JOHN HUNTER AND HIS PUPILS

PROF. GROSS

JOHN HUNTER AND HIS PUPILS.

JOHN HUNTER

AND HIS PUPILS.

BY

S. D. GROSS, M.D., LL.D., D.C.L., OXON., LL.D., CANTAB.
PROFESSOR OF SURGERY IN THE JEFFERSON MEDICAL COLLEGE; PRESIDENT OF THE PHILADELPHIA ACADEMY OF SURGERY, ETC.

PHILADELPHIA:
PRESLEY BLAKISTON,
1012 WALNUT STREET.
1881.

SHERMAN & CO., PRINTERS,
PHILADELPHIA.

PREFACE.

THE following pages owe their appearance to a request of the Philadelphia Academy of Surgery that I would deliver its first anniversary address. In assuming this duty I selected for my theme the life, character, and services of the founder of scientific surgery. As I advanced in my labors my materials grew, as it were, by accretion, and thus attained proportions far beyond my original design.

Memoirs of John Hunter were published soon after his death by his brother-in-law, Sir Everard Home, Mr. Jesse Foot, and Dr. Joseph Adams, an eminent English medical scholar, and author of "Morbid Poisons" and other able works. The Life by Home was prefixed to the first edition of Hunter's Treatise on Inflammation and Gunshot Wounds, but, for some reason, was omitted in the subsequent issues. Foot's memoir was a scurrilous attempt to depreciate the character of Hunter as a scientific man, and abounds, as might be supposed, in flagrant misstatements and wilful misrepresentations. If the author had set out with a determination to gain an ignominious immortality, he could not have succeeded better. In 1837 appeared the excellent memoir by Mr. Drewry Ottley, prepared for Mr. Palmer's edition of Hunter's complete works, in four volumes octavo. This is, by far, the most able, full, and impartial memoir that has been published of him. Notices, more or less elaborate, of Hunter have also appeared in the various orations which have been delivered, since 1814, in commemoration of him by Fellows of the Royal College of Surgeons. None of

these memoirs, however, are accessible to the American student, and I, therefore, the more willingly embraced the opportunity afforded me by the delivery of the address in question to give a somewhat detailed account of the life and services of a man who laid the foundation of scientific surgery, and whose name is indelibly associated with the progress, not only of his own profession, but with that of histology, physiology, and comparative anatomy. My task has, throughout, been one of profound respect and admiration, not unmingled with a warm affection for the character of a man who was so great an ornament of his race, and who has reflected so much honor upon his age and country. I was anxious that the American student should become better acquainted with the inner life of this extraordinary man, be induced to study his writings, and profit by his example. To impart additional interest to the memoir I have appended to it brief sketches of his more distinguished pupils, as well as of a few of his English contemporaries, and of some of the men who were especially conspicuous in extending his doctrines and the influence of his teaching.

The portrait which accompanies the volume has been phototyped from Sharp's steel engraving of Sir Joshua Reynolds's celebrated painting, of which Lavater remarked, "This is the portrait of a man who thinks."

It affords me pleasure to tender my acknowledgments to Allen Thomson, Esq., of London, formerly Professor of Anatomy in the University of Glasgow, and to Professor Flower, the learned and accomplished Curator of the Hunterian Museum, for valuable information contributed during the progress of my labors. For the leading facts in Hunter's life I am indebted mainly to Ottley's and Home's memoirs.

S. D. GROSS.

PHILADELPHIA, January 15th, 1881.

CONTENTS.

CHAPTER I.

CHAPTER II.

JOHN HUNTER AND HIS PUPILS.

CHAPTER I.

LIFE, CHARACTER, AND SERVICES OF HUNTER.

ALL intelligent readers of biography are more or less familiar with the labors and writings of John Hunter, his marvellous genius, and his vast contributions to science. In the medical profession his name is, and always will be, a household word throughout the civilized world; it is spoken with respect and reverence in every college amphitheatre, and is deeply engraved upon the mind of every student of surgery. Nevertheless there are, it may safely be asserted, many points of interest in his life, and many traits of character, which have escaped our memory, or which have never been so thoroughly impressed upon our attention as to enable us to appreciate them at their full value.

With the exception of Hippocrates, the father of medicine, John Hunter is the grandest figure in the history of our profession. I make no exception in favor of Ambrose Paré, the father of French surgery and the inventor of the ligature for the arrest of hemorrhage, a contrivance which has been instrumental in saving so many lives; of Albert von Haller, the father of scientific physiology, or even of Xavier Bichat, the founder of general anatomy, and one of

the most remarkable men that have ever lived. Shall I make an exception in favor of William Harvey? No; I will not exclude from this list even the immortal discoverer of the circulation of the blood. Great as these men were, and vast as are the blessings which they have conferred upon their race, it is no disparagement to them to say that John Hunter was, in many respects, their superior; not in learning, for herein Haller had greatly the advantage; not in the amount of suffering which he has been instrumental in relieving by his surgical writings, for in this respect Ambrose Paré was fully his equal; not even in inventive genius, for here it will be found that Bichat, who created a new science before he was thirty years of age, was not a whit his inferior. While Hunter had many traits of character in common with these and other great men, he possessed some features that were peculiarly his own. He was not only a great surgeon, a wise physician, and a great anatomist and physiologist, human and comparative, but, above all, he was a philosopher whose mental grasp embraced the whole range of nature's works, from the most humble structure to the most complex and the most lofty. He was emphatically the Newton of the medical profession, and what Pope said of that great philosopher may, by paraphrase, be said with equal force and truth of Hunter:

> "Nature and Nature's laws lay hid in night;
> God said 'Let Hunter be,' and all was light."

Hunter is peerless in the history of British surgery; and after the lapse of nearly a century the profession turns to his memory with increased reverence for his transcendent genius, his matchless ability, and his unequalled services. To say that he was simply the

founder of scientific surgery would fall far short of his great deserts; to do him full justice we must add that he was the father also of scientific zoology and of comparative physiology.

I say nothing in this connection of Edward Jenner, the immortal discoverer of vaccination, because, although his labors have conferred inestimable benefits upon the human race, they involved only a single problem, the solution of which required no special genius. Nor do I deem it necessary to add anything in regard to Thomas Sydenham, justly styled the modern Hippocrates; for the reason that, although he was endowed with great ability as an observer, he possessed none of those powers of generalization which formed such wonderful features in the character of Hunter.

To appreciate Hunter's character fully, or, in other words, to form a just idea of his merits as an observer, an experimenter, an investigator, a teacher, an author, and a man of genius, it will be necessary to take, as it were, a bird's-eye view of the history of surgery at the time he appeared upon the active stage of life;—how he came to study medicine, who were his teachers and contemporaries, and what influence he exerted, by his discoveries and improvements, upon his age and upon future generations.

