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ANNUAL REPORT

OF THE

TRUSTEES

OF THE

Museum of Comparative Zoölogy,

AT HARVARD COLLEGE, IN CAMBRIDGE:

TOGETHER WITH THE

REPORT OF THE COMMITTEE ON THE MUSEUM,

FOR

1873.

BOSTON:

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Commonwealth of Massachusetts.

BOSTON, April 9, 1874.

To the Honorable GEORGE B. LORING, *President of the Senate.*

SIR :—The Trustees of the Museum of Comparative Zoology have the honor to present to the Legislature the Report of the Committee on the Museum for the past year, marked [A] ; and a copy of the Resolutions adopted by them upon the death of Professor Agassiz, marked [B].

The paper marked [C] contains a list of the Trustees, officers and committees for 1874.

Respectfully submitted for the Trustees,

MARTIN BRIMMER, *Secretary.*

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[A .]

REPORT OF THE COMMITTEE OF THE TRUSTEES
ON THE
MUSEUM OF COMPARATIVE ZOÖLOGY,
FOR THE YEAR 1873.

Early in 1873 it became apparent that the Museum could no longer be carried on with the means at the disposal of the Curator; repeated assistance from the State and from private sources kept the institution up to a standard of activity far beyond its own regular resources. As the time drew near when retrenchment seemed inevitable, Professor Agassiz made an appeal to the legislature for support, and with the generosity which has always characterized their action towards an institution in which the State of Massachusetts has so great an interest, the legislature appropriated \$25,000, on condition that a similar sum should be contributed by the friends of the institution towards its support. This sum was at once subscribed by friends of the Museum, and the appropriation of the State secured. Soon after this a further sum of \$100,000 was presented to the Museum by Mr. Quincy A. Shaw. These sums gave Professor Agassiz the means to reorganize the Museum on a very extensive scale. Additional assistants were employed, collections were purchased in every direction, and a large outlay made to place in safety the valuable alcoholic collections stored in the cellar of the Museum building. True to his policy of always using his present means as a lever for further improvement, nothing was laid up for the future, and by the first of April next the Museum will have to depend entirely upon its invested funds for its re-

sources. This will entail a very material reduction in the working force and running expenses, as the regular income of the Museum is somewhat less than \$15,000 annually, only half the sum needed to carry on the present scale of operations.

The instruction given at the Museum has been in charge of Professor McCrady, formerly of Charleston, S. C.; he has been assisted by Messrs. Faxon and St. John in the laboratory work. An important element in the educational features of the Museum is the establishment of a Summer School of Natural History on the Island of Penikese. From the terms of the deed of trust of Mr. Anderson, the trustees of the school are empowered to enter into such agreements with the Trustees of the Museum and the corporation of Harvard College as may be most beneficial in promoting the teaching of natural history.

The Museum is under great obligations to several volunteer assistants who have taken charge of special departments. In the first place, during the past year, Mr. L. F. Pourtales, assistant U. S. Coast Survey, has continued, under orders of the superintendent, to work up at the Museum part of the results of the Hassler Expedition, particularly the deep-sea corals and crinoids, the description of which is now in the press. During the summer he had charge of the yacht "Sprite" at Penikese Island, chiefly used to show the pupils of the Anderson school the process of dredging, and collect specimens for their instruction. Having resigned his position on the Coast Survey on the first of October, he has since then assisted Professor Agassiz in the general direction of the Museum and has made considerable progress in the arrangement of the systematic collection of corals in the exhibition room devoted to Radiates. Under his direction a fine collection of Foraminifera from the deep-sea soundings and dredgings in the Gulf Stream has been selected and mounted by Mr. James H. Logan of Jacksonville, Ill., at the expense of the U. S. Coast Survey. He has also selected collections of corals and fossils for the normal schools of the State, according to Professor Agassiz's plan. He has been assisted by Miss Bradbury, and part of the time by Miss Hyde, in the mounting of the specimens.

Mr. Theodore Lyman has, since his return from Europe, been engaged in arranging the collections of ophiurans he has brought together during his travels. The collection of ophiuridæ and astrophytidæ is now one of the best in the world, and may properly be said to have doubled in size and value during the past year. Besides the collections of Prof. Semper, made by him at the Philippines and presented by Mr. Lyman to the Museum, a great number of species have been received by donation or by exchange from the Jardin des Plantes, the Museums at Stockholm, Copenhagen, Leyden, Berlin, Pisa, Naples, Moscow, and from Professor Grube of Breslau, Kölliker of Würzburg, Dr. Fischer of Paris, and Mr. Trois of Venice. Mr. T. G. Cary has continued to superintend the business of the Museum, which has of necessity greatly increased with the expansion of the establishment, so that the numerous claims upon his time have greatly added to his disinterested labors.

Baron von Osten-Sacken, now residing in Cambridge, has kindly decided to take care of the collection of diptera. He has himself, on certain most liberal conditions, deposited his collections of diptera in the entomological department. Mr. A. Agassiz has continued in charge of the echinoderms, and has finished cataloguing the echini. He has added to his department the greater part of the collection of echinoderms made at the Philippine Islands by Dr. Semper.

Dr. Steindachner, who for more than two years has had charge of the ichthyological department, has returned to Vienna. The Museum loses in him an able and indefatigable as well as devoted worker, who has done much towards placing the most valuable, perhaps, of our collections in permanent safety.

The collections brought together by the Hassler Expedition have been generally distributed to the several departments. The principal addition made to our collections by donation, is a magnificent collection of invertebrates from Mauritius, sent to the Museum by Nicolas Pike, Esq., late consul of the United States at Port Louis. An important collection which it has been found necessary to suspend for the present, is a collection relating to the domestic animals. Upon this work, Prof. Wilder, of Cornell, and Prof. H. A. Ward, of Rochester,

were engaged. Very instructive materials have already been accumulated, much of which can be placed on exhibition at once.

