disputes on questions of trade unionism.....			6	5,879	43,274
Sympathetic disputes.....			3	1,680	11,925
<b>Total.....</b>	<b>4</b>	<b>2,017</b>	<b>116</b>	<b>47,961</b>	<b>867,118</b>

a The duration of disputes beginning in 1897 and extending into 1898 is excluded as regards the days falling into 1898. On the other hand, the duration in 1897 of disputes beginning in 1896 is included.

b Included in other disputes affecting wages.

c Including number relating to system of payment of wages.

The first large colliery strike since that of the coal miners in Scotland in 1894 occurred during 1898 in South Wales and Monmouthshire, covering a period of 117 working days and involving 100,000 working people.

This strike was the result of dissatisfaction with the existing sliding wage scale. The sliding wage-scale system had been in force since the large strike of 1875. Alterations had been made from time to time by mutual agreement, the chief changes having taken place in 1880, 1882, 1890, and 1892. In 1897 the men gave six months'

notice to terminate their contract on April 1, 1898. Numerous discussions then took place as to the future arrangements, but as no new agreement could be reached between the coal owners and the employees the strike began on that date. The demands of the strikers as formulated at a meeting on April 7 were as follows:

"(a) A scale giving 10 per cent instead of  $8\frac{1}{2}$  per cent advance or reduction in wages for every rise and fall of 1s. (\$0.24) in the average selling price of coal.

"(b) A minimum wage corresponding to an average selling price of coal of 10s. (\$2.43) per ton f. o. b.

"(c) An umpire to decide on matters on which the joint committee are unable to agree.

"(d) An immediate advance of 10 per cent in anticipation of an audit under the proposed new scale."

On April 11 the coal owners posted notices embodying the conditions of employment on which they were prepared to open their collieries. These conditions included the adoption of a new scale providing for changes of wages of  $7\frac{1}{2}$  per cent for every change of 1s. (\$0.24) in the selling price as long as coal was less than 9s. 4d. (\$2.27) per ton, of  $8\frac{1}{2}$  per cent per 1s. (\$0.24) when coal was between 9s. 4d. (\$2.27) and 11s. (\$2.68) per ton, and of  $9\frac{1}{2}$  per cent per 1s. (\$0.24) for all higher prices of coal. They insisted upon the abolition of a monthly holiday known as "Mabon's Day;" that the selling price audits should be held every four months instead of every two months, and that a system of discharge notes should be introduced.

Neither of the propositions was acceptable to the other party and the strike continued. Various attempts were made to effect an agreement, but all proved futile until at a conference of August 27 between representatives of the parties a provisional agreement was made, and on September 1, at another meeting, a settlement was effected by which the terms and conditions of the sliding-scale agreement which terminated on March 31 were to be embodied in an agreement which was to continue in force until January 1, 1903, and which could be determined by six months' notice on either side; the monthly holiday, "Mabon's Day," was abolished; the wages up to November 30, 1898, were to be  $17\frac{1}{2}$  per cent above the standard of December, 1879, and an audit of the selling prices for the months of September and October was to regulate wages from December 1, 1898.

The scale therefore remained practically the same as before.

Owing to the increased demand for coal resulting from the stoppage in South Wales, the miners in Lanarkshire and in other centers in the west of Scotland demanded an increase of 1s. (\$0.24) per day, and threatened to strike on April 14 if the demand was refused. The coal owners offered an advance of 6d. (\$0.12) per day, but this was refused and the strike followed on the appointed day. During that day and

the two following days many of the nonassociated employers gave the 1s. (\$0.24) advance, and on April 18 the associated employers also conceded the advance. The strike affected 24,000 employees.

There were altogether 116 coal-mine disputes during 1898, affecting 174,708 employees, but none except those above mentioned was of sufficient importance to merit special mention. Seventeen disputes involved at least 1,000 persons each.

The following table shows the number of disputes in 1898, and the number of persons affected, arranged according to causes and results:

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1898.

[Source: Report by the Chief Labor Correspondent on the Strikes and Lockouts of 1898. Disputes involving less than 10 employees and those which lasted less than 1 day have been omitted, except when the aggregate duration exceeded 100 working days.]

Cause or object.	In favor of employees.		In favor of employers.		Compromised.	
	Strikes and lock-outs.	Persons directly affected.	Strikes and lock-outs.	Persons directly affected.	Strikes and lock-outs.	Persons directly affected.
For increase of wages.....	10	25,955	11	100,982	27	3,844
Against decrease of wages.....	5	1,298	3	129	2	11
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....	5	484	3	676	18	5,218
Other disputes affecting wages.....	2	342	2	48		
Disputes affecting hours of labor.....			1	150		
For reinstatement of discharged employees.....	1	150	1	62	3	1,162
Against employment of certain officials.....					1	400
Other disputes affecting employment of particular classes or persons.....			2	970		
For change in existing working arrangements.....					2	111
Against change in existing working arrangements.....	3	1,013	4	1,381	3	498
Other disputes relating to working arrangements, rules, and discipline.....			2	314	1	130
Disputes on questions of trade unionism.....	1	120	1	200		
Sympathetic disputes.....	1	61				
<b>Total.....</b>	<b>28</b>	<b>29,423</b>	<b>30</b>	<b>104,992</b>	<b>57</b>	<b>11,374</b>

Cause or object.	Indefinite or unsettled.		Total strikes and lock-outs.	Total persons directly affected.	Total persons indirectly affected.
	Strikes and lock-outs.	Persons directly affected.			
For increase of wages.....	1	33	49	130,794	20,003
Against decrease of wages.....			10	1,438	791
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....			26	6,378	2,413
Other disputes affecting wages.....			4	390	2,475
Disputes affecting hours of labor.....			1	150	800
For reinstatement of discharged employees.....			5	1,374	1,150
Against employment of certain officials.....			1	400	150
Other disputes affecting employment of particular classes or persons.....			2	970	7
For change in existing working arrangements.....			2	111	9
Against change in existing working arrangements.....			10	2,892	721
Other disputes relating to working arrangements, rules, and discipline.....			3	444	225
Disputes on questions of trade unionism.....			2	320	200
Sympathetic disputes.....			1	61	49
<b>Total.....</b>	<b>1</b>	<b>33</b>	<b>116</b>	<b>145,722</b>	<b>28,986</b>

During 1899 the coal trade was extremely active, prices were rising, and questions as to wages were arranged readily and without

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recourse to strikes or lockouts. As a result there were but 92 coal mine strikes, involving 44,884 employees. All but 10 strikes involved less than 1,000 employees each. A total of 450,065 working days were lost on account of coal mine disputes.

The following table shows by causes and results the number of coal mine strikes and persons affected in 1899:

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1899.

[Source: Report by the Chief Labor Correspondent on the Strikes and Lockouts of 1899. Disputes involving less than 10 employees and those which lasted less than 1 day have been omitted, except when the aggregate duration exceeded 100 working days.]

Cause or object.	In favor of employees.		In favor of employers.		Compromised.	
	Strikes and lock-outs.	Persons directly affected.	Strikes and lock-outs.	Persons directly affected.	Strikes and lock-outs.	Persons directly affected.
For increase of wages.....	9	899	7	614	10	2,298
Against decrease of wages.....	2	300			1	22
Disputes as to system of payment of wages.....			1	350	2	343
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....	9	734	3	133	10	1,721
Other disputes affecting wages.....	1	1,800	1	26	1	70
For decrease of hours.....			2	464	1	56
Disputes as to arrangement of hours.....			1	1,100	2	1,002
Disputes as to employment of apprentices and boys.....			1	60		
For reinstatement of discharged employees.....	3	640	5	911		
Against employment of certain officials.....	1	100	1	40	1	330
For change in existing working arrangements.....	1	3,260			2	886
Against change in existing working arrangements.....	3	1,531			1	351
Other disputes relating to working arrangements, rules, and discipline.....			1	46	1	35
Disputes on questions of trade unionism.....	2	650	1	90		
Sympathetic disputes.....	1	1,400	2	2,765		
Miscellaneous disputes.....	1	75				
Total.....	33	11,389	26	6,599	32	7,114

Cause or object.	Indefinite or unsettled.		Total strikes and lock-outs.	Total persons directly affected.	Total persons indirectly affected.
	Strikes and lock-outs.	Persons directly affected.			
For increase of wages.....	1	46	27	3,857	11,995
Against decrease of wages.....			3	322	145
Disputes as to system of payment of wages.....			3	693	416
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....			22	2,588	226
Other disputes affecting wages.....			3	1,896	950
For decrease of hours.....			3	520	1,288
Disputes as to arrangement of hours.....			3	2,102	120
Disputes as to employment of apprentices and boys.....			1	60	1,520
For reinstatement of discharged employees.....			8	1,551	889
Against employment of certain officials.....			3	470	40
For change in existing working arrangements.....			3	4,146	411
Against change in existing working arrangements.....			4	1,882	572
Other disputes relating to working arrangements, rules, and discipline.....			2	81	6
Disputes on questions of trade unionism.....			3	740	165
Sympathetic disputes.....			3	4,165	993
Miscellaneous disputes.....			1	75	
Total.....	1	46	92	25,148	19,736

The year 1900, like the preceding, was comparatively free from coal mine disputes, there being but 122 disputes, involving 69,645

coal mine employees and causing a loss of 439,829 working days. While this was a considerable increase in the number of disputes and persons affected over the preceding year, the aggregate duration of working days lost was slightly smaller. The largest number of persons were involved in disputes due to questions of trade unionism, and these disputes nearly all resulted in favor of the employees.

There were no coal mine strikes this year of sufficient magnitude or importance to merit special mention. Of the 122 coal mine strikes, 23 affected 1,000 or more persons each.

The following table shows the number of disputes and persons affected in 1900, by causes and results, in the coal-mining industry:

STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1900.

[Source: Report by the Chief Labor Correspondent on the Strikes and Lockouts of 1900. Disputes involving less than 10 employees and those which lasted less than 1 day have been omitted, except when the aggregate duration exceeded 100 working days.]

Cause or object.	In favor of employees.		In favor of employers.		Compromised.	
	Strikes and lock-outs.	Persons directly affected.	Strikes and lock-outs.	Persons directly affected.	Strikes and lock-outs.	Persons directly affected.
For increase of wages.....	10	2,098	7	609	23	3,660
Against decrease of wages.....	2	64	.....	.....	2	500
Disputes as to system of payment of wages....	6	746	1	50	1	30
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....	5	643	4	453	15	2,213
Other disputes affecting wages.....	1	1,500	1	15	1	200
For decrease of hours.....	.....	.....	1	44	2	374
For reinstatement of discharged employees.....	4	783	2	185	2	844
Other disputes affecting employment of particular classes or persons.....	1	783	.....	.....	1	800
For change in existing working arrangements..	2	54	.....	.....	3	1,276
Against change in existing working arrangements.....	2	900	2	1,259	1	185
Other disputes relating to working arrangements, rules, and discipline.....	.....	.....	1	1,050	1	1,000
Disputes on questions of trade unionism.....	12	16,657	2	263	.....	.....
Miscellaneous disputes.....	1	250	.....	.....	1	1,200
Total.....	46	24,478	21	3,928	53	12,281

Cause or object.	Indefinite or unsettled.		Total strikes and lock-outs.	Total persons directly affected.	Total persons indirectly affected.
	Strikes and lock-outs.	Persons directly affected.			
For increase of wages.....	.....	.....	40	6,367	11,482
Against decrease of wages.....	.....	.....	4	564	43
Disputes as to system of payment of wages.....	.....	.....	8	826	2,928
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....	1	72	25	3,381	1,617
Other disputes affecting wages.....	1	550	4	2,265	200
For decrease of hours.....	.....	.....	3	418	7,140
For reinstatement of discharged employees.....	.....	.....	8	1,812	448
Other disputes affecting employment of particular classes or persons.....	.....	.....	2	1,583	300
For change in existing working arrangements.....	.....	.....	5	1,329	613
Against change in existing working arrangements.....	.....	.....	5	2,344	50
Other disputes relating to working arrangements, rules, and discipline.....	.....	.....	2	2,050	.....
Disputes on questions of trade unionism.....	.....	.....	14	16,920	815
Miscellaneous disputes.....	.....	.....	2	1,450	2,700
Total.....	2	622	122	41,309	28,336

In 1901 labor conditions in the coal mine industry were more unsettled than during the two preceding years. There were 186 coal mine strikes, affecting 108,318 working people and causing an aggregate loss of 1,741,511 working days. Twenty-four strikes involved 1,000 or more persons each, but none was of special importance. A strike of 628 enginemen in Lanarkshire for an eight-hour day involved 25,000 other colliery workers. It lasted five days and was unsuccessful.