Of the boyhood of Hunter very little is known, and that little is not particularly creditable to him. He was the youngest of ten children, and was born at Long Calderwood, Lanarkshire, Scotland, on the 13th of February, 1728.* His father, who was nearly seventy years old at the time of his birth, was descended

* This date is in accordance with that of the parish register, and is accepted by the Royal College of Surgeons of England; but Sir Everard Home in his Life gives the 14th of July as the proper one.

from an old family in Ayrshire, and cultivated a small landed estate, which afforded him but a scanty subsistence. That he was a man of refinement and of some education, with a high moral and religious sense, is proved by several letters, copies of which are still extant. His mother was the daughter of the treasurer of Glasgow. At the age of ten John was left an orphan, in the sole care of his mother, who, although a woman of strong mind, failed to exercise much influence over him. Her partiality for the Benjamin of the family, now almost her only companion, was not likely to sharpen his industry or to instil habits of regularity. The consequence was that his education was almost wholly neglected, a defect which pursued him during the remainder of his life, and which in his maturer years he never ceased to regret. That he was a wayward boy, impatient of restraint, fond of company and amusement, given to idleness and disobedience, is unquestionable; but there is no evidence that he was guilty of dissipation or intemperance. At the age of seventeen, or thereabout, learning that his brother-in-law, a cabinet-maker at Glasgow, married to a sister whom he dearly loved, was laboring under pecuniary embarrassment, he paid him a visit, and for a time assisted him in his business, not as an apprentice but a volunteer, working probably at small wages or simply for his board and clothing. It was this circumstance which induced some of his envious contemporaries to assert that in early life he had been a wheelwright or a carpenter; a statement for which there is not the slightest foundation in truth. Tiring of an occupation which, it may be presumed, had nothing genial in it, and hearing that his brother, Dr. William Hunter, who had been living for some time in London, was doing a

large and lucrative practice, and rapidly growing in reputation, a desire seized him to visit what must have appeared to his heated fancy as a sort of El Dorado. The meeting between the two brothers was cordial, and arrangements were at once effected by which John became an assistant in William's anatomical rooms, which, although only recently opened, had already acquired marked celebrity on account of their educational advantages. It was there that young Hunter first became aware of his latent powers, and threw off the incubus which had so long oppressed his soul. A new life broke in upon him; his ambition was aroused; industry, steady and unremitting, took the place of idleness, and the undecided, wavering, erring youth, stimulated by the new atmosphere in which he was now daily immersed, assumed the attitude and the assured character of the philosopher and the student of nature. Who or what brought about these wonderful changes in the life and conduct of this young man, so sudden, so unexpected? It is not difficult to answer the question. It was simply William Hunter, and the influence of his example. John saw the wonderful things which his brother was doing in building up a great anatomical museum, and it is, therefore, not surprising that his tastes should soon have taken a similar direction. However this may be, his proficiency as a practical anatomist was so very rapid that, before the end of twelve months, he was intrusted with the preparation of his brother's subjects for his anatomical lectures; and in 1755, seven years after his arrival in London, he was admitted to a partnership in his private school.* Long before this time he had acquired great

* The first task assigned to him was the dissection of the muscles of an arm, which was so well and so rapidly done that he was next set to preparing an arm

reputation among his classmates as an expert dissector and an excellent anatomist. He had now become an active, industrious worker, thoroughly in love with his occupation. The summer of 1749 was spent by him at Chelsea Hospital, under the instruction of the celebrated Cheselden, who was then nearing his grave; and in 1751 he became a pupil at St. Bartholomew's Hospital, where he availed himself of the teachings of the not less renowned Percivall Pott, another great luminary of British surgery. It has already been stated that Hunter's early education had been sadly neglected. Whether it was that he was himself painfully conscious of the fact, or, what is much more probable, because his friends urged him to take the step, he entered, in 1753, as a gentleman commoner at St. Mary's Hall, Oxford. His brother William was very anxious that he should abandon surgery and study medicine, which was at that time regarded, and, perhaps, not without reason in the then existing state of the science, as a higher branch of the healing art. With this end in view it was deemed very desirable that John should have a respectable knowledge of Greek and Latin, as no physician was considered as being properly educated without it. The effort, however, proved abortive. Hunter was now twenty-five years of age, and he had no disposition to shut himself up within the narrow walls of a college, or to give up the idea, formed soon after he settled in London, of becoming a great surgeon. He looked upon such studies as a waste of time; and in referring to the subject some years afterwards, he thus feelingly expressed himself: "They wanted," he said, "to make an

with the bloodvessels. This labor was also performed in so satisfactory a manner as to elicit the highest commendation from his brother, who predicted his future greatness as an anatomist, and told him "he should never want employment."

old woman of me, or that I should stuff Latin and Greek at the University;" but, added he, significantly pressing his thumb-nail on the table, "these schemes I cracked like so many vermin as they came before me."* One cannot but regret that Hunter did not carry out the wishes of his friends. A little "stuffing" of Latin and Greek would have been of vast benefit to him, in preventing those errors of style and of literary composition which so greatly disfigure and obscure his writings.

In 1754 Hunter became a pupil at St. George's Hospital, where two years later he received the appointment of house-surgeon. This position he retained, however, only for a short time; for, owing to his incessant labors, his health was beginning to suffer, and fears were entertained that he was threatened with phthisis. This compelled him to seek safety in change of air and scene. Through the agency of his friends he was made a staff-surgeon, and was at once sent with the army to Belleisle, an island off the western coast of France, where he enjoyed ample opportunities for the study of diseases and accidents, and gathered materials for the composition of his work on gunshot wounds. These opportunities were further enhanced in the following year during the war in the Peninsula. On the restoration of peace in 1763, Hunter returned to London, invigorated in health, and loaded with new knowledge, but poor in pocket, having saved little, if anything, of his pay as a military surgeon. His struggles as a young practitioner in the great metropolis were long, arduous, and disheartening. The few connections which he had formed before he joined the army were lost to him, and his place in his

* Ottley's Life of John Hunter, Palmer's edition, vol. i, p. 14. London, 1837.

brother's dissecting-rooms and amphitheatre was occupied by Mr. Hewson, a young but rising anatomist, afterwards so celebrated for his discoveries in the lymphatic vessels. He had, therefore, now nothing to depend upon but his half pay and his own indomitable will, stimulated by his necessities and by his lofty ambition. Like many a young man destined to attain to eminence, he literally carried his fortune in his own hands. Although full of energy he was not a man to make friends or to inspire public confidence rapidly. His manners were abrupt, and, at times, even coarse and repulsive. He possessed none of those arts which so easily please and fascinate people, and which so often do more in securing respect and business than the highest talent or the most consummate knowledge. The truth is he had too good an opinion of himself, and too little respect for that of his professional brethren. He felt conscious of his superior mental endowments, and, therefore, looked upon the world around him with a species of contempt, which seldom fails to recoil with interest upon its author. The humble Scotch youth by his intercourse with army surgeons and gay society was, doubtless, led to form a very humble estimate of the profession generally. Besides, the field upon which he had now entered was occupied by able men. Pott stood deservedly at the head of the profession; Hawkins, Bromfield, Sharp, and Warner also enjoyed a large practice; and there was a number of younger surgeons who were rapidly rising in public estimation. In order to increase his income, as well as to afford himself useful occupation, Hunter now opened a school of anatomy and operative surgery, and delivered regular courses of lectures. He also took private pupils, each of whom was apprenticed to him for five

years, at a fee of five hundred guineas, a sum equivalent to about two thousand six hundred and fifty dollars of our money; but after all not so large when it is recollected that it included board and lodging. This practice of taking private pupils was continued until within a short time of Hunter's death. In the list of the young men who enjoyed this privilege were, not to mention others, Edward Jenner, Abernethy, Physick, and John Thomson, the author of the celebrated treatise on inflammation.

In 1767 Hunter was elected a member of the Corporation of Surgeons, an institution which in 1800 was merged into the Royal College of Surgeons. Although the Corporation embraced some excellent men, Hunter had so little respect for it that he seldom attended its meetings or took any active part in its deliberations. Good anatomist and experienced surgeon as he had long been known to be, it was not until he was forty years of age that he received a hospital appointment. In 1768 a vacancy occurred in St. George's Hospital, to which, through the influence mainly of his brother, Dr. William Hunter, he was elected by a large majority over his competitors. This position, one always eagerly sought by young men, gave him a new start, and his practice immediately increased in consequence. Indeed, his fortune as a surgeon was now fully assured. He no longer lacked patients, and the rigid economy which he had been obliged to exercise in his daily outlays gave way to comparative affluence. He now bought a lot of ground at a place called Earl's Court, about two miles from London, and erected a large and commodious house, still famous as his former residence. In 1771, at the age of forty-three, he married Ann, the

daughter of a surgeon in General Burgoyne's Light Horse, and a sister of Mr., afterwards Sir Everard, Home, whose ultimate career is so intimately connected with that of Hunter. Miss Home was a lady of varied accomplishments, elegant manners, of fine æsthetic taste, a good musician, fond of society, and somewhat of a blue stocking.