The materials of the Museum have been, as usual, freely placed at the disposal of original investigators. The results have either been published in the Museum publications or in other scientific series. Prof. Smitt, of Stockholm, has completed his descriptions of the Florida Deep-sea Bryozoa, and published the results in the *Memoirs of the Stockholm Academy*. Prof. Allman and Prof. Ehlers have both nearly finished their reports on the hydroids and annelids of the Florida Channel for the Museum publications. To Prof. Kölliker considerable material has been sent for his monograph on the *Halcyonarians*.

In the entomological department Messrs. Cresson, Uhler, Professors Frey, Zeller and Dr. Hagen have received assistance from the Museum collections in preparing important papers.

The Museum publications have been kept up with increased activity. In the *Bulletin*, short papers have been printed during the past year by Professors Allman, Hyatt, Messrs. Allen and A. Agassiz. To Mr. W. G. Binney the Museum is indebted for the plate illustrating his communication.

Mr. A. Agassiz has published for the Museum, Parts I. to III. of the *Illustrated Catalogue*, containing a revision of the *echini*.

Mr. Bicknell has been mainly engaged in making sections of crinoids, corals and mollusca.

Messrs. Røtter and Konopicky have been engaged in making illustrations to accompany forthcoming publications of the Museum.

In accordance with the wishes of Prof. Agassiz, a part of his library (3,000 volumes) has been presented to the Museum Library. The remaining seven hundred volumes retained by Mr. A. Agassiz have, together with his own library of about twenty-five hundred volumes, been deposited in the Museum Building. These important additions, with the books presented, from time to time, by Prof. Agassiz, will form, with the existing library, an important nucleus for an excellent

natural history library, which will number about twelve thousand volumes. www.libtool.com.cn

It will hereafter be the main object of the committee of the Museum appointed by the trustees, to see that the views of Professor Agassiz so fully incorporated in the directions he was accustomed to give to his assistants* should be fully carried out, and they hope that his successors will faithfully complete the plans laid out with so much care and forethought by the founder of the Museum. Thus only can they hope to show to the public, who have thus far so generously aided him, what his aims were, and to erect to him a monument which will not only be a valuable historic record of the interpretation of nature by one of its most enthusiastic worshippers, but a monument of a lifelong and disinterested devotion to the best interests of science and of general education.

For the Museum Committee,

ALEXANDER AGASSIZ.

CAMBRIDGE, January, 1874.

* These directions will be printed in one of the forthcoming Museum Bulletins.

The reports of the assistants in charge of the various departments are herewith submitted.

Report on the Mammals and Birds, by J. A. ALLEN.

The removal of the alcoholic specimens of mammals and birds from kegs and barrels to copper cans, mentioned in the last report as then in progress, was completed early in the year, so that everything in the alcoholic series is now in a safe and satisfactory condition. At the same time the cataloguing of the alcoholic birds and mammals was completed, and the specimens systematically classified and arranged in the most convenient manner for access. During the year the labelling of the unmounted skins of both mammals and birds has been finished, and the collection placed in systematic order. The cataloguing of the collection of birds' nests and eggs has also been completed. In this work important aid was rendered by Mr. Ernest Ingersoll, whose time during the past year has been almost wholly given to this work. The labelling of the alcoholic collections is now in progress, as is also the work of marking and cataloguing the osteological material of the mammalogical and ornithological departments. The alcoholic specimens and the skins may now be reported as not only in a permanently safe condition, but as, in the main, satisfactorily arranged for ready access for purposes of study.

The most important additions to these departments during the past year, have been the collections received from the Hassler Expedition, and a series of mounted skeletons and casts purchased of Prof. H. A. Ward of Rochester, N. Y. The former include about 250 human crania from Ancon, near Callao, Peru; numerous skulls of *Otaria* and *Arctocephalus*; imperfect skeletons and skins of *Arctocephalus* and *Auchenia*, and many specimens of both birds and mammals in alcohol and skins. The alcoholic collection of birds includes over forty penguins, of several species. One of the alcoholic skins of *Arctocephalus Falklandicus* has been successfully mounted by Prof. Ward. Among the specimens purchased of Prof. Ward are mounted skeletons of the giraffe, camel, lion, several species of monkeys, and marsupials, of *Castor*, *Hystrix*, *Bassaris*, *Globiocephalus*, *Hydrochærus*, *Dasypsecta*, *Echidna*, etc., and also of representatives of all the principal families of

birds. The collection of mounted skeletons has been further increased by the return of materials sent to Prof. Ward for preparation. Mr. Kappeler has also added many fine casts of rare or unique specimens of extinct mammals. To the series of casts have been added by purchase casts of the *Glyptodon*, of the remains of *Sivatherium*, of various species of *Elephas*, *Mastodon*, *Rhinoceros*, *Bos*, *Castoroides*. etc.

A portion of the cases in the large exhibition room having been completed, the arrangement of the systematic collection of mammals has been commenced, and in a few weeks will doubtless be completed as far as our present limited space will allow.

ADDITIONS TO THE DEPARTMENT OF MAMMALS.

By Donations.

ALASKA FUR COMPANY, five skeletons of *Callorhinus ursinus*, St. Paul's Island, Alaska.

ALLEN, J. A., three skulls of *Cervus virginianus*.

BRYANT, Capt. CHARLES, four specimens of *Callorhinus ursinus* in alcohol (3 quite young), from St. Paul's Isl., Alaska.

CHENERY, W. W., Belmont, Mass., one donkey, in flesh.

HASSLER EXPEDITION, 60 specimens, 15 species, in alcohol; numerous skulls and parts of skeletons of *Otaria Arctocephalus*, *Auchenia* and of cetaceans; 250 human crania, from Ancon, near Callao, Peru.

LINDEN, CHARLES, two skins and several specimens in alcohol, from Santarem, Brazil.

ROCKY MOUNTAIN EXPEDITION, two skins of Rocky Mountain Goat (*Aploceras montana*), from Idaho Territory.