The information concerning disputes for the years 1901 to 1903 published in the British reports does not permit the separation of coal mine data from those relating to metalliferous mines and quarries, as was done in the preceding tables.

The following table, therefore, shows the number of strikes, persons involved, and aggregate days lost in 1901 in the coal and metalliferous mines and in the quarries in the United Kingdom:

STRIKES AND LOCKOUTS IN THE MINING AND QUARRYING INDUSTRIES IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1901.

[Source: Report on Strikes and Lockouts in the United Kingdom in 1901, and on Conciliation and Arbitration Boards. Disputes involving less than 10 work people and those which lasted less than 1 day have been omitted, except when the aggregate duration exceeded 100 working days.]

Cause or object.	In favor of employees.		In favor of employers.		Compromised.	
	Strikes and lock-outs.	Persons directly affected.	Strikes and lock-outs.	Persons directly affected.	Strikes and lockouts.	Persons directly affected.
For increase of wages.....	4	587	16	1,313	15	5,778
Against decrease of wages.....	10	2,468	13	2,613	12	1,476
Disputes as to system of payment of wages.....			1	120	3	444
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....	14	3,506	15	2,177	16	3,527
Other disputes affecting wages.....	4	238	5	937	4	1,620
For decrease of hours.....			3	1,239		
Against increase of hours.....			1	40		
Disputes as to arrangement of hours.....	2	190	2	1,055	2	94
Other disputes affecting hours.....			1	180		
Disputes between classes of work people.....	1	23				
For reinstatement of discharged work people.....	1	500	7	824	2	1,258
Against employment of certain officials.....	1	1,010			1	50
Other disputes affecting employment of particular classes or persons.....			2	1,200	1	400
For change in existing arrangements.....	1	68	3	604	2	999
Against change in existing arrangements.....	2	202	5	345	1	93
Other disputes relating to working arrangements, rules and discipline.....			13	7,174	4	4,799
Disputes on questions of trade unionism.....	11	8,015	2	555		
Sympathetic disputes.....					2	1,470
Miscellaneous disputes.....			2	1,168		
Total.....	51	16,807	91	21,544	65	22,008



STRIKES AND LOCKOUTS IN THE MINING AND QUARRYING INDUSTRIES IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1901—Concluded.

[Source: Report on Strikes and Lockouts in the United Kingdom in 1901, and on Conciliation and Arbitration Boards. Disputes involving less than 10 work people and those which lasted less than 1 day have been omitted, except when the aggregate duration exceeded 100 working days.]

Cause or object.	Indefinite or unsettled.		Total strikes and lock-outs.	Total persons directly affected.	Total persons indirectly affected.	Aggregate duration in working days of disputes in 1901. (e)
	Strikes and lock-outs.	Persons directly affected.				
For increase of wages.....	2	1,166	37	8,844	4,930	404,202
Against decrease of wages.....			35	6,557	784	182,057
Disputes as to system of payment of wages.....			4	564		10,500
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....			45	9,210	2,677	267,118
Other disputes affecting wages.....			13	2,795	6,246	24,163
For decrease of hours.....			3	1,229	25,000	139,979
Against increase of hours.....			1	40		1,831
Disputes as to arrangement of hours.....			6	1,339	292	12,048
Other disputes affecting hours.....			1	180		360
Disputes between classes of work people.....			1	23	45	68
For reinstatement of discharged work people.....			10	2,582	1,798	14,894
Against employment of certain officials.....			2	1,060		19,457
Other disputes affecting employment of particular classes or persons.....			3	1,600		12,606
For change in existing arrangements.....			6	1,671	404	19,653
Against change in existing arrangements.....			8	640	1,239	6,202
Other disputes relating to working arrangements, rules, and discipline.....			17	11,973	5,777	746,229
Disputes on questions of trade unionism.....	1	540	14	9,110	498	61,662
Sympathetic disputes.....			2	1,470	250	151,108
Miscellaneous disputes.....			2	1,168	976	11,976
Total.....	3	1,706	210	62,065	50,916	2,086,113

e Including the aggregate duration in 1901 of disputes beginning in previous years, and excluding the duration in 1902 of disputes beginning in 1901. The aggregate duration is computed on the basis of the total number directly and indirectly affected.

During 1902 there were 161 coal mine disputes, which was not as many as in 1901, but the total number of persons involved, 207,095, and the aggregate duration, 2,394,583 days, show a considerable increase upon the figures for any of the years since the great strike in South Wales and Monmouthshire in 1898. There were no general strikes in which the miners as a body were directly concerned, although over a considerable part of the federation area large numbers of men were indirectly affected by the action of the boys and other classes of subordinate labor.

The table following shows the number of strikes, persons involved, and aggregate days lost in 1902 in the coal and metalliferous mining and the quarrying industries of the United Kingdom.

506 - SPECIAL REPORT OF THE COMMISSIONER OF LABOR.

STRIKES AND LOCKOUTS IN THE MINING AND QUARRYING INDUSTRIES IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1902.

[Source: Report on Strikes and Lockouts in the United Kingdom in 1902, and on Conciliation and Arbitration Boards. Disputes involving less than 10 work people and those which lasted less than 1 day have been omitted, except when the aggregate duration exceeded 100 working days.]

Cause or object.	In favor of employees.		In favor of employers.		Compromised.	
	Strikes and lock-outs.	Persons directly affected.	Strikes and lock-outs.	Persons directly affected.	Strikes and lock-outs.	Persons directly affected.
For increase of wages.....	4	397	12	3,204	7	696
Against decrease of wages.....	4	460	12	1,752	17	19,090
Disputes as to system of payment of wages.....	1	30				
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....	4	786	7	3,279	11	1,282
Other disputes affecting wages.....			9	1,683	3	1,448
For decrease of hours.....	1	37			2	111
Disputes as to arrangement of hours.....	1	300	1	112		
Other disputes affecting hours of labor.....			1	1,600		
For reinstatement of discharged work people.....	2	2,550	5	1,961		
Against employment of certain officials.....	1	1,347				
Other disputes affecting employment of particular classes or persons.....	1	60	1	36	1	400
For change in existing arrangements.....	3	1,400	1	80	2	132
Against change in existing arrangements.....	3	478	5	1,279	12	7,296
Other disputes relating to working arrangements, rules, and discipline.....	1	340	5	2,889	3	1,722
Disputes on questions of trade unionism.....	14	21,997	3	2,839		
Miscellaneous disputes.....			1	12	1	80
Total.....	40	30,212	63	20,726	59	32,259

Cause or object.	Indefinite or unsettled.		Total strikes and lock-outs.	Total persons directly affected.	Total persons indirectly affected.	Aggregate duration in working days of disputes in 1902. (e)
	Strikes and lock-outs.	Persons directly affected.				
For increase of wages.....			23	4,297	15,235	439,446
Against decrease of wages.....	1	27	34	21,329	88,633	995,333
Disputes as to system of payment of wages.....			1	30		441
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....	1	1,535	23	6,882	960	493,750
Other disputes affecting wages.....	1	220	13	3,351	3,441	21,841
For decrease of hours.....			3	148	1,889	32,634
Disputes as to arrangement of hours.....			2	412	85	9,783
Other disputes affecting hours of labor.....			1	1,600		4,800
For reinstatement of discharged work people.....	1	400	8	4,911	1,021	50,041
Against employment of certain officials.....			1	1,347		2,094
Other disputes affecting employment of particular classes or persons.....			3	626	3,124	51,693
For change in existing arrangements.....	1	60	7	1,672	2,390	26,857
Against change in existing arrangements.....			20	9,055	2,788	111,948
Other disputes relating to working arrangements, rules, and discipline.....			9	4,951	2,627	164,493
Disputes on questions of trade unionism.....	1	78	18	24,914	816	144,272
Miscellaneous disputes.....			2	92		221
Total.....	6	2,320	168	85,517	123,009	2,550,047

e Including the aggregate duration in 1902 of disputes beginning in previous years, and excluding the duration in 1903 of disputes beginning in 1902. The aggregate duration is computed on the basis of the total number directly and indirectly affected.

In 1903 there were 113 coal mine disputes involving 60,029 persons, and causing an aggregate loss of 1,215,450 working days. There were no general coal mine strikes in Great Britain during this year. The largest strike involved 4,535 persons.

The following table shows the number of strikes, persons involved, and aggregate days lost in 1903 in the coal and metalliferous mining and quarrying industries of the United Kingdom:

STRIKES AND LOCKOUTS IN THE MINING AND QUARRYING INDUSTRIES IN THE UNITED KINGDOM, BY CAUSES AND RESULTS, 1903.

[Source: Report on Strikes and Lockouts in the United Kingdom in 1903, and on Conciliation and Arbitration Boards. Disputes involving less than 10 work people and those which lasted less than 1 day have been omitted, except when the aggregate duration exceeded 100 working days.]

Cause or object.	In favor of employees.		In favor of employers.		Compromised.	
	Strikes and lock-outs.	Persons directly affected.	Strikes and lock-outs.	Persons directly affected.	Strikes and lockouts.	Persons directly affected.
For increase of wages.....	2	367	11	6,415	6	785
Against decrease of wages.....	1	29	10	699	11	2,423
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....	4	960	7	1,017	12	2,220
Other disputes affecting wages.....	2	255	3	238	.....	.....
Against increase of hours.....	.....	.....	.....	.....	1	112
Disputes as to arrangement of hours.....	.....	.....	.....	.....	2	2,022
For reinstatement of discharged work people.....	2	550	4	2,725	2	1,250
Other disputes affecting employment of particular classes or persons.....	.....	.....	1	300	1	196
For change in existing arrangements.....	.....	.....	3	1,031	1	700
Against change in existing arrangements.....	1	1,400	1	50	3	1,232
Other disputes relating to working arrangements, rules, and discipline.....	4	3,038	8	1,246	4	919
Disputes on questions of trade unionism.....	12	16,536	.....	.....	.....	.....
Miscellaneous disputes.....	.....	.....	1	586	.....	.....
Total.....	28	23,135	49	14,307	43	11,869

Cause or object.	Indefinite or unsettled.		Total strikes and lock-outs.	Total persons directly affected.	Total persons indirectly affected.	Aggregate duration in working days of disputes in 1903. (a)
	Strikes and lock-outs.	Persons directly affected.				
For increase of wages.....	1	197	20	7,764	1,223	362,347
Against decrease of wages.....	1	62	23	3,213	3,908	105,599
Disputes as to system of payment of wages.....	.....	.....	.....	.....	.....	150
Readjustment of rates of payment on account of difficulties or ease in working, quality of materials, etc.....	1	60	24	4,257	1,615	569,402
Other disputes affecting wages.....	.....	.....	5	493	1,435	2,948
Against increase of hours.....	.....	.....	1	112	.....	903
Disputes as to arrangement of hours.....	.....	.....	2	2,022	.....	5,578
For reinstatement of discharged work people.....	.....	.....	8	4,525	3,356	82,871
Other disputes affecting employment of particular classes or persons.....	.....	.....	2	496	166	3,445
For change in existing arrangements.....	.....	.....	4	1,731	.....	16,623
Against change in existing arrangements.....	.....	.....	5	2,682	15	13,291
Other disputes relating to working arrangements, rules, and discipline.....	.....	.....	16	5,203	1,673	176,694
Disputes on questions of trade unionism.....	2	375	14	16,911	134	116,759
Miscellaneous disputes.....	.....	.....	1	586	58	1,288
Total.....	5	694	125	49,995	13,583	1,397,898

<sup>a</sup> Including the aggregate duration in 1903 of disputes beginning in previous years, and excluding the duration in 1904 of disputes beginning in 1903. The aggregate duration is computed on the basis of the total number directly and indirectly affected.