The house at Earl's Court was erected for the express purpose of accommodating his preparations, which already amounted to a cumbersome collection; but it also served as a summer residence for the family. On the spacious grounds now at his command he gathered a large number of animals, birds, fishes, and reptiles, as well as various other objects of natural history; and one of his favorite amusements in the summer and autumn, after the labors of the day were over, was to ramble among these creatures, in familiar intercourse, petting and talking with some, and preserving friendly relations with all. It was at Earl's Court that Hunter entered upon that career which invested his life with so much eclat, and established for him that fame which made him one of the most renowned men of his age. His house in town, which had hitherto been a sort of curiosity shop, he still retained. He also continued his lectures on anatomy and surgery, took pupils, as formerly, into his house, as was then the custom all over England, and spent all the time he could snatch from his practice in the study of comparative anatomy and natural history and in making preparations for his museum, His habit was to rise at four o'clock in the morning, to spend from four to five hours in his dissecting rooms, and then to step into his carriage to make his daily rounds among his patients. He had no fondness for surgical practice or consultations, and attended to business only

because it afforded him the means of purchasing objects of curiosity or of natural history, saying, as he laid aside his scalpel and forceps, "Well, Lynn," a pupil and an intimate friend, "I must go, and earn that d——d guinea, or I shall be sure to want it to-morrow." It is obvious enough that a man with such feelings could not have much love for the drudgery of his profession. Whatever interfered with his studies and his philosophical contemplations was regarded by him as a serious interruption. He was lavish in his expenditures, and was often obliged to borrow money to meet his obligations. Whenever he had accumulated ten guineas from his earnings, he invariably appropriated a part to the purchase of material for his museum. Every available source was laid under contribution for specimens of animals, birds, fishes, reptiles, and insects,—the Zoological Garden, then in the Tower, travelling menageries, sea captains sailing to different countries, and persons at home and abroad. With his friend and pupil, Dr. Edward Jenner, the discoverer of vaccination, he carried on a life-long correspondence respecting material of this kind, and the habits of birds, bees, reptiles, and fishes. In one of his letters he asks: "Have you large trees of different kinds that you can make free with? If you have, I will put you upon a set of experiments with regard to the heat of vegetables." He asks a similar question with regard to bats, the hedgehog, and other animals. Indeed, he must have kept Jenner often very busy, for nothing short of thorough work answered Hunter's purpose. He took nothing on credit. In one of his letters to Jenner he asks for information about the temperature of the hedgehog. He observes: "I think your solution is just; but why think? Why not try the experiment?" and then

adds: "Try the heat; cut off a leg at the same place; cut off the head, and expose the heart, and let me know the result of the whole." The temperature of insects, animals, and vegetables occupied much of Hunter's thoughts, and he eventually published a valuable paper upon the subject in the Philosophical Transactions. In 1767 he was elected a Fellow of the Royal Society; and in the following year he sent to that body a memoir on the means to be employed in the resuscitation of drowned persons. In 1776 he was appointed Croonian lecturer by the Royal Society, and the subject which he selected for discussion was muscular motion, into which, as usual, he introduced much novel and interesting matter. The course was completed in 1782, and the Society asked for a copy of it for publication; but to this demand Hunter demurred, on the ground that he had not completed his investigations. Much of the matter, however, found its way afterwards into some of his various writings, so that, probably, nothing of value has been lost.

We must next inquire into Hunter's merits as an author. Notwithstanding his want of scholarship, and the labor with which he composed, he was a prolific writer. Many of his contributions, especially those on comparative anatomy and physiology, found their way into the Transactions of the Royal Society and other publications, in which they generally elicited much attention. His first systematic work was his Treatise on the Natural History and Diseases of the Human Teeth, the first part of which was issued in 1771, and the second seven years later. The work was well received, and greatly enhanced his reputation as an acute observer and investigator. His attention seems to have been originally directed to the subject by the deplor-

able state of dentistry, which was almost solely confined to the barber or ignorant mechanic, whose chief occupation consisted in extracting and plugging teeth. Although vast improvements have been effected since the time in which he wrote, improvements which far exceed those of any other specialty in surgery, save that of the eye, to Hunter is justly due the great merit of rescuing dentistry from the hands of empiricism, and of placing it upon a broad and scientific basis by pointing out, in distinct terms, the physiological and pathological relations which the teeth bear to the rest of the system. It is in this work that we find the first notice of the operation of transplanting teeth from the mouth of one person into that of another; an operation first practiced by Hunter, and frequently repeated under his supervision, until, owing to the serious consequences which so often attended it, it was finally abandoned. It was ascertained that, although the transplanted tooth, in many cases, readily contracted adhesions and even vascular connections with the gums, it either soon dropped out, or caused so much irritation as to require its removal. Occasionally, indeed, the operation was followed by syphilis, as when a tooth was transplanted from a tainted to a healthy person. We may imagine how delighted Hunter must have been when he found that he could successfully transplant a human tooth to the comb of a cock, or the testicle of a cock to the abdomen of a hen; operations which, in several instances, he performed most successfully.

The Treatise on the Venereal Disease appeared in 1776, followed by a second edition in 1778. Having been long and impatiently expected, it at once attracted general attention. Although extraordinary care had

been bestowed upon its preparation, it abounded in blemishes, for the correction of which the author availed himself of the services of a committee of three of his most learned and accomplished friends, consisting of Mr., afterwards Sir Gilbert, Blane, Dr. George Fordyce, and Dr. Pitcairn, whom he met at stated intervals for the purpose. These gentlemen suggested many verbal alterations, and greatly improved the work by rendering the text more polished and intelligible. Hunter was particularly solicitous to make it as perfect as possible. He had spent many years in collecting his material; his object was to produce a great work, founded solely upon his personal observations. He neither in this nor in any of his other productions pinned his faith upon what others had said upon the subject. He had seen much of this disease during his connection with the army, and afterwards in civil practice, and he felt that he could let the work rest upon its own intrinsic merits. His account of venereal affections was for upwards of a third of a century the best authority on the subject in any language, and his description of the indurated chancre is so graphic and distinct that it will always be called by his name. True, it had been recognized by previous observers, as Torella, De Vigo, Fallopius, and Ambrose Paré, but no one had ever so clearly delineated its distinctive features.

The Treatise on the Blood, Inflammation, and Gunshot Wounds, a work of vast labor and the most patient research, and upon which Hunter's fame as a surgeon and a medical philosopher largely rests, was published in 1794, under the supervision of Dr. Matthew Baillie and Sir Everard Home, only about one-third of the proofs having been revised by the author at the

time of his death. Notwithstanding Hunter strove to render the work as perfect as possible, it was obscured by numerous errors of style, and the punctuation was execrable. A Life, by Sir Everard Home, was prefixed to the volume, but this, for some reason, was omitted in the succeeding editions of 1812, 1818, and 1828. These editions were, it would seem, simply reprints of the first, with all the original errors.

A complete edition of Hunter's works was issued in London in 1837, in four octavo volumes, illustrated by a volume of plates in quarto, under the supervision of Mr. James F. Palmer, assisted by Drewry Ottley, Thomas Bell, George B. Babington, and Richard Owen, the distinguished naturalist, palæontologist, and comparative anatomist. These gentlemen were selected on account of their peculiar fitness for their respective tasks. Palmer himself superintended the publication of the Lectures on the Principles of Surgery, and of the Treatise on the Blood, Inflammation, and Gunshot Wounds; to Bell, an eminent dentist, was assigned the tract on the Teeth; Babington, a physician of wide reputation, took charge of the Treatise on the Venereal Disease; and Owen edited the papers on Comparative Anatomy and Physiology, including an account of those published in the Philosophical Transactions. Ottley furnished a biography of Hunter for the first volume, which contains by far the most able and lucid account of him and of his writings that has ever been written. The Lectures on the Principles of Surgery were mainly printed from a copy, taken in short hand, by Nathaniel Rumsey, a pupil of Hunter.