SCAMMON, Capt. C. M., Baleen plates of cetaceans of the Pacific coast.

By Exchanges.

JEITTELES, Prof. L. H., one bat and one *Putorius*, in alcohol, from Salzburg, Germany; skulls of *Canis vulpus*, *Lepus timidus*, *Arvicola amphibius*, *Sciurus vulgaris*, *Talpa europæa*, *Vespertilio Daubentoni*, and casts of skulls of fossil *Canis*.

MARSH, Prof. O. C., New Haven, Ct., skeleton of Tapir.

By Purchases.

A large *Ursus americanus*, from Minnesota; skeleton of a fossil elk, from ARCHIBALD PRIDE. An extensive series of mounted skeletons and casts of fossils from Prof. WARD, and a few mounted skins.

ADDITIONS TO THE DEPARTMENT OF BIRDS.

By Donations.

BLAND, THOMAS, New York, one Humming-bird.

BRYANT, Capt. CHARLES, one Golden eagle in flesh, shot in Fairhaven, Mass., Nov. 21, 1873.

BUCKLIN, A. L., South Adams, Mass., one white Leghorn cock.

CABOT, W. R., Brookline, Mass., 71 skins, 62 species, 8 skulls and sterna, from eastern Massachusetts.

EINBECK, Dr. A. F., Warren Co., Mo., 9 specimens, 8 species, from New Haven, Mo.

FOLIN, Marquis de, Bayonne, France, skins of *Gallinago* and *Numenius*.

GRUHNER, Mrs., Conception, Chili, head of Albatross.

HASSLER EXPEDITION, 80 skins, 35 species; 22 dry eggs of *Rhea*; 385 specimens in alcohol, 75 species, from various parts of South America.

HUTCHINS, J. C., U. S. Consul, Callao, Peru, 27 specimens (skins), 20 species, of Humming-birds, from Guayaquil.

INGERSOLL, ERNEST, 154 specimens, 22 species, nests and eggs, collected at Norwich, Ct.

LINDEN, CHARLES, 210 specimens (skins), about 100 species, chiefly from near Santarem, Brazil.

PIKE, Hon. N., U. S. Consul, Mauritius, 7 skins of *Phæton*, from the Mauritius.

SCOTT, W. D., Cambridge, Mass., 365 skins, 70 species, from various localities in Eastern United States.

TRIPPE, T. MARTIN, 10 specimens of *Junco*, in flesh, from near Denver, Col.

WHITMAN, C. O., 7 mounted skins, 4 species, Penikese Isl., Mass.

YELLOWSTONE EXPEDITION, (through Smithsonian Institution), about 100 specimens, 40 species.

By Exchanges.

KAUP, Dr., 13 specimens, 12 species, from Pommern, Prussia.

MONTES-DE-OCA, RAFAEL, 190 birds in alcohol, including about 100 Humming-birds, from Jalapa, Mexico.

PHILIPPI, Prof., Santiago, Chili, 6 skins, 6 species, Chili.

By Purchases.

69 specimens, 37 species, skins, from the Island of Tobago, through Gov. R. W. RAWSON; 26 mounted skeletons, from Prof. WARD. A collection of nests and eggs and 32 skins, from Wisconsin, and another collection of nests and eggs from Colorado, through Dr. T. M. BREWER.

Report on the Fishes, by RICHARD BLISS, Jr.

Since the publication of the last report, the work of transferring the alcoholic fishes in the cellar from kegs to copper cans has been completed, and all of the Museum collection is now contained either in glass jars or copper cans, numbered and systematically arranged on the shelves of the fish cellar.

Dr. Edward Palmer of the Smithsonian Institution, has recently gone over the whole collection of fishes in the Museum, so that at present the collection is in as safe a condition as is possible.

The Hassler, Brazilian and Garrett collections were identified by Dr. Steindachner prior to his departure in June. I have continued the work of identifying and cataloguing. In this work I have been assisted by two special students, Messrs. Murdóch and Brooks. Mr. Garman has been employed in carrying out the arrangement of the Selachians, commenced under the direction of Professor Agassiz, who had brought together a very extensive collection of that class during the Hassler Expedition. A student's collection for the benefit of those who desire to take a special course in Ichthyology has been commenced. This collection will embrace the typical genera of each family, and certain jars of mixed specimens for practice in determining generic and specific differences.

Among all the collections of fishes received during recent years, none have exceeded in size and value that of the Hassler Expedition of 1872. Embracing upwards of four hundred species, many new to science, it includes representatives of nearly all the marine fishes from New York to San Francisco; while in respect to the number of specimens it is only equalled by that of the Thayer Expedition. Taken together these two expeditions have given to the Museum a very complete representation of the ichthyological fauna of South America.

The Museum is indebted to Hon. Nicolas Pike, United States Consul at Mauritius, for several large and valuable collections of Mauritian fishes, both dry and alcoholic. These, in addition to former donations from Mr. Pike, make our collection of fishes from the east coast of Africa remarkably complete. A small but very valuable collection of fishes from

Lake Baical, Siberia, has been obtained by purchase from Mr. J. D. E. Schmeltz, Jr. From Dr. Francis Day we have received a fine collection of types of his "Malabar Fishes." Mounted skeletons of fishes have been received from the Vienna Museum; they have been on exhibition during the past year.

The following additions have been received during the year :—

By Donation.

HASSLER EXPEDITION, over 400 species and several thousand specimens.

PIKE, Hon. NICOLAS, three large collections from the Mauritius.

CARLETON, Rev. M. M., a collection from Mooltan, Northern India.

LYMAN, THEODORE, 30 species, 200 specimens from Nice, France.

SNOW, Rev. B. G., 35 species, 69 specimens from Strong's Island, Micronesia.

ELDER, WILLIAM, 2 species, 18 specimens of *Salmonidæ* from the Minas Basin, Nova Scotia.

COLLINS, G. H. and J. S., 5 species, 28 specimens from Omaha, Nebraska.