<sup>b</sup> Duration of a dispute which began in 1902 and ended in 1903, the details of which appear in the preceding table.

There were thus, during the period from 1888 to 1903 for which official statistics exist, 5 important general strikes of coal mine employees in the United Kingdom. These were the strike of 1890, involving 151 mines and 107,484 employees in England and North

Wales; the strike of 1892, involving 150 mines and 75,000 employees in the county of Durham; the great "Federation" strike of 1893, involving 1,500 establishments and 300,000 employees in England and Wales; the Scotch strike of 1894, involving 500 establishments and 70,000 mine employees, and the strike in South Wales and Monmouthshire in 1898, involving 100,000 mine employees. All of these strikes arose through disputes in regard to wages. Three were compromised through the intervention of conciliation boards, and two were complete failures.

In the two following tables a recapitulation is given of all the strikes and lockouts in the coal-mining industry in the United Kingdom which have been reported in the annual British strike reports from 1888 to 1903, inclusive:

STRIKES AND LOCKOUTS OF COAL MINE EMPLOYEES IN THE UNITED KINGDOM, BY YEARS, 1888 TO 1896.

[Source: Annual reports on strikes and lockouts, 1888 to 1896. Under "Aggregate working days lost by all employees thrown out of work" is included the number of days lost on account of strikes and lockouts, beginning in each specified year, regardless of time of ending.]

Year.	Total strikes and lockouts.	Strikes and lockouts the results of which were—				Strikes and lockouts for which duration was reported.		Strikes and lockouts for which employees thrown out of work were reported.	
		In favor of employees.	In favor of employers.	Compromised.	Indefinite or unsettled.	Number.	Days of duration.	Number.	Employees thrown out of work.
1888.....	137	97	22	11	7	.....	.....	105	58,917
1889.....	113	53	17	37	6	.....	.....	92	36,952
1890.....	89	30	26	25	8	64	1,199	71	138,735
1891.....	120	42	22	40	16	84	1,733	92	50,793
1892.....	96	29	21	27	19	66	1,675	74	115,489
1893.....	139	36	51	37	15	94	2,698	118	503,061
1894.....	227	57	64	84	22	186	2,702	207	215,769
1895.....	174	34	55	80	5	149	2,352	172	81,777
1896.....	159	32	61	66	.....	159	.....	159	60,679
Total....	1,254	410	339	407	98	802	.....	1,060	1,262,172

Year.	Employees thrown out of work by strikes and lockouts the results of which were—								Strikes and lockouts for which both employees thrown out of work and time lost was reported.	
	In favor of employees.		In favor of employers.		Compromised.		Indefinite or unsettled.		Number.	Aggregate working days lost by all employees thrown out of work.
	Strikes and lockouts. (e)	Em- ployees.	Strikes and lockouts. (e)	Em- ployees.	Strikes and lockouts. (e)	Em- ployees.	Strikes and lockouts. (e)	Em- ployees.		
1888...	78	45,397	17	10,006	8	2,212	2	1,300	.....	.....
1889...	28	13,213	15	8,458	35	15,012	4	269	.....	.....
1890...	23	115,920	23	10,878	21	11,455	4	482	.....	.....
1891...	33	10,262	16	13,997	36	21,726	7	4,808	.....	.....
1892...	23	9,322	20	16,130	23	87,524	8	2,513	.....	.....
1893...	31	337,733	45	52,663	35	111,455	7	1,210	94	27,869,770
1894...	57	37,165	60	97,837	77	77,050	13	3,717	186	6,478,958
1895...	34	14,780	55	17,591	78	48,614	5	792	149	973,902
1896...	32	14,028	61	19,363	66	27,288	.....	.....	159	765,178
Total	349	597,820	312	246,925	379	402,336	50	15,091	588	36,087,806

e Number of strikes and lockouts for which number of persons thrown out of work has been ascertained.

STRIKES AND LOCKOUTS OF COAL MINE EMPLOYEES IN THE UNITED KINGDOM, BY YEARS, 1897 TO 1903.

[Source: Annual reports on strikes and lockouts, 1897 to 1903. Under "Aggregate working days lost by all employees thrown out of work" is included the number of days lost on account of strikes and lockouts ending in each specified year, regardless of time of beginning. Disputes involving less than 10 employees and those which lasted less than 1 day have been omitted, except when the aggregate duration exceeded 100 working days.]

Year.	Strikes and lockouts the results of which were—				Total strikes and lockouts.	Strikers and employees locked out in disputes the results of which were—			
	In favor of employees.	In favor of employers.	Compromised.	Indefinite or unsettled.		In favor of employees.	In favor of employers.	Compromised.	Indefinite or unsettled.
1897 .....	38	37	37	4	116	10,484	10,917	12,061	863
1898 .....	28	30	57	1	116	29,423	104,802	11,374	33
1899 .....	33	26	32	1	92	11,389	6,599	7,114	46
1900 .....	46	21	53	2	122	24,478	8,928	12,281	622
1901 (a) .....	46	81	56	3	186	15,944	19,969	20,633	1,706
1902 (a) .....	40	62	55	4	161	30,212	20,686	31,251	2,215
1903 (a) .....	28	44	38	5	113	22,465	12,406	11,083	694
Total .....	257	301	328	20	906	144,395	179,397	105,807	6,179

Year.	Total strikers and employees locked out.	Other employees thrown out of work.	Aggregate working days lost in strikes and lockouts the results of which were—				Aggregate working days lost by employees thrown out of work.
			In favor of employees.	In favor of employers.	Compromised.	Indefinite or unsettled.	
1897 .....	34,325	13,636	196,751	203,033	290,186	177,148	867,118
1898 .....	145,722	28,986	155,087	11,746,105	900,167	4,265	12,805,624
1899 .....	25,148	19,736	75,466	78,079	295,520	1,000	450,065
1900 .....	41,309	28,336	179,802	39,713	213,686	6,628	439,829
1901 (a) .....	58,252	50,066	186,755	621,277	749,103	184,376	1,741,511
1902 (a) .....	84,364	122,731	178,824	738,967	1,122,520	354,272	2,394,583
1903 (a) .....	46,658	13,371	155,673	643,541	380,847	35,389	1,215,450
Total .....	435,778	276,862	1,128,358	14,070,715	3,952,029	763,078	19,914,180

\* The figures in this table relate to coal-mine disputes only, and differ therefore from those in the tables on pages 504 to 507, which relate to all mines and quarries.

BOARDS OF CONCILIATION AND ARBITRATION.

The coal miners and coal owners in Great Britain have for years resorted to boards of conciliation or to arbitrators for the settlement of their differences. Such boards, in the earlier years, were usually temporarily created from time to time to adjust disputes as they occurred, and unless the disputes were of great importance, no record was ever made of their operations. The first permanent board in the coal industry of which there is any official record was the Durham joint committee to settle disputes, which was created in 1872. Since then boards for the consideration of local and of general disputes have been formed from time to time, until in 1902 provision had been made in the way of permanent boards, which included nearly all the coal miners and operators in Great Britain.

These permanent boards are of two classes, namely, those dealing with local cases only, which are mostly informal, sometimes have no signed rules of procedure, and are usually designated as "joint committees," and those usually known as "conciliation boards,"

which have a formal organization, have fixed rules of procedure and deal, as a rule, only with questions affecting a whole county, district, or group of districts. Of the permanent boards reporting in 1903 six were joint committees and eight were conciliation boards. Four of the six joint committees were in the Durham district. They are: The Joint Committee of the Durham Coal Owners' and Miners' Associations, the Joint Committee of the Durham Coal Owners' and Cokemen's Associations, the Joint Committee of the Durham Coal Owners and Colliery Mechanics' Associations, and the Joint Committee of the Durham Coal Owners' Association and the Durham County Enginemens' Associations. These Durham organizations, which deal with local questions, must be distinguished from the Board of Conciliation for the Durham Coal Trade which deals with general questions affecting the whole district. In the statistics of the work of boards of conciliation and arbitration, the Durham joint committees are considered collectively.

As above mentioned the joint committees for the consideration of local questions usually have no formal rules, while the general boards give much attention to defining their purposes, rules of procedure, etc. In order to give an idea of the nature of these general boards the following rules, adopted by three of the leading conciliation and arbitration boards in Great Britain, are reproduced from the British report on strikes and lockouts for 1899:

#### I. FEDERATED DISTRICTS COAL TRADE CONCILIATION BOARD.<sup>(a)</sup>

*Rules of procedure for the conduct of the business of the board of conciliation, established between the Federated Coal Owners and the Miners' Federation of Great Britain, to determine the rate of wages from the 1st January, 1899, to the 1st January, 1901, within the following limits, namely: That during such period the rate of wages shall not be below 30 per cent above the rate of wages of 1888, nor more than 45<sup>(b)</sup> per cent above the rate of wages of 1888.*

1. *Title.*—The title of the board shall be "The Board of Conciliation for the Coal Trade of the Federated Districts."

2. *Object.*—The board shall determine, from time to time, the rate of wages as from 1st January, 1899.

3. *Constitution of board.*—The board shall consist of an equal number of coal owners or coal owners' representatives elected by the Federated Coal Owners, and miners or miners' representatives elected by the Miners' Federation of Great Britain, 14 of each, with a chairman from outside, who shall have a casting vote.

4. The present members of the board are and shall be:

*Chairman:* The Right Hon. Lord James of Hereford.

<sup>a</sup> Including Yorkshire, Lancashire, Cheshire, Derby, Nottingham, Leicester, Shropshire, part of Staffordshire, Warwick, part of Worcestershire, Bristol, and North Wales.

<sup>b</sup> By an agreement dated 16th January, 1900, it was determined to continue the board for another three years to 1st January, 1904, and to raise the maximum limit for wages to 60 per cent above the standard of 1888.



*Coal owners or coal owners' representatives:* \* \* \*

*Miners or miners' representatives:* \* \* \*

Whenever a vacancy has arisen from any cause on the board, except in the office of chairman, such vacancy shall be filled up within one month of its occurrence by the body which appointed the member whose seat has become vacant. Intimation of such appointment shall be at once sent to the secretaries. On the death, resignation, or removal of the first or any subsequent chairman, the board shall endeavor to elect another chairman, and should they fail, will ask the speaker for the time being of the House of Commons to nominate one.

5. *Place of meeting.*—The meetings of the board shall be held in London, or such other place as the board shall from time to time determine.

6. *Short reference*—“*The parties.*”—The constituents of the board, i. e., coal owners or coal owners' representatives, and miners or miners' representatives, are, for brevity, herein referred to as “the parties.”

7. *Secretaries.*—The parties shall each, respectively, elect a secretary to represent them in the transaction of the business of the board, and each party shall give written notice thereof to the secretary of the other party, and both such secretaries shall remain in office until they shall resign, or be withdrawn by the parties electing them. The secretaries shall attend all meetings of the board, and are entitled to take part in the discussion, but they shall have no power to move or second any resolution, or to vote on any question before the board.

8. *Duties of secretaries.*—They shall conjointly convene all meetings of the board, and take proper minutes of the board and the proceedings thereof, which shall be transcribed in duplicate books, and each such book shall be signed by the chairman, president, or vice-president, or other person, as the case may be, who shall preside at the meeting at which such minutes are read and confirmed. One of such minute books shall be kept by each of the secretaries. The secretaries shall also conduct the correspondence for the respective parties and conjointly for the board.