All the works of Hunter have been translated into the Continental languages of Europe, and with the exception of Palmer's edition, republished in this coun-

try. A Latin edition of the Natural History of the Teeth was issued at Leipsic in 1775. The Treatise on the Venereal Disease has probably been more frequently read than any other of his productions. Ricord edited repeated editions of it, and in this country several editions were brought out by the late Dr. Freeman J. Bumstead, of New York.

His work on the Animal Economy, consisting mainly of a series of papers, considerably altered in matter as well as style, and previously printed in the Philosophical Transactions, was published in 1786. The articles relate chiefly to anatomical and physiological subjects, and evince that rare spirit of generalization and mental acumen so characteristic of Hunter.

One reason, apparently, why Hunter's lectures and writings were marked by such glaring obscurities was that he was obliged to invent so many new expressions in order to meet the wants created by his own labors and discoveries. He was the first, for instance, to use such expressions, as "adhesive inflammation," "ulcerative absorption," "morbid poisons," and others of a similar kind, unknown to his contemporaries, who felt little inclination to acquaint themselves with their import. Hunter never verified Bacon's maxim that "writing makes an exact man." His style seems to have been little, if any, better in his later than it was in his earlier years, when, as a raw student, he entered upon his gigantic work. There are men who never speak or write grammatically; they cannot overcome the defects of their early education, and of this class of men John Hunter was a remarkable example. His genius soared above the regions of grammar and of rhetoric.*

* In reading the works of Hunter and of Bichat one cannot fail to be struck with the peculiarities of their style; both were slovenly writers, and their lan-

He had a high opinion of putting one's thoughts into writing. "It resembles," he said, "a tradesman taking stock, without which he never knows what he possesses or in what he is deficient."

With the exception of an attack of pneumonia in 1759 Hunter enjoyed excellent health during the first forty years of his life. In 1769 he was seized with a severe fit of the gout, which greatly alarmed him, as it was attended with excessive pallor of his countenance, and, for nearly three-quarters of an hour, with total extinction of the pulse, and almost entire absence of breathing. Notwithstanding this he soon resumed his labors, which now, however, began seriously to undermine the powers of his constitution, which was still further impaired in 1775 by a spasmodic affection of different parts of the body, preceded by symptoms of his former complaint. The heart at length became involved, and on one occasion the paroxysm was so violent as to cause syncope. These attacks compelled him for a time to relax his efforts, and to avail himself of the use of the mineral waters of Tunbridge and of Bath. Although his health was greatly benefited by the change, it ever afterward remained in a precarious condition, his cardiac disorders frequently recurring upon the slightest exertion, fatigue, or mental irritation. In December, 1789, four years before his death, he was suddenly seized, while on a visit to a friend, with total loss of memory. He knew not in whose house he was, the name of the street, the object of his call, the name of the family, or, in short, anything he had ever said or

guage is often so obscured by blemishes as to render it difficult to comprehend its proper meaning. Hunter composed slowly, Bichat rapidly; the latter never revised his MSS., and it is said that his General Anatomy, in four volumes, was written and published in a single year.

done; the machinery of his mind seems to have been almost completely suspended, and a full half hour elapsed before the engine resumed its accustomed work. During all this time, however, consciousness remained, and special sensation was unimpaired. Hunter was so painfully sensible of his situation that he was wont to say to his friends that his life was in the hands of any rascal who chose to fret or worry him. It is, therefore, not surprising that these attacks should have rendered him nervous and irritable, and less capable of controlling his naturally impetuous temper. His final hour came at last,—death, sudden and unexpected, overtook him at St. George's Hospital, at a meeting of the Governors and of the Surgical Staff of that institution, called on business of importance connected with the admission of pupils and the mode of instructing them. During the discussion which ensued, Hunter made a remark which one of his colleagues considered it necessary at once flatly to contradict. Choked with angry and tumultuous emotions, Hunter immediately ceased speaking, and, hurrying into an adjoining room, fell, with a deep groan, lifeless into the arms of one of the attending physicians. All attempts to revive him proved abortive. An event so sad and so unusual called forth a widespread sympathy, and created a profound sensation wherever his name and fame were known and appreciated. His carriage, drawn by two elegant bay horses, returned soon after without its master, whose body followed in a sedan chair, a sad and appalling spectacle for the family and friends of the great surgeon. Like Cæsar, Hunter was murdered by his friends, not in the senate chamber, but in the consultation room of a hospital which had so long been the recipient of his services, of which he was the chief

ornament, and which should have overlooked his infirmities, some of them inherent in his nature and others the result of long-continued overwork of mind and body. An examination after death revealed the existence of ossification of the mitral valves of the heart and dilatation of the aorta, with thickening of its valves and degeneration of its coats. The coronary arteries were converted into long rigid tubes. The heart itself was uncommonly small. At the time of his death, on the 16th of October, 1793, Hunter was in his sixty-fifth year. His body was interred in the Church of St. Martin-in-the-Fields, the funeral being strictly private, a few of his medical friends alone being present. His widow was anxious to deposit it in Westminster Abbey, but the fees demanded for admission exceeded her means, and it was not until March 28th, 1859, that, through the influence of the Royal College of Surgeons and of public sentiment, it found a final resting-place in that sacred depository of England's illustrious men, of whom he was one of the greatest and most remarkable.*

For finding the remains of Hunter, the profession is solely indebted to the late Mr. Frank Buckland, the well-known naturalist, and a son of a former Dean of Westminster Abbey.† He knew that Hunter had been interred in the Church of St. Martin-in-the-Fields, and learning, casually, that it was the intention of the church to reinter the bodies that had been so long confined in its vaults, he embraced the opportunity, and after six-

* Mrs. Hunter spent her widowhood in a state of retirement, devoting herself to the education of her two children, and to the composition of a small volume of poems, which she published in her latter years, and which is said to have possessed considerable merit as a light effort. She wrote a glowing epitaph in memory of her late husband, intended for a tablet to be placed over his remains, but this was never done, as it was contrary to the rules of St. Martin's Church. She died early in the present century, universally beloved and esteemed.

† Curiosities of Natural History, vol. ii, pp. 160–179.

teen days of hard work, during which he and his assistant removed 3060 coffins, and inhaled, much to their detriment, the foul vapors of this horrible necropolis, he at length, when almost in despair, came upon the much-coveted object of his search. The coffin was, in the main, well preserved, and upon a brass plate bore this inscription:

JOHN HUNTER,
ESQ.,
Died 16th Octr.,
1793,
Aged 64 years.

It also represented Hunter's arms—a hand with an arrow in it, and the three horns of the hunter.

There is not, as has been justly observed by Dean Stanley, a more curious narrative of a chivalrous devotion to the relics of a great man, than that displayed in this extraordinary labor of Mr. Buckland, which ended in the triumphant recovery of the remains of the founder of scientific surgery.*

I visited last summer the tomb in Westminster Abbey in which the mortal remains of the great man now repose, and found upon the tablet which covers it the subjoined inscription:

"O Lord, how manifold are thy works."
Beneath
are deposited the remains of
JOHN HUNTER,
Born at Long Calderwood, Lanarkshire, N. B.,
on the 13th of February, 1728,
Died in London on the 16th of October, 1793.
His remains were removed
from the Church of St. Martin-in-the-Fields to this Abbey
on the 28th of March, 1859.

* Historical Memorials of Westminster Abbey, p. 335, London, 1868.

The Royal College of Surgeons of England has placed this tablet over the grave of Hunter, to record its admiration of his genius as a gifted interpreter of the divine power and wisdom at work in the law of organic life, and its grateful veneration for his services to mankind, as the founder of scientific surgery.

"In wisdom hast Thou made them all."