STURTEVANT, J. N., 10 species, many specimens from South Framingham, Mass.

WARD, S., 1 *Tetrodon lævigatus*, 1 *Micropogon undulatus*, from New York.

SUTHERLAND, J., 4 species, 4 specimens from Babylon Bay, N. Y.

POWELL, S., 1 *Ephippus faber*, 1 *Galeocerca arcticus*, from Newport, R. I.

ROGERS, J., 7 species, 12 specimens from Wood's Hole, Mass.

CLERK, A., 1 *Caranx sutor*, from New York, 3 *Solea achirus*, from Port Monmouth, N. J.

PEIRCE, PROF. B. O., 1 *Echeneis remora*, 1 *Tetrodon honckenii*, from the Pacific Ocean.

ABBOTT, DR. C. C., 10 species, 130 specimens from Trenton, New Jersey.

JOHNSON, CAPT. P. C., and PITKIN, DR. H. S., 39 species, 86 specimens from Honolulu and Hilo, S. I.

RAND, ———, 3 species, 120 specimens from Lake Titicaca, Peru.

CLEEMAN, TH. M., 8 specimens of *Trichomycterus dispar*, from Oroyo River, 13,000 feet above the level of the sea; 4 specimens of *Haplochilus*, probably a new species, from Chachua, 8,000 feet above the sea.

By Exchange.

DAY, DR. F., 57 species, 60 specimens from Malabar, India.

MONTES-DE-OCA, RAFAEL, 10 specimens of *Xiphophorus hellerii*, from Jalapa, Mexico.

By Purchase.

SCHMELTZ, J. D. E., Jr., 22 species, 44 specimens from Lake Baical, Siberia.

MILNER, J. W., 30 species, many specimens from Sandusky, Ohio.

STEINDACHNER, DR. F., a collection from San Francisco, Cal.

GREEN, SETH, several specimens and species from Western New York.

By Purchase and Exchange.

SALMIN, C. L., 79 species, 175 specimens from the North Sea and the Elbe River.

VIENNA MUSEUM, 33 mounted skeletons.

Report on the Collection of Mollusks, by JOHN G. ANTHONY.

During the present year considerable activity has prevailed in this department, and much has been done to increase its usefulness.

During the earlier part of the year much attention was paid to exchanges, and a vast amount of material was thus added to our resources for augmenting the collection, and for still further exchanges for future increase.

The number of packages received by exchange since my last report has been twenty-eight, containing 3,266 species and 37,717 specimens.

Our resources for exchanges have been largely increased recently by the purchase of an extensive collection of shells, made by the late W. Harper Pease, in the Pacific Islands. This collection has only been in our possession for a few weeks, and hence has been but partially examined, but even that cursory examination has shown that besides adding several hundred species to our collection, it will afford the means of exchange, to a very great extent, by the large number of duplicates it contains, especially of *Partulas*, *Achatinellas* and other genera peculiar to the Polynesian group.

Since the first of September, last, I have had the valuable assistance of Professor Hamlin, late of Colby University, in rearranging our entire collection of shells from the beginning. Our progress has necessarily been slow, since much time has been given to identification as a proper preliminary, and so far scarcely a single species has been left without a name.

We have commenced, also, to arrange a series of useful shells for supplying the several normal schools with the means of instruction in our department, and hope to have them ready by the close of the present year.

Among the boxes received during the year, was one from R. McAndrew, since deceased, and it contained a very complete series of the shells once belonging to W. H. Benson, which, having been identified and named by him, possess unusual interest, and many are his own species, and partake, therefore, of the character of type specimens.

From Nicolas Pike, Esq., late U. S. Consul at Mauritius, we have received, as usual, a large number of species and specimens found in that region, and from no contributor have we received more valuable or more desirable contributions.

Nearly all the other contributions were by exchange, and have been duly paid for in the same manner. Among these, however, we may mention one box of upwards of 500 species from Polynesian localities, which was particularly desirable, and renders our series from that quarter almost a complete one.

During the year we have sent away, by exchanges, thirty-seven packages, containing 4,647 species and 18,449 specimens, leaving us indebted for only two parcels, received within a month past.

The alcoholic mollusca have been in the charge of Mr. J. H. Blake, who, with the aid of Dr. Palmer, has revised the whole collection, and has begun to arrange, systematically, the whole collection for future convenience.

The large collection of cephalopods has been especially selected for exhibition. The collection of eggs of mollusca has been carefully examined, and is now in a good condition.

The most extensive invoice of alcoholic mollusca is that of the Hassler Expedition.

Report on the Articulates, by Dr. H. A. HAGEN.

1. From Dr. C. A. DOHRN, in Stettin, Prussia, a large number of named Coleoptera.—By exchange.
2. From Prof. L. AGASSIZ, Lepidoptera from Panama and Acapulco, Mexico.—Hassler Expedition.
3. From Mr. TH. L. MEAD, of New York, specimens for the biological collection, Lepidoptera.—Presented.
4. From Mr. FR. SANBORN, Boston, specimens for the biological collection.—Presented.
5. From Mr. H. J. HUBBARD, Detroit, Mich., a large set of valuable biological specimens, all raised.—Presented.
6. From Mr. W. P. AUSTIN, larvæ of insects, from Utah.—Presented.
7. From Mr. BLAND, New York, cases of *Helicopsyche*.—Presented.
8. From Mr. RUST, of steamer Lagos, a Mantis from Demerara.—Presented.
9. From Mr. J. SHUTE, Woburn, Mass., insects for the biological collection.—Presented.
10. From Mr. B. P. MANN, Cambridge, Mass., *Cemostoma cofeella* for the biological collection.—Presented.
11. From Dr. TH. F. PERLEY, Naples, Me., a splendid lot of *H. Maja* in all stages, from the egg to the imago; also rare *Phryganides* from Maine.—Presented.
12. From E. DEYROLLE, Paris, France, a systematic collection of Longicorns Col., 4,500 species in above 7,000 specimens.—Bought.
13. From Mr. PIKE, U. S. Consul at Mauritius, valuable insects.—Presented.
14. From M. L. LESQUEREUX, Columbus, Ohio, insects from Ohio in alcohol.—Presented.
15. From Rev. A. E. EATON, England, 32 species of *Ephemerina* in glycerine, types of his monograph.—Presented.
16. From Dr. Pitkin, U. S. Surgeon, Lepidoptera from Honolulu, and Nicaragua.—Presented.
17. From Rev. M. M. CARLETON, a very large collection of butterflies and other insects, dry and in alcohol, from Ambala, E. Ind., and from Koolloo, Sub-Himalya, above 10,000 specimens.—Presented.
18. From Mr. E. KONOPICKY, insects from Montana, dry and in alcohol.—Presented.
19. From Dr. H. A. HAGEN, rare biological specimens from several European museums.—Presented.