9. *Board meetings.*—The secretaries shall, on the written application of either of the parties made by the chairman and secretary of either party for an alteration in the rate of wages, or an alteration of these rules, or for any of the objects mentioned in clause 4, call a meeting of the board within twenty-one days at such time and place as may be agreed upon by the secretaries. The application for the meeting shall state clearly the object of the meeting.

10. *Duties of president, vice-president, and chairman.*—The president, or in his absence the vice-president, shall preside at all the meetings at which the chairman is not present as herein provided. In the absence of both president and vice-president a member of the board shall be elected by the majority to preside at that meeting. The president or vice-president, or other person presiding, shall vote as a representative, but shall not have any casting vote. When the chairman is present he shall preside and have a casting vote.

11. *Business at meetings of the board.*—All questions shall, in the first instance, be submitted to and considered by the board, it being the desire and intention of the parties to settle any difficulties or differences which may arise by friendly conference, if possible. If

the parties on the board can not agree, then the meeting shall be adjourned for a period not exceeding twenty-one days, and the matter in dispute shall be further discussed by the constituents of the two parties, and the chairman shall be summoned by the secretaries to the adjourned meeting, when the matter shall be again discussed, and in default of an agreement by the parties on the board the chairman shall give his casting vote on such matter at that meeting, which shall be final and binding.

12. *Procedure.*—All questions submitted to the board shall be stated in writing, and may be supported by such verbal, documentary, or other evidence and explanation as the parties may desire, subject to the approval of the board.

13. *Voting.*—All votes shall be taken at meetings of the board by show of hands. When at any meeting of the board the parties entitled to vote are unequal in number, all shall have the right of fully entering into the discussion of any matters brought before them, but only an equal number of each shall vote. The withdrawal of the members of whichever body may be in excess to be by lot, unless otherwise arranged.

14. *Expenses and provision of funds.*—Each party shall pay and defray the expenses of its own representatives and secretary, but the costs and expenses of the chairman, stationery, books, printing, and hire of rooms for meeting shall be borne by the respective parties in equal shares.

THOS. RATCLIFFE ELLIS,  
THOMAS ASHTON,  
*Joint Secretaries of the Board.*

JANUARY, 1899.

## II. NORTHUMBERLAND COAL TRADE CONCILIATION BOARD.

### RULES OF PROCEDURE.

1. *Title.*—The title of the board shall be "The Board of Conciliation for the Coal Trade of the County of Northumberland."

2. *Object.*—The board shall determine from time to time the county rate of wages.

3. *Constitution of board.*—The board shall consist of an equal number of coal owners or coal owners' representatives elected by the Northumberland Coal Owners' Association, and miners or miners' representatives elected by the Northumberland Miners' Association, 15 of each, with an independent chairman.

4. *Appointment of chairman.*—The chairman to be elected annually by the members of the board. If they should not be able to agree on the appointment of a chairman, the chairman for the time being of the county council of Northumberland shall be asked to nominate one after conferring jointly with the parties.

5. *Vacancies.*—Whenever a vacancy shall arise from any cause on the board, except in the office of chairman, such vacancy shall be filled up within one month of its occurrence by the association which appointed the member whose seat shall have become vacant. Intimation of such appointment shall be at once sent to the other association.

6. *Place of meeting.*—The meetings of the board shall be held in Newcastle-on-Tyne or such other place as the board shall from time to time determine.

7. *Short reference*—“*The parties.*”—The members of the board, i. e., coal owners or coal-owners’ representatives, and miners or miners’ representatives, are, for brevity, herein referred to as “the parties.”

8. *Secretaries.*—The parties shall each, respectively, elect a secretary to represent them in the transaction of the business of the board, and each party shall give written notice thereof to the secretary of the other party, and both such secretaries shall remain in office until they shall resign or be withdrawn by the parties electing them. The secretaries shall attend all meetings of the board, and are entitled to take part in the discussion, but, unless they are members of the board, they shall have no power to move or second any resolution, or to vote on any question before the board.

9. *Duties of secretaries.*—They shall conjointly convene all meetings of the board and take proper minutes of the board and the proceedings thereof, which shall be transcribed in duplicate books, and each such book shall be signed by the chairman or other person who shall preside at the meeting at which such minutes are read and confirmed. One of such minute books shall be kept by each of the secretaries. The secretaries shall also conduct the correspondence for the respective parties and conjointly for the board.

10. *Board meetings.*—Ordinary meetings of the board shall be held as early as possible in the months of January, April, July, and October in each year. For the purpose of considering the election or reelection of the chairman, the secretaries shall, on the application of either party, convene a special meeting, to be held within twenty-one days of such application, to consider such election or reelection.

11. *Chairman.*—The chairman shall preside at all ordinary meetings at which he is present, and, in default of agreement by the parties on any question before the board, he shall have power to decide such question as he may think fit, with or without modification by him of its terms as submitted to the board, and his decision shall be final and binding on all parties.

12. *At special meetings of the board,* or at ordinary meetings at which the chairman is not present, the members present shall appoint one of their number to preside, who shall have an initial vote as a member, but shall have no casting vote.

13. *Voting.*—All votes shall be taken at meetings of the board by show of hands. When at any meeting of the board the parties entitled to vote are unequal in number, all shall have the right of fully entering into the discussion of any matters brought before them, but only an equal number of each shall vote; the withdrawal of the members of whichever body may be in excess to be by lot, unless otherwise arranged.

14. *Expenses.*—Each party shall pay the expenses of its own representatives and secretary, but the costs and expenses of the chairman, stationery, books, printing, hire of rooms for meeting shall be borne by the respective parties in equal shares.

15. *Alteration of rules.*—No alteration of these rules shall be made except at the July meeting in any year. Either party desiring an

alteration of the rules shall, not less than one month before such meeting, give notice to the secretary of the other party of the alterations desired, and the secretaries shall, not less than fourteen days before such meeting, forward a copy of the proposed alterations to each member of the board.

16. *Notice to terminate.*—The board shall continue until either party give six months' notice of withdrawal from it, but neither party to withdraw before the 30th June, 1901.

NEWCASTLE-ON-TYNE, 20th December, 1899.

### III. DURHAM COAL TRADE CONCILIATION BOARD.

The Durham Coal Owners' Association and the Durham County Mining Federation hereby agree to form a "Board of Conciliation for the Durham Coal Trade," hereinafter called "the board."

The following shall be the objects, constitution, and rules of procedure:

#### OBJECTS.

By conciliatory means to prevent disputes and to put an end to any that may arise, and with this view to consider and decide upon all claims that either party may from time to time make for a change in county rates of wages or county practices, and upon any other questions, not falling within the jurisdiction of the joint committee, that it may be agreed between the parties to refer to the board.

#### CONSTITUTION AND RULES OF PROCEDURE.

1. The board shall be constituted of the following number of representatives appointed by the following bodies, viz, by the—

Miners' Association.....	9
Cokemen's Association.....	3
Mechanics' Association.....	3
Enginemen's Association.....	3
By the Coal Owners' Association.....	18
Total.....	36

2. The coal owners' representatives on the one hand, and the representatives unitedly of the four other associations on the other hand, are, for brevity, herein referred to as "the parties."

3. The board shall continue till either of the parties gives six months' notice of withdrawal from it, but neither of the parties to withdraw before the end of 1902.

4. An umpire shall be forthwith agreed upon by the board, or, failing agreement, be appointed by the board of trade, after conferring unitedly with each of the parties represented by the board. Each umpire shall hold office until his successor is appointed. The board shall at its meeting in November, 1900, and in November of each succeeding year, and within one month of the death or resignation of any umpire, proceed to appoint a successor in the manner herein provided.

5. No decision shall be altered until it has been in operation for three calendar months.

6. All questions submitted to the board shall be stated in writing, and may be supported by such verbal, documentary, or other evidence as either party may desire to adduce and as the board may deem relevant.

7. All questions shall in the first instance be submitted to and considered by the board without the presence of the umpire, it being the desire and intention of the parties to settle, by friendly conference if possible, any difficulties or differences which may arise. If the board can not agree, then the meeting shall be adjourned, and the umpire shall be summoned to the adjourned meeting, when the matter shall be again discussed, and in default of an agreement by the board the umpire shall give his casting vote on such matter. The decision of the board or its umpire shall be final and binding on the parties.

8. The umpire may at his discretion require either party to afford him the means of obtaining, for the information of the board only, any facts that, in his judgment, are essential to the decision of any question at issue.

9. The parties shall each, respectively, elect a secretary to represent them in the transaction of the business of the board, and each party shall give written notice thereof to the secretary of the other party, and both such secretaries shall remain in office until they shall resign or be withdrawn by the party electing them. The secretaries shall attend all meetings of the board and be entitled to take part in the discussion, but they shall have no power to move or second any resolution, or to vote on any question before the board, unless either secretary be also one of the representatives, in which case he shall in that capacity have all the rights and privileges of a representative.

10. The secretaries shall conjointly convene all meetings of the board, of which not less than seven days' notice shall be given, such notice specifying the business to be considered, and shall take proper minutes of the board and the proceedings thereof, which shall be transcribed in duplicate books, and each such book shall be signed by the umpire, chairman or vice-chairman, or other person, as the case may be, who shall have presided at the meeting to which such minutes relate. One of such minute books shall be kept by each of the secretaries. The secretaries shall also conduct the correspondence for the respective parties and conjointly for the board.

11. The secretaries shall, on the written application of either of the parties, made by the chairman and secretary of either party, call a special meeting of the board within twenty-one days, at such time as may be agreed upon by the secretaries. The application for the meeting shall state clearly the object of the meeting.

12. Each party shall pay the expenses of its representatives and secretary, but the costs and expenses of the umpire, stationery, books, printing, hire of rooms for meetings, etc., shall be borne by the respective parties in equal shares.

13. At the first meeting of the board in each year the board shall appoint a chairman and vice-chairman, one of whom shall be a representative of the coal owners' association and the other of the miners', cokemen's, mechanics', or enginemen's association.

14. The chairman, or in his absence the vice-chairman, shall preside at all meetings at which the umpire is not present as herein provided. In the absence of both chairman and vice-chairman a member



of the board shall be elected by the majority to preside at that meeting. The chairman or vice-chairman, or other person presiding, shall vote as a representative, but shall not have any casting vote. When the umpire is present he shall preside and have a casting vote only.

15. Ordinary meetings of the board shall be held as early as possible in the months of February, May, August, and November in each year. The meetings of the board shall be held at Newcastle, or such other place as the board shall from time to time determine.

16. All votes shall be taken at meetings of the board by show of hands. When at any meeting of the board the representatives of the respective parties are unequal in number, all shall have the right of fully entering into the discussion of any matters brought before them, but only an equal number of each shall vote, the withdrawal of the representatives of whichever party may be in excess to be by lot unless otherwise arranged.

For the Durham Coal Owners' Association.

REGINALD GUTHRIE, *Secretary*.

For the Durham County Mining Federation.

JOHN WILSON, *Secretary*.

17TH OCTOBER, 1899.

Since 1893 the British Government has published in its annual reports on strikes and lockouts statistics and other information relating to boards of conciliation and arbitration. A review of this information, as published from year to year, gives an interesting insight into the development and work of these permanent boards.

In 1893 information was published regarding four permanent organizations for the settlement of coal-mine disputes, but the statistics were not sufficiently complete for reproduction. These were the Durham Coal Trades Joint Committee, the Northumberland Coal Trade Joint Committee, the South Wales and Monmouthshire Sliding Scale Joint Committee, and the Board of Conciliation of Coal Masters and Miners of Mid and East Lothian.

In 1894 two important boards were formed, that for the federated districts which resulted from the settlement of the great strike of 1893 and the Board of Conciliation for Northumberland. The South Staffordshire and East Worcestershire Coal and Ironstone Mining Wages Board, the South Yorkshire Joint Committee, and the West Yorkshire Joint Committee, reported for the first time in 1894. Eight boards which made returns for this year reported 842 cases. Of these 280 were withdrawn or settled outside the board, and of the remaining 562 cases, 469 were settled by conciliation and 93 by arbitration.