In the same year in which his remains were interred in the great Abbey, the Royal College of Surgeons adopted measures for the erection of a marble statue to him, and through the efforts mainly of Mr. John F. South, its Vice-President, the sum of £1172 was promptly raised for that object. The work was intrusted to Mr. Weekes, the eminent sculptor, who, availing himself of the portrait of Sir Joshua Reynolds and of a cast of Hunter's face taken after death, produced an admirable likeness, a sort of copy in marble, which was completed in 1864, and now graces the museum of the College.

In person Hunter was of middle height, but very strong and robust, with a very short neck, broad shoulders, and a broad expansive forehead, denotive of high cerebral development. His eyes and complexion were light, his brows heavy, his cheeks rather high, and, as one of his biographers expresses it, his mouth was somewhat underhung. His hair, in his youth, was inclined to red, but as he advanced in life it became gray, and at length partially white. He possessed great powers of endurance and required little sleep, often working, with hardly any intermission, for nearly twenty hours out of the twenty-four. In his manners he was unostentatious and rather cold and reserved; in his dress, plain and simple, and not always particu-

larly neat. He wore, as was then the custom, short breeches, with knee and shoe buckles.* His temper was warm and impulsive, and, although he was naturally kind, he often betrayed ill-feeling, especially when any one "galled his patience," or when he was overcrowded with business, unusually fatigued, or intensely occupied in some interesting and absorbing investigation requiring uncommon patience, deep thought, or persistent effort. At such times his irritability occasionally got the advantage of his judgment and good breeding. It is related of him that, returning late one evening more than ordinarily worried and fatigued, he found a large party of ladies and gentlemen assembled in his drawing-room. Feeling excessively annoyed at this unexpected sight, he gave way to his anger, exclaiming: "I ought to have been informed of this kick-up, and as I have come home to study I hope the company will now retire," which they of course at once did. Such conduct was not only inconsiderate but harsh, and must have left a very unpleasant impression upon every one who witnessed it. Mrs. Hunter, who was a woman of high spirit, as well as of high culture, and fond of social life, must have been greatly mortified at such an ill-timed and discourteous display of passion. Notwithstanding such occasional ebullitions, the marriage was, it is said, a happy one, its fruit being four children, only two of whom, however, a son and daughter, survived their

* Of the various portraits that are extant of him that by Sir Joshua Reynolds is by far the best. It represents him as sitting in a chair in deep thought, with a pen in one hand and the other supporting his chin. From this portrait an admirable steel engraving was made by Sharp, a celebrated artist, copies of which were widely disseminated, and still adorn many a surgeon's study. After his death a bust of him was made by Flaxman, in the execution of which he was assisted by a cast taken during life.

father, the others having died young. Hunter had little taste for society or amusement. He had no idle moments. Minutes and hours were alike precious to him. He never was happy unless he had something to do. Men like him have an inner life, of which the outer world has no knowledge or appreciation. Such a life might be called selfish, but selfish only in so far as it is not in sympathy with the world of idlers and triflers, or with men who pass their time in gayety and frivolity. Hunter had nobler objects in view. His mission was to study, to work, and to interpret nature and nature's laws for the benefit of science and of humanity. Had he been a frequenter of the drawing-room, the theatre, the concert, or the opera, he might, it is true, have earned an honorable reputation, but that reputation would have fallen far short of that transcendent fame which he has bequeathed to his profession, to his country, to his age, and to the world, and which has immortalized alike his name and his noble work. And yet Hunter, ascetic as he apparently was, was by no means insusceptible of social enjoyment. When not too intently occupied he took pleasure in the conversation of his friends, loved to talk with his pupils, and often played with his children, taking a lively interest in their studies and amusements. Nay more, he was very fond of animals, and not unfrequently spent hours in watching their pranks, and at times even participating in their sports. Such conduct is certainly not, to say the least, reconcilable with the idea of a bad temper, or a cross, ill-grained disposition. On the contrary, it places Hunter in the very best light of a kind-hearted, if not amiable man; snappish at times, when overworked, but, in the main, thoroughly good-natured. In his boyhood, and even for

some time after he settled in London, he was a merry, rollicking fellow, inclined to mischief and to gross hilarity, especially in the dissecting-room, in the company of the noisy students and the resurrectionists, among whom he always went by the name of "Jack Hunter." One of his favorite amusements was to visit the shilling gallery to assist his boisterous friends in damning an unpopular play, in which he was, it would seem, an expert. He was a great swearer, a practice by no means uncommon in those days even in polite society;* and he was often deficient in courtesy, so characteristic of the well-bred gentleman. To his patients he was kind and liberal, and not a few were warmly attached to him. Whatever his faults may have been as a young man, in after years he became more sedate, and found it more difficult to unbend himself. Hence people who met with him only casually, or who knew nothing of his habits, naturally concluded that he was austere and unsociable. His sly humor, however, never entirely forsook him. He was always, even in his later days, fond of a good joke and of a well-told anecdote, and he himself occasionally indulged his fancy in placing things in so ludicrous a light as to excite merriment. When young he was much given to dancing, and it was while thus enjoying himself one evening that he ruptured his tendo Achillis.

Hunter's familiarity with his animals came very near, on at least two occasions, costing him his life. He loved to be among them, to study their habits, and to attach them, if possible, to his person. He used to

* This habit is perhaps not entirely extinct even at the present day in certain parts of England. We have the authority of Macaulay for saying that Wellington invented the expression, "I don't care one two-penny damn;" a small oath, adds the historian, altogether disproportionate to the Duke's greatness. Life and Letters, by Trevelyan, vol. ii, p. 221.

amuse himself with bees, and for many years he kept a flock of geese in order that he might have a never-failing supply of eggs for experimental purposes. He was very fond of a little bull, a present from the Queen, with which he had long been on the closest terms of intimacy, when suddenly, one day, without any assignable cause, while they were engaged in wrestling, the animal became greatly infuriated, and turning violently upon him would have killed him if he had not been rescued by a servant who happened to be close by. On another occasion, indicative alike of Hunter's courage and of his wonderful presence of mind, his life was placed in imminent jeopardy by two pet leopards, which, escaping from their inclosure, ran about the yard; one, chased by the dogs, and the other about to leap over the fence, when Hunter, attracted by the noise of the neighbors, who were in a state of great consternation, rushed from his study and seizing the animals by the neck restored them safely to their kennel. The excitement, however, was so great that, when it was over, he fell into a partial swoon.

Hunter, at one time, seriously thought of establishing a zoological garden, and with this view endeavored to enlist the services of Dr. Jenner, who, however, was unwilling to join him, and the enterprise was, therefore, reluctantly abandoned, although he had, for a short time, a considerable collection of animals and birds on exhibition at Brompton, near Earl's Court. For many years, as previously stated, he spared neither pains nor expense in procuring all kinds of living animals, birds, and reptiles, with a view, not only of studying their habits, but also for experimental purposes, and for the illustration of comparative anatomy and physiology. Even insects were laid under contribution, and the

study of the honey-bee was for a long time an object of special interest with him. The numerous specimens which were here accumulated, including specimens in mineralogy, conchology, and even in palæontology, now grace the museum known by his name, while of many of them an account is to be found either in his collected writings or in the Philosophical Transactions. The labors at Earl's Court were not of a flickering or paroxysmal character, but were continued with hardly any intermission through his whole professional career, the daily sustenance and stimulus of his existence. They always formed the early exercises of the day, generally from six to ten o'clock, when he was obliged to abandon them in order that he might earn that "d——d guinea," as he was wont to call it, which stood so much in the way of his tastes and his happiness, and yet was so necessary for the supply of his daily wants. Mere routine practice had no charms for him, and one may well imagine with what reluctance he exchanged the genial labors of the morning for the dry details of a surgical consultation, when his heart was left in his workshop.