20. Mr. W. M. DAVIS, from Cordova, Argentine Republic, an exceedingly rich and beautiful collection of insects of all orders, dry and in alcohol, from Cordova.—Presented.

21. Prof. L. AGASSIZ, insects of all orders, from Patagonia, Magellan Straits, Chili, Panama, Mexico, dry and in alcohol.—Hassler Expedition.

22. A large amount of insects in alcohol from formerly arrived collections now unpacked and distributed to the different departments.

23. From Dr. LEWIS, Philadelphia, Pa., a collection of North American Coleoptera, including the late Dr. Zimmermann's collection from South Carolina, about 4,000 species named.—Bought.

24. From Mr. G. R. CROTCH, Coleoptera from San Domingo, 85 species; Australian Coleoptera including the genus *Omma*, 105 species.

25. From Mr. E. SCHWARZ, Breslau, Prussia, a set of rare European Coleoptera, 60 species.—Presented.

26. From Mr. H. ULKE, Washington, D. C., Coleoptera from Alaska named, 7 species.—Presented.

27. From Baron von OSTEN-SACKEN, Cambridge, North American insects, some rare species.—Presented.

28. From Mr. T. HENSHAW, Cicindela Puritana and various Dytiscidæ.—Presented.

29. From Mr. P. S. SPRAGUE, Boston, Mass., North American Coleoptera new to collection, 4 species.—Presented.

30. From Mr. J. DIMMOCK, Cyllodes and Donacia new to collection.—Presented.

31. From Mr. W. P. AUSTIN, Cambridge, Mass., Brathinus new to collection, 4 species.—Exchanged.

32. From Rev. M. M. CARLETON, a very large collection of butterflies from Ambala, Kooloo and Yalloree Pass (about 12,000 feet), above 10,000 specimens; also Coleoptera and Hymenoptera in alcohol.—Partly bought.

33. From S. W. GARMAN, Cambridge, Mass., a collection of fossils from Humboldt River.—Presented.

34. From Dr. H. HAGEN, Prussian amber, a large collection concerning the different varieties of the amber and fossil remains contained in amber; also samples of the different strata, wherein amber is found and palæontological remains of the strata; also a set of amber from Sicily.—Deposited.

35. Insects in alcohol collected at Penikese Island in the summer term.

36. From Mr. C. S. MINOT, Boston, Mass., a collection of Neuroptera and Hymenoptera from Massachusetts.—Presented.

37. From Mr. R. L. DAVIS, Newtown, England, a set of prepared European caterpillars and other objects for the biological collection, above 100 specimens.—Bought.

38. From W. C. BEECHER, New York, Coleoptera collected at Fort Bridger, 300 specimens.—Presented.

39. From S. H. SCUDDER, Cambridge, Mass., Pseudoneuroptera and Neuroptera from the White Mountains.

Miss Harris and Miss Clark worked through the year in the department, spreading about 4,600 butterflies and labelling insects, and arranging Coleoptera for the collection.

Mr. W. J. Hubbard, Mr. C. S. Minot, and Mr. A. Sher-
rif worked through the winter and spring in the department, partly for the collection, partly for their own instruction.

Exchanges are made chiefly with the naturalists publishing materials belonging to the collection, and with several entomologists in the United States and Europe.

The arrangement of the collection was carried on in an extensive way for the biological collection only, now far the largest existing. It was the chief subject for study in my voyage during the last summer. Several important collections of this kind, bought by Prof. L. Agassiz, are very soon to arrive.

Since November Mr. G. R. Crotch has taken charge of the Coleoptera. The mounting and arrangement of the large Pacific coast collection, made by himself, is completed. To accomplish this extensive work, the whole time of gentlemen and ladies in the department was given. In the beginning of March, Mr. Crotch was obliged to leave the Museum on account of his poor health.

Mr. E. Schwarz, from Breslau, has been working since December in the department, has mounted the Pacific coast collection, and arranged a large amount of alcoholic vials for the biological collection. His collections of winter insects for the Museum, around Cambridge, has given the surprising number of about 400 species, mostly Microcoleoptera, a number of them new for the North American fauna, even several new genera.

Mr. Faxon has taken charge of the Crustacea. He has been mainly occupied in making preparations illustrating the struc-

ture of the class, and a good number of excellent preparations are already on exhibition.

Our collection of annelids still remains abroad in the hands of Professor Ehlers, but he is making good progress with them, and in the meantime they could not be in better hands.

Report on the Palæontological Collections, by O. ST. JOHN.

On the removal of the Palæontological collections to the attic, occasion was taken to bring the invertebrate fossils into more convenient general order, with especial reference to the periods and epochs which they represent, and in a general way their distribution has been further carried into classes and subordinate groups; this arrangement extending through the entire collection, from the Primordial to the Tertiary, inclusive. Some conception of their extent may be formed when it is understood that they are contained in above three thousand trays.