During the year 1895 another board was formed, known as the "Board of Conciliation for the Durham District," the work of which is general in its scope. This board, unlike the boards for the federated districts and for the county of Northumberland, deals with general county questions as well as with the revision from time to time of the county rate of wages. Seven boards reported a total of 780 cases in 1895, of which 227 were withdrawn or settled otherwise than



by the board, and 553 were settled by the board, 460 by conciliation, and 93 by arbitration.

In 1896 three boards of conciliation were dissolved, namely, the conciliation board for the federated districts, the board for the county of Northumberland, and the board for the county of Durham. The first of these boards expired by limitation on July 31, 1896, after unsuccessful efforts had been made to effect a permanent organization. The Durham board, which was created in 1895, came to an end by a vote of the men on August 4, and the Northumberland board in like manner on December 31. The Cumberland Coal Trade Conciliation Board and the Forest of Dean Conciliation Board, which have existed prior to 1896, are considered for the first time in the British strike report for this year. Eight boards reported a total of 940 cases in 1896, of which 524 were withdrawn or settled without the mediation of the boards, 10 remained unsettled at the close of the year, 283 were settled by conciliation, and 123 by arbitration.

In 1897 five boards made reports of 950 cases considered. Of these cases 531 were withdrawn or otherwise settled than by the boards, 6 were pending at the close of the year, and 304 were settled by conciliation and 109 by arbitration.

Six coal mine conciliation boards reported 869 cases considered in 1898. Of these 437 were withdrawn or settled without the intervention of the boards and 6 were pending at the close of the year. Of the 426 remaining cases 277 were settled by conciliation and 149 by arbitration.

During the year 1899 three of the old boards of conciliation in the coal industry were revived, namely, those of the federated districts, of Northumberland, and of Durham. Seven boards reported a total of 818 cases in 1899, of which 446 were withdrawn or settled otherwise than by the board and 13 remained under consideration at the close of the year. Of the remaining 359 cases settled by the board 237 were by conciliation and 122 by arbitration.

In 1900 two new conciliation boards were organized in the coal industry. These were the Board of Conciliation for the Coal Trade of Scotland and the West Lothian District Local (Coal) Conciliation Board, the latter being organized to exist for 12 months. Eleven permanent boards reported a total of 817 cases in 1900. Of these, 514 were reported to have been withdrawn or settled independently of the boards and 27 as still under consideration at the end of the year. The remaining 276 cases were settled, 191 by the boards or committees of conciliation and 85 by arbitrators or umpires.

In 1901 two new conciliation boards were reported organized in the coal industry. These are the Cambrian Collieries Conciliation Board, formed in accordance with an agreement terminating a prolonged strike, and the Wages Conciliation Board for the Coal Trade of the Radstock District of Somerset. During this year 10 permanent boards reported 1,012 cases. Of these 622 were withdrawn

or otherwise settled independently of the board, 11 were still under consideration at the end of the year, leaving 379 cases which were settled by the boards. Of these 245 were settled by conciliation and 134 by arbitration.

In 1902 1,092 cases were reported considered by 12 permanent boards in the coal-mining industry. Of these 652 were withdrawn or otherwise settled independently of the boards, 25 were under consideration at the close of the year, and 415 were settled by the board. Of the latter 291 were settled by conciliation and 124 by arbitration.

In 1903 twelve permanent boards reported 1,267 cases considered by them during the year. Of these cases 723 were withdrawn or otherwise settled independently of the boards, 36 were under consideration at the close of the year, and 508 were settled by the board. Of the latter 301 were settled by conciliation and 207 by arbitration.

The following boards reported cases in 1903, namely: The Board of Conciliation for the Coal Trade of the Federated Districts, the Board of Conciliation for the Coal Trade of the County of Northumberland, the Joint Committee of the Northumberland Coal Owners' and Miners' Associations, the Board of Conciliation for the Durham Coal Trade, the Durham Coal Trade Joint Committees (four in number), the Board of Conciliation for the Cumberland Coal Trade, the Joint Committee of the West Yorkshire Coal Owners' Association and the Yorkshire Miners' Association, the Wages Conciliation Board for the Coal Trade of the Radstock District of Somerset, Forest of Dean Conciliation Board, the Cambrian Collieries Conciliation Board, the Board of Conciliation for the Coal Trade of South Wales and Monmouthshire, and the Board of Conciliation for the Regulation of Wages in the Coal Trade of Scotland.

The following table gives a summary of all cases reported by the permanent boards of conciliation and arbitration in the mining industry from 1894 to 1903:

WORK OF BOARDS OF CONCILIATION AND ARBITRATION IN THE COAL MINING INDUSTRY IN THE UNITED KINGDOM, 1894 TO 1903.

[Source: Annual reports on strikes and lockouts, 1894-1903.]

Year.	Boards reporting cases.	Cases reported.			Cases settled.		
		Considered by board.	Withdrawn or otherwise settled.	Under consideration at close of year.	By conciliation.	By arbitration.	Total.
1891.....	8	842	280	(a)	469	93	562
1895.....	7	780	227	(a)	460	93	553
1896.....	8	940	524	10	283	123	406
1897.....	5	950	531	6	304	109	413
1898.....	6	869	437	6	277	149	426
1899.....	7	818	446	13	237	122	359
1900.....	11	817	514	27	191	85	276
1901.....	10	1,012	622	11	245	134	379
1902.....	12	1,092	652	25	291	124	415
1903.....	12	1,267	723	36	301	207	508

(a) Not reported.

The cases mentioned in the above table are only such as came before the permanent boards, reports of which were made to the British Government. The boards did not in all cases make complete returns each year, and in this way many cases may have been omitted. On the other hand, many differences have been adjusted from time to time by temporary boards or committees, and these likewise do not appear in the tables. Hence it must be assumed that the number of agreements made through the medium of conciliation and arbitration in the coal-mining industry in Great Britain is much greater than would appear from the figures given.

The cases which have thus far been considered as having come before permanent boards of conciliation and arbitration, or were dealt with under the Conciliation Act of 1896, included all cases of differences, regardless of the fact whether or not the dispute had resulted in a cessation of work either as a strike or lockout. Since 1895 the British Government has published statistics showing the number of actual strikes and lockouts that have been settled by arbitration or conciliation. The following is a summary of these statistics as far as they relate to the coal-mining industry:

**STRIKES AND LOCKOUTS IN THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM WHICH WERE SETTLED BY CONCILIATION AND ARBITRATION, 1895 TO 1903.**

[Source: Annual reports on strikes and lockouts, 1895-1903.]

Year.	Settled by conciliation.		Settled by arbitration.		Total number of strikes and lockouts settled by conciliation or arbitration.		Total strikes and lockouts in coal-mining industry.	
	Strikes and lockouts.	Persons affected.	Strikes and lockouts.	Persons affected.	Strikes and lockouts.	Persons affected.	Number.	Persons affected.
1895 (a).....	4	3,589	8	2,576	12	6,165	174	81,777
1896.....	5	800	5	5,018	10	5,818	159	60,479
1897.....	7	3,459	1	978	8	4,437	116	47,961
1898.....	14	13,203	5	1,972	19	15,175	116	174,708
1899.....	1	46	2	557	3	603	92	44,884
1900.....	2	705	5	871	7	1,576	122	69,645
1901.....	4	3,860	6	1,102	-0	4,962	186	108,318
1902.....	1	245	3	2,000	4	2,245	161	207,095
1903.....	1	1,526	1	80	2	1,606	113	60,029

<sup>a</sup> Strikes and lockouts settled in 1895, including 3 which began in 1894.

<sup>b</sup> In 172 strikes; the number of persons was not reported in two strikes.

While the organization of the boards of conciliation and arbitration has been voluntary on the part of the persons represented, the State has done much by way of legislation and otherwise to facilitate such organization. The following extract from an article on "Foreign labor laws," in Bulletin No. 25 of the United States Department of Labor, will give an idea of the nature of State intervention in this regard in Great Britain:

The first act in favor of arbitration as a mode of settling disputes was passed in 1603.<sup>(a)</sup> The first act, however, having reference

<sup>a</sup> Howell, Handy Book of the Labor Laws, p. 229.

specially to the arbitration of labor disputes is given as that of 1 Anne, St. II, c. 22, passed in 1701, and provided for the reference of certain matters in certain textile and metal trades to two justices of the peace as arbitrators. Numerous other acts followed. In 1824 all of these acts were repealed and replaced by the general act of Geo. IV, c. 96, entitled "An act to consolidate and amend the laws relating to the arbitration of disputes between masters and workmen." This very important law made provision for a general scheme of arbitration applicable to all branches of industry. Arbitrators were to be suggested by the justice of the peace, one-half of whom were to be employers and the other half workingmen. From this body each party to the dispute was to select a referee, with full powers of hearing and determining the matter at issue. In case of failure to agree the justice of the peace could, in the last resort, decide the matter.

But little use was made of the provisions of the foregoing law. The next important act along these lines was that of 35 and 36 Vict., c. 46, passed in 1872, and intended as an amendment to the act of 1824. Its purpose was to make the law more comprehensive, provide for simpler machinery, and to introduce the principle of conciliation. In the meantime efforts to provide a workable system for the adjustment of labor disputes had been made in another direction. In 1867 was passed the Lord St. Leonards' Act, 30 and 31 Vict., c. 105, the purpose of which was to foster the growth in Great Britain of councils of conciliation, something after the pattern of the French councils of prudhommes.

Though more or less was accomplished under these laws, they can not be said to have proven effective measures. In 1896 Parliament, therefore, repealed all those acts, and in their place substituted the Conciliation Act of August 7, 1896, 59 and 60 Vict., c. 30, which is now in force. As this act is brief it is here reproduced in full:

"AN ACT To make better provision for the prevention and settlement of trade disputes  
[7th August, 1896].

"Be it enacted by \* \* \* Parliament assembled, and by the authority of the same; as follows:

"Any board established, either before or after the passing of this act, which is constituted for the purpose of settling disputes between employers and workmen by conciliation or arbitration, or any association or body authorized by an agreement in writing made between employers and workmen to deal with such disputes (in this act referred to as a conciliation board), may apply to the board of trade for registration under this act.

"The application must be accompanied by copies of the constitution, by-laws, and regulations of the conciliation board, with such other information as the board of trade may reasonably require.

"The board of trade shall keep a register of conciliation boards and enter therein, with respect to each registered board, its name and principal office and such other particulars as the board of trade may think expedient, and any registered conciliation board shall be entitled to have its name removed from the register on sending to the board of trade a written application to that effect.

“Every registered conciliation board shall furnish such returns, reports of its proceedings, and other documents as the board of trade may reasonably require.”

“The board of trade may, on being satisfied that a registered conciliation board has ceased to exist or to act, remove its name from the register.

“Subject to any agreement to the contrary, proceedings for conciliation before a registered conciliation board shall be conducted in accordance with the regulations of the board in that behalf.

“Where a difference exists or is apprehended between an employer or any class of employers and workmen, or between different classes of workmen, the board of trade may, if they think fit, exercise all or any of the following powers, namely:

“1. Inquire into the causes and circumstances of the difference.

“2. Take such steps as to the board may seem expedient for the purpose of enabling the parties to the difference to meet together, by themselves or their representatives, under the presidency of a chairman mutually agreed upon or nominated by the board of trade, or by some other person or body, with a view to the amicable settlement of the difference.

“3. On the application of employers or workmen interested, and after taking into consideration the existence and adequacy of means available for conciliation in the district or trade and the circumstances of the case, appoint a person or persons to act as conciliator or as a board of conciliators.

“4. On the application of both parties to the difference, appoint an arbitrator.