The kind of life led by Hunter was not calculated to make him a popular practitioner. His manners, as stated in a former part of this memoir, were blunt, and he was sometimes overbearing, even to men of his own rank in the profession, or his equals in social position. His colleagues at St. George's Hospital especially disliked him, and the feelings of animosity engendered by his disagreeable conduct occasionally broke out into open hostility. It is not wise when a man has an exalted opinion of himself to show it at every opportunity, or to express his contempt for others who may be his equals or his superiors. Hunter was

deficient in tact; he despised policy, and seldom took pains to conceal his feelings. His life would have been far happier, if not also more useful, if he had been more conciliatory in his conduct towards those with whom he was brought into contact in the sick-room, as well as in the daily walks of life. His practice for many years was large and lucrative, and greatly increased in both these respects after he was appointed court surgeon. All accounts go to show that he was most patient and painstaking in the investigation of his cases, and most cautious in the expression of his opinions. If he found himself at a loss in determining the diagnosis, he did not hesitate to acknowledge it and to ask for further time. He would merely say: "I cannot tell, at present, what to recommend; I must think of it." With him, as with every honest and conscientious man, every case was a study, not to be lightly passed over, or treated with heartless indifference. He was always particularly condescending to his poorer patients during consultation hours at his own house. No matter how many "grandees," as he called them, might be present, he generally gave precedence to the former, saying they had no time to spare, whereas the others, having nothing to do, could afford to wait. He would sometimes deduct largely from a stipulated fee for an operation if he found that the person had unusual difficulty in raising the money. On one occasion on which the sum agreed upon was twenty guineas, he sent back nineteen, having incidentally learned that the husband of the patient was a very poor but worthy man. Surely such conduct implies the existence of a kind, unselfish heart, and such a heart Hunter naturally possessed, however rough his exterior might, at times, have seemed to be.

Notwithstanding his profound knowledge of anatomy, Hunter never ranked high as an operator. Pott and Bromfield, not to mention others of his London contemporaries, were his acknowledged superiors in this respect, and fully his equal in practical surgery.* He was a surgical pathologist rather than an operator; a lover of principles, and a hater of knives. It is said of him that he never invented an instrument, as it was of Cullen that he never introduced a new remedy. The fact is, Hunter had no very exalted opinion of operative surgery. An operation, he remarks, is a reflection on the healing art, a tacit acknowledgment of the insufficiency of surgery. How unjust such a view is every tyro in the profession knows. If a surgeon could, in every case of injury or disease, have charge of the patient before the part and system are overpowered by morbid action, such an opinion might be entitled to some respect; but when it is considered that the reverse is so often the case; that inflammation and its consequences often commit great havoc before the case falls into the hands of the surgeon; that not unfrequently, despite the most consummate skill and the most assiduous care and attention nothing but an operation can save life, such reasoning cannot be too pointedly condemned. Besides, who will dare to accuse surgery of insufficiency, or to speak of it as a disgrace, in the treatment of tumors, stone in the bladder, the excision of joints, fractures of the skull, and such

* It was natural for Home, his brother-in-law, to speak of his operative skill in terms of unqualified praise; but we have the testimony of Sir Astley Cooper, one of his most illustrious pupils, and himself no common operator, for stating that Hunter possessed little or no dexterity; certainly not the least elegance. His anatomical knowledge, however, was very accurate, and this, added to his coolness and self-possession, generally enabled him to complete, although slowly, any operation he might undertake.

malformations as clubfoot, harelip, and cleft palate? Operations are a disgrace only when they are performed unskilfully, or without any just cause.

Whether Hunter was ever extensively engaged in operative surgery does not seem to be known. Largely as he was occupied, for many years, in private and hospital practice, frequent opportunities must have occurred for the employment of the knife, but whether he performed this duty himself or confided it to others I have no means of determining. Home refers to two successful operations which he performed for the removal of two huge tumors, one on the head and the other on the neck. The latter was so large, and involved such important structures, that one of the best surgeons in England declared no one but a fool or madman would attempt its excision. There is no record going to show that he ever cut anybody for stone in the bladder. Hunter was one of the first surgeons who taught that the only way of preventing hydrophobia was to excise the wounded structures. The only very remarkable operation with which his name is associated is the one in which he tied the femoral artery for the cure of a popliteal aneurism, a feat which had never been achieved before, and as the procedure involved a new principle it has ever since been designated by his name. The subject of aneurism had long occupied his thoughtful study, and he was painfully aware of the insufficiency of the various methods of treatment in use up to the time when he entered upon the active duties of his professional life. Having ascertained from numerous dissections that the artery in the immediate vicinity of the disease is usually in an unsound condition, he came to the conclusion, after much reasoning and reflection, that the only rational plan was to tie the vessel in a

healthy portion of its extent, at the cardiac side of the tumor, and consequently at some distance from it. The first case in which this theory was put into operation was one of popliteal aneurism in a coachman, forty-five years of age, a patient in St. George's Hospital. The operation, a memorable one in the history of surgery, was performed in December, 1785, and was followed by a complete cure, notwithstanding that four ligatures were applied instead of one, as is now and as has long since been the custom. Hunter's excuse for this bungling, unscientific piece of surgery was his fear of secondary hemorrhage, not apparently knowing that such an amount of exposure of the artery as the application of four ligatures necessitated would add greatly to the liability of its occurrence and the danger of a fatal issue.

I shall not stop here to inquire into the claims of Hunter to the honor of being the first to perform this operation upon correct scientific principles. These claims have long been generally, if not universally admitted by surgeons, excepting the French, who have invariably ascribed the merit of it to their countryman, Anel. No impartial historian, however, can fail to award it to the Englishman. The case of Anel was a traumatic aneurism of the brachial artery at the bend of the arm caused by the prick of the lancet in venesection. The ligature was applied close to the tumor, and the artery was perfectly sound. Hunter's case was one of spontaneous aneurism dependent upon a diseased condition of the vessel, which was secured in a healthy portion of its extent at a considerable distance from the tumor. In the one case an important principle, the result of deep study and long-continued reflection, was involved; in the other, none. Hunter's

deep concern was that after the ligation of so large an artery the collateral vessels might not be sufficient to carry on the circulation in the distal portion of the limb. He had derived some encouragement from an examination of the velvet of the stag's horn, in which there is an enormous development of vessels, establishing an intimate connection between the antler and the integument of the head; but to put this matter fully to the test, he induced Sir Everard Home to tie the femoral artery of a dog, and the result was precisely what he had anticipated. He concluded, moreover, from a careful study of the functions of the lymphatic vessels, that the blood in the aneurism would be gradually absorbed, and here, again, his reasoning did not disappoint him.

It is a singular fact that Hunter foreshadowed the principles which now guide the surgeon in the treatment of clubfoot and analogous distortions. While dancing in 1767 he ruptured his tendo Achillis, a circumstance which led him to institute a series of experiments upon the reunion of divided tendons in the dog, by severing these cords subcutaneously with a couching-needle. The animals were killed at different periods, when it was ascertained that the union had been effected in a manner similar to that of a simple fracture. His own tendo Achillis, as was found after death, had united by ossific matter. It nowhere appears that Hunter made any practical use of the knowledge thus acquired, and he cannot, therefore, as some of his admirers have asserted, be considered as the founder of orthopedic surgery, inasmuch as he made no practical application of the results of his experiments, but viewed them simply in their physiological and pathological relations. It remained for

Stromeyer, nearly half a century later, to place the subject in its true light, without, in all probability, any aid from Hunter's experiments, or any knowledge that his attention had ever been directed to the subject.