All vertebrate fossils, so far as they have been eliminated (and, it is believed, little of this material remains in the collections referred to above), have been transferred to the charge of Mr. Allen. In like manner, the fossil fishes have been collected together in the same room; so that, at the present time, with the exception of the comparatively small number of these remains now on exhibition, probably nearly all the resources of the Museum in this department are lodged in the same apartment and readily accessible.

Special work has been performed on the Devonian and Carboniferous divisions, and in the latter the final arrangement of the Lamellibranchiata has been carried to an advanced stage, and at this date the class is nearly ready for the exhibition cases. In the progress of the work, much has been accomplished towards preparing the other classes for a similar disposition. In these two great periods, therefore, the collections are ready for the more critical work of identification and preparation for exhibition. I have been assisted by Miss Cutler and Miss Atkinson in the prosecution of the work in this department.

During the past season, under the auspices of the Museum, a critical examination of the stratigraphy of our carboniferous formation was begun, with the view of determining the character of the physical conditions which prevailed during their deposition, and how and to what extent these influences affected the life of the successive epochs. Through the interest of Mr. W. C. Van Horne, to whom our best acknowledgments are due for the large understanding and aid which he so generously contributed towards furthering the undertaking, the work was commenced in the St. Louis division of the Lower Carboniferous, embracing a thorough study of the formation in the environs of St. Louis, where it presents its typical development and where especially favorable facilities are afforded for its investigation. The result of the season's exploration was the acquisition of a valuable collection, presenting almost a complete representation of the life-history of that particular sub-epoch, exhibiting the chronological relations of the fossils and many important facts bearing on their faunal association. These collections are at present in process of arrangement,—the method adopted intending to show the stratigraphic distribution of the species. It may be added, that, a full record of the operations of the survey was made, of which a complete copy has been deposited in the library.

Accessions to the collections, extending back two years, comprise the following :—

LEO LESQUEREUX, Jr., a specimen of *Conocardium* from the Devonian, Columbus, Ohio.

E. A. STRONG, in exchange, miscellaneous fossils from the Upper Helderberg of New York, and a collection from the Lower Carboniferous formation of Michigan; in all, 31 species and 175 specimens.

WM. ELDER, a slab specimen with crustacean trails, carboniferous of Nova Scotia.

Capt. A. M. HARRISON, U. S. Coast Survey, shells from beach deposits, Florida.

Prof. N. S. SHALER, miscellaneous fossils, Post-tertiary, Martha's Vineyard.

Dr. G. A. WILLIAMS, in exchange, a fine collection of carboniferous fossils, comprising about 135 species and 2,500 specimens, from the vicinity of Boonville, Missouri.

ROBT. DRINKWATER, 65 specimens of English coal-measure fossils, including some very interesting fish-remains.

J. M. ALLEN, in exchange, 25 specimens of *Dictyophyton*, from the Chemung of New York.

W. R. LIMPERT, 20 specimens, representing 10 species of cretaceous fishes and molluscs, from Central Kansas.

O. ST. JOHN, four cases of miscellaneous fossils, from the Cretaceous, Upper and Lower Carboniferous and Devonian formations, Western States.

By Purchase.

Mr. CHARLES WACHSMUTH, the magnificent collection of fossil crinoids, the result of fifteen years' arduous research, together with a miscellaneous general collection of foreign and American fossils.

C. D. WALCOTT, a collection of Lower Silurian fossils, including a valuable collection of Trenton Trilobites, from Trenton Falls, New York.

RICHARD RATHBUN, local collection of the fossils of the Hamilton and Chemung formation, Central and Western New York.

Professor Hyatt has been engaged in arranging the collection of fossil Cephalopods.

Dr. Maack, who has had charge of the Fossil Vertebrates, died during the last summer, from disease contracted while in the Isthmus of Panama. His attainments in his special department were very considerable; by his devotion to his work he was gradually bringing the collections under his care into excellent order. By his untimely death the Museum loses an efficient ally.

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[B.]

In Memory of

PROFESSOR AGASSIZ.

A meeting of the Trustees of the Museum of Comparative Zoölogy was held at the council chamber at the state house on Wednesday, December 24. His Excellency Governor Washburn presided, and the Hon. Martin Brimmer presented the following Resolutions :—

Resolved, That we desire to record our sense of the irreparable loss which the Museum has to bear in the death of Louis Agassiz, who conceived the plan of it, who made the first gift which led to its foundation, whose thought directed its whole organization, and whose enthusiasm, kindling the public feeling, created all its resources.

Resolved, That much as we value his scientific achievements, we value even more the disinterested devotion to science and education, the high and broad aims and the generous sympathies which gave him such beneficent power as a teacher and a man, and the fine nature which made every one who knew him his friend.

Resolved, That the president of the Board be requested to send a copy of these resolutions to the family of Mr. Agassiz, in testimony of our sympathy and sorrow.

Governor WASHBURN then spoke as follows :—

Whether these Resolutions ought to be adopted without any remarks of my own or not, I have but a simple word to offer, and that is that I feel that the relations of Professor Agassiz to the Commonwealth were such that we meet with an irreparable loss by this sudden stroke which has fallen upon us ; that it is not simply the position which he occupied as the manager and the head of this institution, but the position which he occupied was such that a gap has been made which it seems to-day impossible to fill. I feel that the influence which he has exerted in almost every department of science, and particularly with reference to his own branch of the agricultural institutions of this State, gave such impetus as we

cannot expect to derive from any other source, and that his influence and the power and honor which he conferred upon those institutions and the State to which he belonged were not by any means confined to our own domain, but extended throughout the country, so that he was recognized as the leading scientific man of the land, and perhaps few in the world would be considered his equal, and if any are considered his superiors I do not know who they are. Certainly we have felt that the work he has done for us was most valuable; but I wish to say, in relation to the passage of these Resolutions, that, as an individual, I have learned to admire the energy and strength and the enthusiasm which he brought to bear to all the subjects to which he gave attention. As a representative of the State I feel that a blow has come upon us, and to-day we cannot see how it is to be obviated and who is to fill the great gap which has been made.