“If any person is so appointed to act as conciliator, he shall inquire into the causes and circumstances of the difference by communication with the parties and otherwise shall endeavor to bring about a settlement of the difference, and shall report his proceedings to the board of trade.

“If a settlement of the difference is effected either by conciliation or by arbitration, a memorandum of the terms thereof shall be drawn up and signed by the parties or their representatives, and a copy thereof shall be delivered to and kept by the board of trade.

“The arbitration act, 1889, <sup>(a)</sup> shall not apply to the settlement by arbitration of any difference or dispute to which this act applies; but any such arbitration proceedings shall be conducted in accordance with such of the provisions of the said act, or such of the regulations of any conciliation board, or under such other rules or regulations as may be mutually agreed upon by the parties to the difference or dispute.

“If it appears to the board of trade that in any district or trade adequate means do not exist for having disputes submitted to a conciliation board for the district or trade, they may appoint any person or persons to inquire into the conditions of the district or trade and to confer with the employers and employed, and, if the board of trade think fit, with any local authority or body, as to the expediency of establishing a conciliation board for the district or trade.

“The board of trade shall from time to time present to Parliament a report of their proceedings under this act.

<sup>a</sup> A law relating to the arbitration of disputes generally.

"The expenses incurred by the board of trade in the execution of this act shall be defrayed out of moneys provided by Parliament.

"The Masters and Workmen Arbitration Act, 1824, and the Councils of Conciliation Act, 1867, and the Arbitration (Masters and Workmen) Act, 1872, are hereby repealed."

This act may be cited as the Conciliation Act, 1896.

The significant features of the foregoing law, it will be noticed, are the official standing given to voluntary boards of arbitration and conciliation through registration, the keeping of records, etc., and the power given to the board of trade to create such boards where they do not exist, and itself actively to intervene where it deems such action advisable to determine the causes and circumstances of the dispute and to take steps for its adjustment. It should be noted that, in addition to the above general law, there are provisions in other special acts by which disputes arising in connection with matters to which the acts relate can be settled by arbitration. There are such provisions in the friendly societies, the trade unions, and other acts. The recent Workmen's Compensation Act, 1897, contains elaborate provisions by which matters arising under it can be settled by arbitration. They in no case, however, relate to the arbitration of labor disputes, or strikes, technically speaking.

Since the passage of the Conciliation Act of August, 1896, the following coal-mine cases have been reported as having been dealt with under that act:

COAL MINE CASES DEALT WITH UNDER THE BRITISH CONCILIATION (TRADE DISPUTE) ACT, 1896, DURING THE YEARS 1896 TO 1903.

[Source: First to fourth reports by the board of trade of proceedings under the Conciliation (Trade Dispute) Act, 1896.]

Two years ending June 30.	Disputes dealt with.	Source of application.			Mode of settlement.				Failure to effect settlement.
		Employers.	Employees.	Both parties.	Appointment of conciliators.	Negotiation by board of trade.	Arbitration.	By parties during the negotiation.	
1897 <sup>(a)</sup> .....	3	2	.....	1	1	.....	1	1	.....
1899.....	9	3	2	4	1	2	3	2	1
1901.....	<sup>b</sup> 2	.....	.....	1	.....	1	1	.....	.....
1903.....	3	.....	.....	3	.....	.....	3	.....	.....

<sup>a</sup> From August 7, 1896, to June 30, 1897.

<sup>b</sup> Conference arranged by board of trade in one case.

## LEGISLATION.

In Great Britain the ownership of land usually carries with it the ownership of mineral substances occurring beneath its surface. The two rights may be severed, however, and held by different persons or corporations. Local customs, now subject to Parliamentary control, are in effect in some parts of the Kingdom.

The principal legislation on the subject of coal mine labor is embodied in the Coal Mines Regulation Act of 1887 (50 and 51 Vict., ch. 58) and amendments thereto. Following is a statement of the provisions of the law as amended or added to by the Coal Mines (Check-



weighers) Act, 1894 (57, 58 Vict., ch. 52), the Coal Mines Regulation Act, 1896 (59, 60 Vict., ch. 43), and the Mines (Prohibition of Child Labor ~~Underground~~) Act, 1900 (63, 64 Vict., ch. 2).

The act of 1887 is a revision and consolidation of earlier acts, incorporating also certain new provisions. It became effective on January 1, 1888, and applies not only to coal mines, but to mines of stratified iron ore, shale, and fire clay as well.

#### MAPS.

The law requires accurate maps to be kept in the office at every mine showing the workings up to a date not more than 3 months preceding, such maps to be open to examination by the inspector at any time he may require; they must, on request, be so marked as to show the condition of the workings at the time of the demand, and may be copied by the inspector for official purposes only.

Within 3 months of the abandonment of any mine or seam a detailed map of the workings, strata, faults, dip, etc., must be prepared, certified, and sent to a secretary of state to be by him preserved, but to be open to public or general inspection.

#### OFFICIAL CONTROL AND INSPECTION.

A secretary of state may from time to time appoint any fit persons to be inspectors of mines and assign them their duties, and may remove any such inspector. In Wales and Monmouthshire, other things being equal, persons having a knowledge of the Welsh language are to be preferred. Notice of the appointment of every inspector of mines is published in the London Gazette. The salaries and expenses of inspectors are paid out of funds appropriated by Parliament.

No person interested as a partner with any land agent or mining engineer, or who is a viewer, agent, or valuer of mines or an arbitrator in any difference arising between owners, agents, or managers of mines, or is in any way employed in or about a mine or is a miner's agent or a mine owner shall act as an inspector; and no inspector shall be a partner or have any interest, direct or indirect, in any mine in the district under his charge.

Inspectors have power to make such examination and inquiry as may be necessary to ascertain whether the provisions of the act are complied with in the case of any mine; to enter and inspect any mine and every part thereof at all reasonable times by day and night, but not so as to impede or obstruct the working thereof; to make inquiry as to the ventilation, the sufficiency of special rules, and all matters connected with the safety of persons employed in or about any mine, or with the care and treatment of horses or other animals used in the same; and to exercise such other powers as may be necessary for carrying this act into effect. Obstructing an inspector in the performance

of his duty, or failing to furnish him the necessary means for making an entry and examination is an offense.

Notice of unsafe or improper conditions or practices must be given by the inspector in writing to the owner, agent, or manager of the mine, and unless the same be remedied forthwith a report thereof is also to be forwarded to a secretary of state. Objection may be made to remedying the matter complained of by statement in writing addressed to a secretary of state within 10 days after the receipt of notice. The matter may then be determined by an arbitration, the parties to which are the owner, agent, or manager of any mine on the one hand, and the inspector of the district on behalf of the secretary of state on the other. The arbitrators are named, one by each party, and are to make their award within 21 days of the appointment of the one last named. Before entering upon their duties, they themselves choose an umpire to decide on points on which they may differ, who may himself render a decision if the arbitrators fail to do so within the time fixed. Payments, if any are ordered, are to be made to the arbitrators or umpire, and the costs of the arbitration fall upon one or both of the parties as the award may direct.

The arbitrators must be practical mining engineers or persons accustomed to the working of mines; the umpire must be a county court judge, a police or stipendiary magistrate, a recorder of a borough or a registrar of a county court.

A majority of the workmen employed in any mine to which an arbitration relates may, on giving such security, if any, as appears to the arbitrators or umpire sufficient to provide for the costs occasioned by such representation, appoint any person to represent the workmen or any class of them on the arbitration, and any person so appointed is entitled to attend and take part in the proceedings of the arbitration to such extent and in such manner as the arbitrators or umpire may direct, and he is subject to the same liability with respect to costs so occasioned as if he were a party to the arbitration.

Compliance with the award of the arbitrators is required within the time fixed by such award; or, if no objection is made to the orders of the inspectors, compliance is required within 10 days after the expiration of the time allowed for objections, provided that if reasonable diligence is shown by the owner, agent, or manager no penalty will be enforced, even though the required changes be not completed within the time fixed.

Inspectors make annual reports to a secretary of state, which reports are laid before both Houses of Parliament. Special reports may be required by a secretary in case of an accident or explosion causing loss of life or personal injury, which may be made public at such time and in such manner as the secretary may see fit.

Besides the district inspector, there must be at each mine a competent person or persons charged with the duty of inspecting all working places before the commencement of each shift to determine the condition as to ventilation, roof, and sides; they must also inspect during each shift all places where men must work or pass. Machinery, both above and below ground, must be inspected daily.

The employees in a mine may from time to time appoint two of their own number, or any two persons, not being mining engineers, who are practical working miners, to inspect the mine at their own cost, which inspection must be permitted at least once each month. The persons so appointed may be accompanied, if the owner, agent, or manager thinks fit, by himself or by one or more of the officers of the mine, and may go to every part of the mine and inspect all ways, workings, and apparatus. Every facility for such inspection must be afforded, and the persons appointed must forthwith make and record a true report of the result of the inspection. Reports of dangerous conditions, if found, are to be forwarded to the inspector of the district.

The books required for recording the inspection above provided for are furnished by the owner, agent, or manager, and they, or a correct copy of them, must be kept at the office of the mine. Any inspector under this act and any person employed in the mine, or anyone having the written authority of such inspector or employee may at all reasonable times have access to and may take copies of or extracts from such books; but no book is required to be kept for a term of more than 12 months after it has ceased to be used for entries.

#### REGULATIONS.

##### *Escape shafts.*

No person may be employed or permitted to be in any mine which has not at least two shafts or outlets accessible from every seam worked, communication to be by passages not less than 4 feet wide and 4 feet high, except in passages previously existing, which may be but 3 feet in height. The shafts must not be nearer to one another at any point than 15 yards and may belong to the same or different mines.

Proper apparatus for raising or lowering persons must be kept on the works belonging to the mine, either in actual use or constantly available for use, at each shaft or outlet.

The requirements as to escape shafts do not apply to any working in a new mine for the purpose of making a communication between two or more shafts or to any working for the purpose of searching for or proving minerals. Nor do they apply to mines exempted by order of a secretary of state on grounds of expense or the early conclusion of work in a mine. These exceptions will be allowed only

in cases where not more than twenty persons are employed below ground at any one time. Old mines complying with earlier regulations as to distance between shafts are not required to comply with the present law on this point.

Other exemptions, temporary or continuing, may be made by order of a secretary of state on grounds of the thinness of seams or other exigencies or conditions affecting any mine or class of mines.

Two or more parts of a mine worked separately may, on due notice, be rated as separate mines, unless it shall appear that such division tends to lead to an evasion of the provisions of this act, in which cases differences may be arbitrated. Where there is a downcast and furnace shaft to the same seams, both provided with apparatus in use for raising and lowering persons, employees may, on reasonable notice, have the option of using the downcast shaft.

#### *Hoists, etc.*

If the hoisting apparatus is not provided with an automatic contrivance to prevent overwinding, the cage shall not be wound up at a speed exceeding 3 miles an hour after passing a point fixed by special rule. A single linked chain must not be used for lowering or raising persons except for the short coupling chain attached to the cage or tub; the cages or tubs employed must be protected by a cover overhead, except where they are worked by a windlass, or where persons are employed at work in the shaft, or where the district inspector gives a written exemption.

The drum of every hoist used for raising and lowering persons must have such flanges, horns, or other necessary contrivances as will be sufficient to prevent the rope from slipping. Brakes must be provided, and a proper indicator must be installed, besides any mark on the rope, showing to the person in charge the position of the cage or tub in the shaft. Working shafts exceeding 50 yards in depth must be equipped with guides.

#### *Traveling ways.*

Underground planes on which persons travel and which are self-acting or are worked by an engine, windlass, or gin must be provided, if more than 30 yards in length, with sufficient manholes for places of refuge at intervals of not more than 20 yards; or if there is not room for a person to stand between the side of a tub and the side of the plane, then at intervals of not more than 10 yards, unless the tubs are moved by an endless chain or rope. There must also be means of signaling between the stopping places and the ends of the plane. Where the load is drawn by horses or other animals the way must be of sufficient dimensions to allow the animal to pass without rubbing against the roof or timbering and be provided with man-

holes at intervals of not more than 50 yards. Every such place of refuge must be kept clear and be of sufficient length and not less than 3 feet in width between the cars used and the side of the road. At least two proper traveling ways must be provided for access to every steam-engine room and boiler gallery.