Upon no surer foundation, I am inclined to think, rests the assertion of his distinguished pupil, Professor James Macartney, of Dublin, that he was aware of the fact, so strenuously insisted upon by the Irish surgeon and his followers, that wounds, under favorable circumstances, might heal without inflammation. The only passages in Hunter's works which at all countenance this view are the following: "The healing proceeds, without pain or constitutional disturbance, as if nothing had happened;" and in another place he says: "There is only a feeling of tenderness in the part, and that is entirely from the injury done, and not from the operation of union." "In treating of the same subject," remarks Macartney,* "he further says that inflammation comes on as a necessary consequence of parts being too weak to unite by the first intention, or not having the power or disposition to heal." How such expressions could be tortured into the idea that Hunter supposed that wounds heal without inflammation it would be difficult to determine. Had he entertained such a belief he certainly would not have withheld a knowledge of it from the profession, or failed to give utterance to it in his lectures and writings. It might as well be assumed that Hippocrates had been the discoverer of auscultation, because the idea had occurred to him that diseases might be detected by the sounds emitted by the affected struc-

* Treatise on Inflammation, p. 10. Philadelphia, 1840.

tures. Robert Hooke, the mathematician, and other philosophers, entertained similar views,—views which were not realized until the early part of the present century, when Laennec first applied them in practice. Hunter hit the truth, but failed to perceive its import; and had it not been for his pupil the fact might still be slumbering in the womb of time.

Hunter's doctrines were not well received by his immediate English contemporaries. They could see in them nothing of any particular value, and concluded that nothing good could come out of Nazareth. Many regarded his teachings with contempt, as the offspring of a conceited man, and as nothing better than what they could find in their own libraries. It is not known whether, like Harvey, he suffered in his practice from this cause. No wonder that he was occasionally disheartened. "The few good things I have been able to do," he was heard to say, "have been accomplished with the greatest difficulty, and encountered the greatest opposition."

It is a remarkable fact that, while Hunter was treated with cold indifference, if not positive contempt, by members of his own profession, he received numerous testimonials of esteem and appreciation from learned societies at home and abroad, as well as of friendly recognition from his own sovereign. In 1767 he was made a Fellow of the Royal Society of London; in 1776 Surgeon Extraordinary to George III; in 1783 a member of the Royal Society of Medicine and of the Royal Society of Surgery of Paris; in 1786 Deputy Surgeon-General of the army; and in 1789, four years before his death, Surgeon-General and Inspector. The Copley medal of the Royal Society, the highest distinction in its gift, was conferred upon him in 1786, in recogni-

tion of the value of his services as an original investigator. The American Philosophical Society, the Royal College of Surgeons of Ireland, the Chirurgo-Physical Society of Edinburgh, and the Royal Society of Sciences and Belles-Lettres of Gottenburg enrolled him among their members.

Hunter, after his election to the Royal Society, attended its meetings with great regularity, and enriched its Transactions with many of his most celebrated papers. How he ranked as a debater, no information has reached us; but it may easily be conjectured that a man who was notoriously dull as a lecturer in the presence of a class of young and comparatively ignorant students, would not be a very brilliant speaker in a society composed of many of the most distinguished philosophers, scientists, travellers, explorers, and men of letters in Great Britain. We may imagine that he would often be at fault for a word, that his grammar would be none of the best, and that his sentences were not always rounded off in the most elegant or classical style. That he was fond of disputation, both as a salutary mental exercise and as a means of instruction, appears sufficiently evident, for we find that soon after his election to membership of the Royal Society he induced a number of his friends and associates to join him in forming a club, which always met at some coffee-house immediately after the adjournment of the meeting of the Society for the purpose of discussing more fully any philosophical or scientific subjects that might at the time be engrossing their attention. Papers intended for the Philosophical Transactions were also fully criticised here before they were published. How long these reunions lasted is not now remembered. Among the more prominent

members, besides Hunter, were Sir Joseph Banks, Dr. George Fordyce, Dr. Solander, Mr. Ramsden, an eminent surgeon, Sir Charles Blagden, and Mr. Cumming, a distinguished mechanician.

Along with his friend Dr. George Fordyce, Hunter founded the London Medical Lyceum, a society which enjoyed for some time considerable reputation on account of the high standing of some of its members; and in 1783 he assisted in establishing a "Society for the Improvement of Medical and Chirurgical Knowledge," whose Transactions, although they cover only three volumes, were rendered famous by Jenner's earlier papers on vaccination, and by the valuable contributions of Hunter, Fordyce, Baillie, Home, Abernethy, and others. The society lasted about twenty years, when, after the lapse of some time, it was succeeded by the Medico-Chirurgical Society of London, one of the most useful institutions of the kind in the world.

I may here state as a fact highly creditable to Hunter's ardor in the pursuit of valuable information, as well as an evidence of his warm sympathy for all sentient beings, that he took a deep interest in the study of the diseases and injuries of the lower animals, feeling convinced that the information thus derived might be made of great benefit in extending our knowledge of human physiology and pathology; and when, in 1792, an effort was made to establish a veterinary college, he eagerly seized the opportunity of becoming one of its founders. To show how thoroughly he appreciated the importance of the enterprise, he deposited £200 in its behalf, without any assurance of its ever being returned. When the organization was completed the Duke of

Northumberland, who was a still larger contributor, was elected President, and Hunter Vice-President. I am not certain whether the present London Veterinary College, rendered famous by the labors of Coleman, Youatt, and other distinguished men, is the same institution or one of its offshoots.

Hunter had been engaged almost ever since his return from the army in teaching anatomy and surgery at his own residence; but in 1773 he determined to become a public lecturer, assigning as a reason for the step that his doctrines were often misunderstood or wilfully misrepresented, and that, therefore, it was due to himself to place them in their true light before the profession. The lectures were delivered gratuitously during the first two winters at St. George's Hospital, but after that period he charged the same fee as other teachers, and they were thenceforth given in a room in Leicester Square, hired expressly for the purpose at his own expense. They were repeated annually until 1792, when his arduous labors compelled him to resign them in favor of Sir Everard Home, who had long been his private as well as hospital assistant.

As a lecturer Hunter was not popular or particularly instructive. His manner was dull and prosy, and he seldom raised his eyes from his note-book; his statements were often contradictory, and occasionally he lost the train of his thoughts or wandered from his subject. His language, rarely elegant, was at times coarse and even vulgar. Lecturing was a formidable task for him, and he sometimes felt so uncomfortable as to be compelled to take laudanum to compose his nerves. His classes never exceeded fifty, even in his best days, and not one-half of that number, says Ottley, derived

much benefit from his teaching.* One of his great faults was that he was not sufficiently practical; he paid little attention to operations, but confined himself to the discussion of principles, and as many of these were new, or not fully established, his instruction often failed to make much impression. His course, even as early as 1774, embraced nearly ninety lectures. His pupils, however, generally became warmly attached to him, for in his intercourse with them he was always kind and thoughtful, and omitted no occasion to aid and encourage them in their studies and in their preparation for the active duties of life. Many of them, as, for instance, Abernethy, Macartney, Cooper, Thomson, and Physick, became, in time, the leading spirits of their profession, propagating and extending his doctrines, and reflecting immortal credit upon him as their preceptor and master. His great aim was to make them act and think for themselves, and to investigate, experimentally, whatever seemed to them to be obscure

* According to Abernethy, "the more humorous and lively part of the audience would be tittering, the more sober and unexcitable dozing into a nap, while the studious and penetrating appeared to be seriously impressed with the value of Mr. Hunter's observations and inquiries." Macilwain's Life of Abernethy, p. 153. New York, 1853.

As an offset to this statement, I may remark that one of his pupils, Mr. Cline, who afterwards rose to eminence, after having attentively listened to Hunter's lecture one day was heard to say: "Ah! Mr. Clift, we must all go to school again." Could a higher compliment than this be paid to a teacher? Hunter, no doubt, occasionally, perhaps frequently, shot over the heads of his pupils.