SPEECH OF HON. GEORGE B. LORING.

MR. PRESIDENT:—I feel grateful to the accident of this public station, for the opportunity it affords me to contribute to the universal and world-wide expression of eulogy and sorrow at the death of Agassiz. The unbounded recognition of his greatness, the deep lament caught up where he died and borne by the circling hours around the globe, the reverent tribute to his genius, the affectionate tribute to his great love, all belong to that spontaneous outburst of grief and adoration which mankind always bestows upon the great and good. For ourselves, however, we have a closer duty to perform, a tenderer feeling to express, a more intimate relation to recognize, a more sacred obligation to obey. When the great naturalist passed away he left in our hands the monument to his genius still incomplete, to the erection of which he devoted the best years of his life, the best powers of his mind and body, and around which centered his highest hopes and aspirations. He made great contributions to science, roused the cultivated thought of his day, opened many new paths to knowledge, explored and completed many old ones, was a great investigator and a great interpreter;—but it was in the Museum of Comparative Zoölogy that he proposed to learn and record the profound lesson of creation, which he

gathered from the "heavens above, and the earth beneath, and the waters under the earth." His designs with regard to this institution were not only that it should be the largest and most complete collection of the kind in the world, but that it should be the most significant; not only the most amazing to the common eye, but the most conclusive and instructive to the eye of science; not only the most carefully arranged, but the most expressive and striking record ever made of the processes pursued by an All-wise Creator in his handiwork. With this masterly design of Agassiz we have all been more or less intimately acquainted,—some permanently, others temporarily; some through the medium of large liberality, others by means of civil position; some from the initial step all through its fascinating and radiant progress, others for an hour in the fullness of its prime; but all in such manner as to know the ecstatic enthusiasm, the majestic intellect, the untiring force, the keen perception, the vast memory, the sweeping gaze, the almost divine comprehension, which the great master brought to his work—and the gentle, and affectionate, and elevating, and purifying influence which he exercised over those who were fortunate enough to be connected with him in his lofty service. To be deprived of Agassiz as an official associate is a grievous loss; to resign him also as a friend and companion, is a deep and overwhelming sorrow.

When Agassiz came to this country, to commence this work, which he has so sadly and so prematurely laid down, he brought with him a contribution to American institutions which has never been equalled. He came from the intimate companionship of Cuvier, and Oken, and Martius, and Döllinger, and Schelling, to whom, as his teachers, he had already, while a youth, opened his "little academy" at Munich, and with whom he established an early rivalry in rapid investigation and analysis. He had been inspired by the companionship of the great Humboldt, with whom he soon learned to keep pace in the breadth of his survey, and the grandeur of his explorations. His unanswerable arguments, based on the glacial movements, had arrested the attention of the scientific world. He brought with him all the scientific honors of Europe; a member of the Academy of Sciences in Paris; of the Royal Society in London; a recipient of the

Monthyon prize, the Cuvier prize, the Wollaston Medal from the Geological Society in London, and the Medal of Merit from the King of Prussia. He brought with him the blood of the Huguenots, and a character moulded under the influences of a Protestant clergyman's home in the rural simplicity and purity of the valleys of Switzerland.

He came here as a popular lecturer. The two first institutions which extended their hands to him were the Lowell Institute and the Salem Lyceum—the former having invited him hither with the temptation of its ample endowment, and the latter having enlisted his services with that spirit of earnest inquiry which had opened its doors to every progressive thinker from the day of its foundation. This was his temptation here, and this his patronage.

We should remember, sir, that when this great man turned his attention hither, he was familiar with the encouragement lavished upon the great scientists of Europe. He had seen Goethe provided with honor and royal companionship by the Duke of Weimar, under whose genial influences he had found time to develop his great scientific theory of the unity of structure in the bony frame of all the vertebrates, and to lay the foundation of the morphology of plants. He had seen Humboldt almost overlaid with the means of pursuing his scientific travels and investigations by the crowned heads of Europe, and at last raised to diplomatic honors by the King of Prussia. He had witnessed the distinctions lavished upon Cuvier, made Councillor of State, by Napoleon; royal commissary, by Louis XVIII.; Chancellor of the University, member of the French Academy, Grand Master of the University, baron, by Louis XVIII.; President of the Council of State at the coronation of Charles X.; grand officer of the Legion of Honor; and Peer of France. But he knew also that Goethe, in his genial, active, useful and distinguished of old age," wailed like a distracted woman when Napoleon approached Weimar and "spitefully used" Charles Augustus; and that he afterwards accepted Napoleon's flattery and the cross of the Legion of Honor, because the great conqueror had given Werther seven imperial readings. He knew that he himself had corrected many of the errors of Cuvier's classification, based on the invariable character of

anatomical structure ; because Cuvier, of whom it is said that he was "the best of men, the most brilliant of writers, the soundest of thinkers, the most far-sighted of philosophers, the purest of statesmen, and the greatest naturalist of modern times," grew dogmatical under the adulation of court life. And he found it necessary, later in life, to apologize for the bad taste of Humboldt who, while holding a place in court at Berlin, "criticized and satirized severely everything connected with it." The patronage, the splendors, the titles, and the temptation of courts were all before him and within his reach, when he came to America as a popular lecturer, educator and investigator.

Now, sir, we are all grateful for the scientific wealth which Agassiz brought to our shores, and lavished upon our people. We admire the imperial march of his mind through all the realms of philosophical knowledge. We accept the cosmical laws which he found written all over the earth's surface by the moving glaciers ; we follow his classifications, which pointed out to each animal group its place in creation, and made zoölogical order out of speculative and theoretical chaos ; we are subdued into entire submission by that mental power which could arrange the long and intricate and half-hidden record of palæontology, and point out where this ends and anatomy begins, in the great continuous line of a fossil and living animal kingdom. The rapid and patient industry to collect facts—the grasping and judicious comprehension to classify them—the lofty survey which deduces the general law,—who can measure the scientific genius of him who possesses all these faculties in healthy combination ? These Agassiz had, and more.