#### *Signals.*

Shafts used for conveying either coal or workmen, if more than 50 yards in depth, must, unless exempted by the inspector of the district, be provided with some proper means of communicating distinct and definite signals. A signaling device must also be installed in self-acting or mechanically operating planes exceeding 30 yards in length.

#### *Ventilation.*

An adequate amount of ventilation must be constantly produced in every mine to dilute and render harmless noxious gases to such an extent that the working places of the shafts, levels, stables, and workings of the mines and the roads to and from the same shall be in a fit state for working and passing therein. In mines required to be under the control of a certificated manager, the quantity of air in each split or current is to be measured at least once in each month and a record kept of such measurement. Where a fire is used for ventilation in mines opened after the passage of the act, the return air, unless so diluted as not to be inflammable, must be carried off clear of the furnace by means of a dumb drift or air way. Ventilating machinery must be so placed as not to be injured by an explosion.

Stations are established at entrances to mines and the different parts thereof, past which workmen must not go until the part beyond has been examined and pronounced to be safe. Locked safety lamps must be used for making inspections, except in mines in which no inflammable gas has been found within the preceding twelve months. Reports as to gas and other dangerous conditions are entered in a book to which the workmen have access. Workmen are to be withdrawn from dangerous portions or portions so reported and shall not be readmitted, except for purposes of inquiring into or removing the cause of the danger, until the condition is remedied.

#### *Guards and safety appliances*

Entrances to places not in actual use or to those used only as air shafts shall be so fenced as to prevent persons inadvertently entering the same. The top and all entrances between the top and the bottom, including the sump, if any, of every working, ventilating, or pumping shaft shall be properly fenced; also every fly wheel, and all exposed and dangerous parts of machinery. Each steam boiler.

whether separate or one of a range, shall have attached to it a proper safety valve and steam and water gauges.

A barometer and a thermometer are required to be placed above ground in a conspicuous position near the entrance to each mine.

#### *Lamps and lighting.*

In any place in which there is likely to be any such accumulation of inflammable gas as to render the use of a naked light unsafe, or in any working approaching a place in which there is likely to be an accumulation of such gas, no other light may be used than a locked safety lamp. Such lamps are to be provided by the owner of the mine, and must be inspected daily; no portion thereof may be removed from the mine by any person while the lamp is in ordinary use. Lamps are to be so constructed that they may be safely carried against the ordinary ventilating current prevailing where they are used, even though such current should be inflammable. Inspection and locking are done at the lamp station, and lamps are not to be unlocked except at the station or for the purpose of firing a shot, as hereafter provided. Only lamp keepers and shot firers may have in their possession any contrivance for opening the lock of a safety lamp. The possession of any lucifer match or apparatus of any kind for striking a light, except within a completely closed chamber attached to the fuse of the shot, is forbidden.

#### *Timbering.*

Where the natural strata are not safe, every working or pumping shaft must be securely case lined or otherwise made safe. The roof and sides of every traveling road and working place must be secured, and no person, unless appointed for the purpose of exploring or repairing, may travel or work in such place unless it is thus made secure. If the timbering of working places is done by the workmen employed therein, suitable supplies of timber must be conveniently placed for use, and the distance between sprags or holding props may not exceed 6 feet, or such less distance as may be ordered by the owner, agent, or manager.

#### *Explosives and blasting.*

No explosive shall be stored in a mine nor taken into any mine except in cartridges in a secure case or canister containing not more than 5 pounds, unless an exemption from the rule requiring explosives to be in cartridges be obtained by order from a secretary of state. No workman is permitted to have at one time and place more than one such case or canister. The use of any explosive that is or is likely to become dangerous may be prohibited by the secretary.



In charging or tamping for blasting, the use or possession of any iron or steel pricker, scraper, charger, tamping rod, or stemmer is forbidden, and only clay or other noninflammable substances, to be provided by the owner of the mine, may be used for packing. No explosive shall be forcibly pressed into a hole of insufficient size. When a hole has been charged, the explosive shall not be drawn, and no hole shall be bored for a charge at a less distance than 6 inches from any hole where the charge has missed fire.

Where the use of safety lamps is required, or where it is dry and dusty, no shot shall be fired except by or under the direction of a person appointed for the duty, and then only after the examination of all accessible places of the same seam within a radius of 20 yards. If the inspections last preceding the firing of a shot show the presence of inflammable gas, the shot must not be fired until an examination shows that such gas has been cleared away so that the firing will not be unsafe, unless some contrivance is used to prevent the gas catching fire or the explosive is of such nature that it can not inflame gas. If the place is dry or dusty, it must be sprinkled wherever dust is lodged for a distance of 20 yards in all directions, unless a preventive contrivance be used or the explosive be such as will not inflame the dust. If the place is dry or dusty and is near a main haulage road, both the above precautions must be observed; or the one most applicable to the place may be observed and all workmen be removed from the seam in which the shot is to be fired and from all seams communicating with the shaft on the same level, except the men engaged in firing the shot, and such other persons, not exceeding 10, as are necessarily employed in attending to the ventilating furnaces, steam boilers, engines, machinery, winding apparatus, signals, or horses, or in inspecting the mine.

#### *Bore holes.*

Where a place is likely to contain a dangerous accumulation of water, the working approaching thereto shall not at any point within 40 yards of the place exceed 8 feet in width, and there shall be constantly kept at a sufficient distance (not less than 5 yards) in advance at least one bore hole near the center of the working and sufficient flank bore holes on each side.

#### *Accidents.*

Wherever persons are employed underground, ambulances or stretchers, with splints and bandages, must be kept ready for immediate use. If loss of life or personal injury occurs in or about any mine, whether above or below ground, by reason of any explosion or accident of any kind whatever, notice thereof must be given the inspector

within 24 hours of its occurrence. If loss of life or serious personal injury has immediately resulted from an explosion or accident, the place of its occurrence is to be left as it was immediately after the accident until the expiration of at least three days after the sending of the notice, or until the inspector visits the place, whichever first occurs, unless to so leave the place unchanged would tend to increase or continue a danger or would impede the working of the mine. Notice of any death occurring subsequently as a result of such personal injuries as are required to be reported by this act must also be sent to the inspector within 24 hours after such death comes to the knowledge of the owner, agent, or manager.

Where it appears to a secretary of state that a formal investigation of any accident is expedient, he may appoint a competent person to make such investigation and may also appoint any person or persons possessing legal or special knowledge to act as assessor or assessors in the matter. The investigations are to be held in open court in such manner and under such conditions as may appear most effectual for ascertaining the causes and circumstances of the explosion or accident. The court has the powers of a court of summary jurisdiction and of an inspector under this act; also power to enter and inspect any place or building, to summon and examine under oath any person as witness, and to require the production of books, papers, and documents, all within its own discretion. The report of the investigation made to the secretary must state the causes and circumstances of the accident and may contain any observations which the court thinks right to make. All expenses incurred are deemed part of the expenses of the secretary of state in the execution of this act.

With respect to coroner's inquests on the bodies of persons whose death resulted from accidents in or about the mines of which notice is required by this act to be given the inspector of the district, it is required that the inspector or other person on behalf of the secretary be present to watch the proceedings; and if such person be not present the inquest must be adjourned, after the taking of evidence to identify the bodies, which may then be interred. If, however, the accident has not occasioned the death of more than one person, and notice was so sent as to reach the inspector not less than 24 hours previous to the time set for the holding of the inquest, adjournment is not imperative if the majority of the jury think it unnecessary.

At least four days prior to the holding of an adjourned inquest notice thereof must be sent the inspector in writing. Subject to the orders of the coroner the inspector may examine any witness. Relatives of the deceased, the owner, agent, or manager of the mine in which the accident occurred, and any person appointed by the order in writing of a majority of the workmen in the mine have the same privilege, either personally or by counsel.

No one personally interested in or employed in or in the management of the mine is permitted to serve on the jury of inquest.

Where negligence or defective conditions requiring a remedy are discovered in an inquest at which no inspector is in attendance, information regarding the same must be sent him by the coroner, in writing.

#### EMPLOYMENT.

##### *Rules, violations, etc.*

Special rules are to be established in every mine, such as may appear best adapted, under the circumstances, to provide for the safety, convenience, and proper discipline of the employees. These rules may extend to the kind and care of lights used, to the kind and use of explosives, and generally to the precautions to be adopted for the prevention of accidents from inflammable gas and coal dust. Where such special rules are in force, any general rule in conflict therewith is suspended.

These rules are to be framed by the owner, agent, or manager of each mine, and by him transmitted to the inspector of the district for approval by a secretary of state. Before transmittal, the proposed rules must be posted for at least two weeks, and objections thereto may be forwarded to the inspector by any employee. The secretary may make objections within 40 days after the receipt of the rules, failing which his approval will be assumed. Amendments framed by him and submitted to the owner or agent will be assumed to be in force if not rejected within 20 days. If such objection is made, arbitration may be had for the settlement of the point in issue.

The rules, when adopted, are signed in duplicate by the district inspector, and have thereafter the same force and effect as if enacted by law.

An abstract of this act and a copy of the special rules must be posted and kept in a legible condition in a conspicuous place at or near the mine, where they may be conveniently read by the persons employed.

Compliance with all general and special rules is required, and willful damage to or unauthorized removal of any guard, signal, safety appliance, refuge, or other device or thing provided in compliance with this act, and the defacement of posted rules, etc., are forbidden.

Owners and agents are responsible for false statements as to posting and for noncompliance with the provisions relative thereto, unless enforcement to the best of their power is shown.

Where the negligence of an owner, agent, or manager is such as is reasonably calculated to endanger the safety of the employees, the penalty may extend to imprisonment, with or without hard labor, for a period not exceeding three months.

Where the owner, agent, or manager of any mine has proceeded under this act against any person employed in or about any mine, he must within 21 days after the hearing of the case report the result thereof to the inspector of the district.

Fines imposed for failure to report accidents or offenses occasioning personal injury or loss of life may, at the option of a secretary of state, be paid to or distributed among the person or persons injured, or their relatives in case death resulted from the injuries; provided that the accident was not the result of the negligence of the parties injured, and that such payment shall not in any way affect any legal proceedings relative to or consequent on the explosion, accident, or offense.

#### *Wages.*

Where the amount of wages paid to mine employees depends on the amount of coal mined payment is to be by actual weight, as determined by a weighing at a place as near the pit's mouth as is reasonably practicable; but this requirement does not preclude agreements as to deductions for stones or other substances, or for improperly filled tubs, baskets, or hutches, where the filling was done by the miner or his drawer or the person immediately employed by him. If not more than thirty persons are employed underground at any mine, and the owners and employees unite in representations to a secretary of state to the effect that another mode of payment is preferable, the secretary may in his discretion order such change as may seem expedient. A check weigher may be appointed by the mine employees, to be paid by them, to take account of the weight of mineral mined and to determine the deductions. Such check weigher is to be allowed every facility for the performance of his duties, including opportunities for examining and testing the scales and checking the taring of tubs and cars where necessary; but he is not authorized to interrupt or impede the working of the mine or to interfere with the weighing or with the workmen or the management of the mine. Nor is the absence of the check weigher a reason for delaying the weighing of the coal mined, unless he had reasonable ground to suppose that it would not be proceeded with during such absence. He may convey to any workman an account of the coal gotten out by him, or information with respect to the scales, deductions, etc., but not in such way as to interrupt labor. An owner or agent may by procedure at court procure the removal of a check weigher for cause shown.