When he assumed the duties of a popular teacher, he also took upon himself the duties of a learner—an untiring, honest, unassuming searcher after truth. To secure knowledge was his first impulse ; to convey it, the next. He was a good teacher of youth, because he felt that every scholar had a right to demand of him a thorough knowledge of what he taught, and because he knew how to draw from the humblest something worth adding to the store which he already possessed. He took part in public education, not because he felt the high importance of what he was to bestow, but because

he had an irresistible impulse to join hands with all who were pursuing the paths of knowledge, and because he felt that his own enthusiasm might operate as a new incentive to his associates. Whoever has listened to his conversation with those who surrounded him at agricultural and educational assemblies, must have been struck with the prominence which he gave in his own inquiries for the views and opinions of others, even of those who hung upon his lips, eager for the knowledge which he might impart. And so he encouraged every effort after knowledge; was impatient of a pretence—but was warm-hearted and paternal towards a genuine effort and a reality; was grateful to the farmer who stated a fact in embryology drawn from observation; rejoiced over every successful endeavor of the agricultural college; could travel side by side with the humblest explorer; and could at a moment's warning, with a wealth of knowledge and a fervid eloquence unequalled, sweep away the fallacies of an antagonist. He was indeed the genius of a scientific American; for whether engaged in the most elaborate investigations at the Museum, or in discussions before the board of education, or in a popular lecture, or in a thousand-times debated question in the board of agriculture, he always displayed the same modesty, the same desire to learn, the same vast knowledge, the same fascinating power of conveying his knowledge to others. The influence of this unceasing effort and this manifold faculty it is difficult to estimate. But we do know that he engrafted science upon our republic, put it into all our colleges, introduced it in familiar form to our people, gave existence to scientific schools everywhere, sent his pupils into every corner of our land, brought its mysteries into our schools, brought the spirit of our rulers up to a just appreciation of its life-giving influences, and taught the world that the tribute which an educated people are ready to bestow upon their great teachers and guides, cannot be eclipsed by the patronage of kings.

But there are those who cannot forget the influence which Agassiz exerted by the force and quality of his character alone. Actuated by high motives himself, he always appealed to the high motives of others. He expected to be forgiven, and so he was always ready to forgive. He carried with him

an elevating and refining and cheering influence and an overflowing sympathy with his friends in all their joys and sorrows. His countenance beamed with the light of triumphant endeavor, and with the warmth of a kind and generous and understanding heart.

Carlyle says of Goethe : " A French diplomatic personage contemplating Goethe's physiognomy, is said to have observed : ' *Voilà un homme qui a eu beaucoup de chagrins.*' " But no man could say this of Agassiz. His countenance bore the marks of many joys. The calmness of great faith resting on great knowledge ; the consciousness of duties well performed, of inquiries honestly made, of investigations candidly pursued, of a purpose based on honor and right, of a desire to shed light upon the faith of man, of a fraternal regard for all the sons of men, of a belief in right as superior to authority, of a lofty recognition of the grandeur of truth when compared with the glittering accidents of life,—this gave him an inspiring force and a charm which will never be forgotten by those who enjoyed his teachings. I dare not speak of my own loss, but I may urge upon this board a faithful observance of the duties which the great founder of the Museum has imposed upon it. And believing as I do, sir, that the Resolutions express not only the sentiments of every gentleman present, but also those of the great body of lovers of sound learning throughout the world, I trust they will be warmly and unanimously adopted.

The Resolutions were adopted by a rising vote, and the meeting adjourned.

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TRUSTEES OF THE MUSEUM OF COMPARATIVE ZOÖLOGY,
1874.

THE GOVERNOR OF THE COMMONWEALTH,
WILLIAM B. WASHBURN.

THE LIEUTENANT GOVERNOR,
THOMAS TALBOT.

THE PRESIDENT OF THE SENATE,
GEORGE B. LORING.

THE SPEAKER OF THE HOUSE,
JOHN E. SANFORD.

THE SECRETARY OF THE BOARD OF EDUCATION,
JOSEPH WHITE.

THE CHIEF JUSTICE OF THE SUPREME JUDICIAL COURT,
HORACE GRAY.

THEODORE LYMAN. ALEXANDER AGASSIZ.

NATHANIEL THAYER. JAMES LAWRENCE.
SAMUEL HOOPER. SAMUEL ELIOT.
MARTIN BRIMMER.

OFFICERS OF THE MUSEUM OF COMPARATIVE ZOÖLOGY,
1874.

His Excellency WILLIAM B. WASHBURN, Governor of the Commonwealth, *President*.

THEODORE LYMAN, *Treasurer*.

MARTIN BRIMMER, *Secretary*.

SAMUEL HOOPER, JOSEPH WHITE, NATHANIEL THAYER, JAMES LAWRENCE,
Committee on Finance.

ALEXANDER AGASSIZ, SAMUEL ELIOT, THEODORE LYMAN, *Committee on the Museum*.

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A P P E N D I X .

The following sums have been subscribed for the Museum in addition to the regular income in 1872-1873 :—

Alex. Agassiz and Q. A. Shaw, land on Oxford Street,	\$9,314 71	
Alex. Agassiz, for publication, etc.,	7,796 13	
		\$17,110 84

In 1873,—

State grant (conditional on same amount being raised by the Museum),	25,000 00
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Subscriptions in 1873,—

Former pupils of Prof. Agassiz Young Ladies' School,	\$4,060 00	
Cash from friend,	5,500 00	
Q. A. Shaw and Alex. Agassiz,	6,937 20	
Alex. Agassiz, for publications, etc.,	10,301 57	
Mrs. G. H. Shaw,	5,000 00	
Martin Brimmer,	2,000 00	
		33,798 77
Donation of Quincy A. Shaw May, 1873,	100,000 00	
Total for 1872-1873,		\$175,909 61



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