The owner, agent, or manager of a mine is forbidden to interfere with the choice or appointment of a check weigher, and must afford proper facilities for a meeting for the purpose of making a selection. A check weigher chosen by a majority vote of the employees interested may recover his proportion of the check weigher's wages from any person for the time being employed, though entering the mine sub-

sequently to such choice or election; and it is lawful for the manager of the mine to retain from the pay of the employees the agreed contribution for the payment of a duly chosen check weigher and pay the same to him.

The inspection of weights, scales, etc., by a public inspector is provided for. The term "weighing" includes also any method of gauging or measuring agreed upon to determine the amount of coal mined.

The payment of wages to mine employees at any public house, beer garden, or at any house of entertainment or other place where spirituous or fermented liquor is sold is forbidden.

The school fees of any boy or girl employed in or about any mine may be deducted from the wages paid him or her, at the request of the principal teacher of a public elementary school, to an amount not exceeding 2d. (\$.04) per week and not exceeding one-twelfth of the wages.

#### *Miners.*

No person not employed as a coal miner at the time of the adoption of this act may work alone as such in the face of the workings until he has had 2 years' experience in such work under the supervision of skilled workmen, or unless he has been previously employed for 2 years in or about the face of the workings of a mine.

Employment of persons not qualified as above is grounds for enforcing a penalty only against the miner by whose misrepresentations the employment was secured, and not against the employer, where the latter acted in good faith.

#### *Mine bosses.*

Every mine must be under a manager who is registered as the holder of a first-class certificate under this act and is responsible for the control, management, and direction of the mine, the name of such manager to be forwarded by the owner or his agent to the inspector of the district. This requirement does not extend to mines employing not more than 30 persons below ground, unless the inspector demands its enforcement. Where a manager is required by this act, daily, personal supervision is to be exercised either by him or by an undermanager duly appointed; such undermanager must hold either a first or second class certificate, and has, in the absence of the manager, the same responsibility and is subject to the same liabilities as the manager. No contractor for coal nor any employee of such contractor is eligible for the post of manager or undermanager.

A board composed of 3 mine owners, 3 employees or persons who have been employees in or about mines in the United Kingdom, not being owners, agents, or managers of a mine, 3 mining engineers, agents, managers, or coal viewers, and 1 inspector is to be appointed

by a secretary of state as a board to appoint examiners, not themselves to be members of the board of examiners except with the consent of the secretary of state. It is the duty of the board of examiners to conduct examinations for managers, etc., in the parts of the United Kingdom for which it acts. The rules and requirements governing the examination may be made, altered, and revoked from time to time by this board; but in every examination regard is to be had to such knowledge as is necessary for the practical working of mines in that part of the Kingdom in which the examination is held, and the requirements as to second-class certificates must be suitable for practical working miners. The proceedings of the board and such other matters as the secretary of state may require are from time to time reported to him. A secretary of state may make, alter, and revoke rules as to places and times of examination, the number and pay of examiners, and the fees paid by applicants for certificates; provided, however, that the fee paid by those desiring first-class certificates may not exceed £2 (\$9.73), and that by persons desiring those of the second class, £1 (\$4.87).

Besides passing the examination, applicants must give satisfactory evidence of sobriety, ability, and general good conduct, whereupon the secretary of state issues a certificate of such form as he may prescribe. Five years' experience, or 3 in the case of holders of diplomas from approved schools in which scientific and mining subjects are taught, is also required. A register is kept of the holders of all such certificates.

On representations of incompetency or gross negligence, a public inquiry may be had by a county court judge, magistrate, or other person or persons as may be directed by the secretary of state, of which inquiry the manager or undermanager concerned is to have prior notice; after evidence presented, the certificate may be suspended or revoked as the court may order. The court may, if it thinks fit, require the surrender of the certificate pending the results of the inquiry. The defendant may be represented by counsel, and witnesses must be summoned and expenses allowed as in trials before a court of record. Costs, expenses, and remuneration ordered or paid in connection with such proceedings are to be paid out of moneys provided by Parliament.

Cancellations and suspensions are entered on the register of holders of certificates. Renewals and restorations may be made by a secretary of state if at any time it is shown to him to be just to do so, on such terms as he thinks fit. A person who has, without fault, lost or been deprived of his certificate may secure a copy thereof on the payment of a fee prescribed by the secretary, such fee not to exceed 5s. (\$1.22) for a first-class certificate, or 2s. 6d. (\$0.61) for one of the second class.



The fees exacted under this act are carried into the consolidated fund, and all expenses incurred by the secretary in carrying out its provisions are defrayed out of money provided by Parliament.

Forging or counterfeiting a certificate or knowingly making any false statement therein or uttering or using any forged, or counterfeited certificate or making false declarations or representations to procure the issue, renewal, or restoration of a certificate is a misdemeanor.

*Engineers, etc.*

Where the workmen at any mine customarily use a hoist or other mechanically operated device for ingress and egress, a competent engineman not less than 22 years of age must be constantly in attendance during the whole time that any person is below ground. Where persons are conveyed up, down, or along any shaft, plane, or level communicating between different parts of a mine by means of an engine, windlass, or gin, driven or worked by steam or any mechanical power or by an animal or by manual labor, the person in charge of such agency must be a competent male person not less than 18 years of age.

*Women and children.*

No boy under the age of 13 years and no girl or woman of any age shall be employed, or allowed to be for the purpose of employment, in any mine below ground. For employment above ground the age of 12 years is the minimum limit for both sexes. Registers must be kept in the office at the mine showing the name, age, and residence of all boys, girls, and women employed in connection with the mine, such registers to be open to examination by the mine inspectors and the school officers of the district.

If the immediate employer of any boy for service below ground is not the owner, agent, or manager of the mine, such employer must give notice to the manager that he is about to employ the boy in the mine. No boy, girl, or woman shall be employed in moving railway cars. The terms "boy" and "girl" are applied to infants under the age of 16 years.

The hours of labor of boys employed below ground are restricted to 54 per week, or 10 in any one day, the time of descent and ascent being counted in the period of employment. A week is deemed to begin at midnight on Saturday night and to end at midnight on the succeeding Saturday night.

Women, and boys and girls of 13 years of age or over, may be employed above ground not more than 54 hours in any one week or more than 10 hours in any one day. Children under the age of 13 are not to be employed more than 6 days in any one week; if employed more than 3 days, the hours of labor per day are limited to 6 and may

not exceed 10 per day in any case. Work by women and boys and girls is prohibited between the hours of 9 at night and 5 in the morning, on Sundays, and after 2 o'clock on Saturday afternoon; nor may such persons be employed continuously for more than 5 hours without an interval of at least half an hour for a meal, nor for more than 8 hours on any one day without an interval or intervals for meals amounting altogether to not less than 1½ hours. Children under 14 must not be employed before 6 o'clock in the morning. An order of a secretary of state may exempt any mine in Ireland from the provision as to labor after 2 o'clock on Saturday.

In the employment of boys below ground and of boys, girls, and women above ground, an interval of not less than 8 hours is to be allowed between the period of employment on Friday and that on Saturday. Between the working periods of other days not less than 12 hours must intervene.

Where children under proper age are employed in good faith on the representation of the parents or guardians of such children, liability attaches only to the person or persons making the false representation, and not to the employer.

The provisions of the public health act relating to separate toilet accommodations for female employees in factories, etc., where both sexes are employed, are held to apply to works of a mine above ground, in which girls and women are employed.

#### REPORTS.

On or before the 21st of January of each year the owner, agent, or manager of every mine is required to send to the inspector of his district a detailed report with respect to the preceding calendar year as to the particulars contained in a form of schedule embodied in the statute, or in such other form as may be prescribed by the secretary of state in lieu thereof. These reports must be transmitted to the secretary and may be by him so published as to show aggregate results for any county, inspector's district, or any large portion of the same. Individual reports may also be published, but not so as to show the amount of output without the consent of the owner or other person making the report.

Where new workings are commenced or old workings recommenced after any abandonment or discontinuance for a period exceeding two months, or where any shaft or seam is abandoned or the working discontinued, or where any change occurs in the name, ownership, or principal officer of an incorporation owning a mine, such fact or facts must be reported to the inspector of the district within two months from the occurrence of the event.

## LAWS OF GENERAL APPLICATION.

Besides the above provisions specifically relating to mine labor, certain laws affecting employment in general are here briefly noted.

The Truck Act of 1831, as modified and extended by various amendments and enactments up to and including the act of 1896, has for its object, as expressed in the act of 1831, the prohibition of "the payment, in certain trades, of wages in goods, or otherwise than in the current coin of the realm." Originally a schedule of trades affected was a part of the law, but in its present form it relates to all workingmen, as defined by the Employers and Workmen Act of 1875.<sup>(a)</sup> This includes practically all classes of employees other than domestic and menial servants. The enforcement of these acts, in their application to mine labor, is in the hands of the district inspectors. They provide, in general, for the payment of the entire earnings of employees in current coin, though agreements may be made for payment in bank notes or checks payable on demand; for freedom in choosing the place where or the manner in which wages are laid out or expended; and for the regulation of advance payments by employers and of deductions from wages for sharpening or repairing tools for supplies, shoproom, fines, etc.

The Conciliation Act, 1896,<sup>(b)</sup> provides for the registration by the board of trade of voluntary tribunals "constituted for the purpose of settling disputes between employers and workmen by conciliation or arbitration," and arranges for proceedings in accordance with the regulations of the board in that behalf. The board of trade may itself take such measures as it thinks fit to determine causes and to bring about amicable settlements of differences.

The Employers and Workmen Act, 1875, relates to proceedings in county courts with reference "to any dispute between an employer and a workman arising out of or incidental to their relation as such," and gives special powers as to set-offs, settlements, rescission and enforcement of contracts, etc., within prescribed bounds.

The Employers' Liability Act, 1880, enacted to remain in force until the end of the year 1887, has been continued from year to year since that date. It makes the liability for the death or injury of a workman the same as for a similar injury to one not in the service of the employer nor engaged in his work, where such injury or death is caused by reason of defects in the condition of the ways, works, machinery, or plant connected with or used in the business of the employer if the defect had not been discovered or remedied owing to the negligence of

<sup>a</sup> See Bulletin of the United States Department of Labor, No. 25, pp. 825 to 832.

<sup>b</sup> See pages 520 to 522; also Bulletin of the United States Department of Labor, No. 25, pp. 832 to 835.

the employer or his agent; or by reason of the negligence of a superintendent or of any person to whose orders the workmen were bound to conform and did conform, thus occasioning the injury; or by reason of the act or omission of any person in the service of the employer, if such act or omission was done or made in obedience to the rules or by-laws of the employer, or in obedience to the instructions of a properly authorized person. The injury must result from some impropriety or defect in the rules, by-laws, or instructions; and if a rule or by-law has been approved or accepted as proper by a secretary or by the board of trade, it shall not be deemed improper or defective.

Knowledge of the defect and failure to give information thereof within a reasonable time will be a bar to recovery, unless the workmen knew that the employer already had knowledge thereof. Right of action is given to the personal representatives of persons whose injuries result in death.

The Workmen's Compensation Act, 1897,<sup>(a)</sup> provides for payment by the employer of a lump sum in cases of injuries causing death, or of a weekly allowance in cases of total or partial incapacity. No liability attaches for an injury that does not disable the workman for a period of at least two weeks, or where the injury was the result of the serious or willful misconduct of the injured person. The amount of the compensation is determined by the past earnings of the workman and the extent of the disability resulting as affecting future earning capacity. If a deceased employee left no dependents, only the funeral expenses are required to be paid. The fact that a fine under the mines regulation act has been applied for the benefit of an injured workman does not bar a claim under this act, but the amount so received will be considered in determining the amount to be paid.

In providing a method of compensation for accidents, this act does not preclude the prosecution of a suit for damages, but a choice of means of redress must be made, the employer being held liable only under one act.

An approved relief or insurance scheme in operation or adopted by the employer may be accepted in lieu of the above provisions.

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<sup>a</sup> See Bulletin of the United States Department of Labor, No. 32, pp. 102 to 132.

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