In his Hunterian Oration, delivered in 1824, Cline thus further expresses himself respecting Hunter's teaching: "I had the happiness of hearing the first course of lectures which John Hunter delivered. I had been at that time for some years in the profession, and was tolerably well acquainted with the opinions held by the surgeons most distinguished for their talents, then residing in the metropolis; but having heard Mr. Hunter's lectures on the subject of disease, I found them so far superior to everything I had conceived or heard before, that there seemed no comparison between the great mind of the man who delivered them and all the individuals, whether ancient or modern, who had gone before him." Life of Sir Astley Cooper, by B. B. Cooper, vol. i, p. 94. London: 1843.

or doubtful. He would tell them to try, to be patient, to be accurate, to be thorough, having, in doing this, no doubt, his own example in view.

Hunter was a scrupulous observer of punctuality, and he enjoined this precept with peculiar force upon his pupils. He never, if possible, failed to meet a professional engagement, and occasionally became very angry if the attendant was not on time, or if an appointment was made for him without his having been previously consulted. His biographers tell us, what indeed one might have anticipated, that he carried these regulations into his domestic arrangements. His dinner hour was 4 o'clock, then the custom in London, and that no time might be lost the meal was always served at that hour, whether he was present or absent. He dined very heartily, but seldom drank more than one glass of wine. His habit was to sleep for an hour after dinner, after which he dictated to an amanuensis, prepared his notes for the next day's lecture, and retired for the night about 12 o'clock, a very little sleep, usually about five hours, sufficing to set his machinery in order for the coming work.

In 1781 Hunter appeared in court as a witness in the celebrated trial of Captain Donellan for the supposed murder of his brother-in-law, Sir Theodosius Boughton. He was subpœnaed as an expert, but his testimony was so disjointed and contradictory as to render it impossible to deduce from it any rational conclusions. He had either not made himself acquainted with the nature of the case, or he wilfully determined not to commit himself. The judge lost his temper, and in his charge to the jury indulged in sarcastic remarks respecting Hunter's conduct, tending to deprive his testimony of any weight it might otherwise have had.

"For the prisoner," he said, "you have had one gentleman called, who is likewise of the Faculty, and a very able man. I can hardly say what his opinion is, for he does not seem to have formed any opinion at all of the matter." Surely this may not have been the fault of Hunter; no sensible man will commit himself in any thing if he have not the proper light to guide him, as would seem to have been the case here.

Although he never took any active part in politics, he had very decided views upon the subject, with strong feelings towards the Tory side, and he used to say that he "wished all rascals who were dissatisfied with their country would be good enough to leave it." He had an unconquerable aversion to innovations, cordially hated democrats, and must have been bitterly opposed to our war. In writing to a friend about his museum, he tells him to send any one he pleases except a democrat, for "I would rather," he adds, "see it in a blaze, like the Bastile, than show it to a democrate, let his country be what it may."

Great as Hunter was, and disgusted as he was with the pretensions of some of his contemporaries, who spared no means to undervalue and disparage his labors, he was, really, from all accounts, an humble-minded man. He was generally, if not always, distrustful of the accuracy of his own labors, and he seldom allowed anything to pass muster that had not been subjected again and again to the test of experiment, or to the scrutiny of repeated observation and careful analysis. He was not blind to his own imperfections. His constant saying was: "We are but beginning to learn our profession." He committed errors, but they were errors of reasoning, not of observation, a faculty which few men ever possessed in so high a degree. Of system he

knew nothing, or at most very little, and in the arrangement of the diversified objects of his museum, he freely availed himself of the suggestions of his friends and of the services of trained assistants.

He never, so far as I can learn, wrote a syllable in answer to any of the aspersions of his envious and puny detractors. For such occupation he had neither leisure nor inclination; besides, he was too well aware of the truth of the famous maxim that no man was ever written down, except by himself.

Hunter, notwithstanding his apparently unrefined nature, and the fact that he was always deeply absorbed in his studies and contemplations, was a man of æsthetic tastes. He was, as previously stated, fond of animals, enjoyed a beautiful landscape, and loved to look at fine pictures, of which he had a choice collection, chiefly by the old masters, which, after his death, were sold at auction for £800. He had also a large number of engravings, including many of Hogarth's. His books, many of which were annoted in the margins, brought only £160.*

Of his religious views, if any he had, no information has been transmitted to us, and the subject is of almost too sacred a character to admit of speculation or conjecture. Engaged, as he incessantly was, for upwards of forty years as an interpreter of the laws of organic life, he must have seen God daily and hourly in all His glory, majesty, power, and goodness, as the Creator and Author of all things in the heavens, in the air, on the earth, and in the waters. Free-thinker he might have been, and probably was, but he could not have

* Sir James Paget's Hunterian Oration for 1877, p. 39.

been an Atheist, or denied the existence of creative power and wisdom.

Notwithstanding that Hunter enjoyed for many years a large and lucrative practice, as the most renowned surgeon of the English metropolis, it is not surprising, when we consider the vast sums of money which he lavished upon the purchase of objects of natural history and pathological specimens for enriching his museum, that he should have died poor.* It may safely be asserted that he was the only man who ever paid £500 for a human skeleton, and this is only one example of his extravagance. Apart from his museum, to the construction of which he devoted so many of the best years of his useful life, he left little at his death but debts.† To liquidate these absorbed almost the whole of his estate, real and personal. The result was that Mrs. Hunter and her two surviving children were left in such straitened circumstances as to require for several years aid from the king's bounty, kindly procured by disinterested friends. The executors, in compliance with the provisions in the will, offered the museum, in which lay the only hope of their future support, to the Government, which finally, in 1799, six years after Hunter's death, by a vote of Parliament purchased it for the sum of £15,000, hardly one-fifth of its original cost.† By the Government the museum was soon

* "In the first eleven years of his practice, from 1763 to 1774, his income never amounted to a thousand pounds a year; in the year 1778 it exceeded that sum; for several years before his death it had increased to five, and at that period was above six thousand pounds." Life by Home.

† Hunter directed in his will that, in the event of refusal by the British Government to purchase his museum, it should be offered to any foreign government, and this effort also failing, it should be sold entire. In 1806 a grant was voted to the College for £15,000 for the erection of a building for the care of the museum, and for a theatre for the delivery of public lectures on anatomy and surgery. A further sum of £12,500 was voted for the same object in 1810.

after transferred to the Corporation of Surgeons, who the following year, under a new charter obtained from the Crown, assumed the name and title of the Royal College of Surgeons. The funds of the Corporation, when this trust was accepted, were in a very low condition, and they would have been compelled to reject it if their new charter had not given them permission, by placing the whole subject of the surgical education of the country into their hands, to examine students for the diploma for membership, which yields annually a large revenue for the increase and support of the museum and of the College.

One of the difficulties experienced in disposing of the museum arose from the fact that, at the time of Hunter's death, the attention of the British Government was completely absorbed by the events of the French Revolution. When Mr. Pitt, the Prime Minister, was consulted respecting it, he exclaimed: "What! Buy preparations! Why, I have not money enough to purchase gunpowder." Through the influence, however, of Lord Auckland and other prominent friends of the family, Parliament was at length induced to take it at the paltry sum above mentioned, a number of distinguished medical and scientific gentlemen having been previously examined in reference to its value and importance in a national point of view.

A grant so important was not, as might be supposed, made without certain stipulations. Among these was one that the collection should be preserved at the expense of the College, that the College should at an early day furnish a catalogue, and that the museum should be thrown open, not only to the medical profession, but on two days of the week to the public. In 1806, the Council of the College instituted two annual

courses of fifteen lectures each on anatomy and surgery, which are delivered by Fellows of the College specially selected for the purpose. In 1813, chiefly through the influence of Dr. Matthew Baillie and Sir Everard Home, provision was made for the delivery of an annual oration commemorative of Hunter's birthday, a trust which has been sacredly observed ever since. It was the expressed wish of the founders of this oration, that, while one of its objects should be to honor the memory of Hunter by reciting his merits as a man of genius, a discoverer, and an original investigator, it should be rendered especially contributory to the advancement and glory of surgery, by showing what surgery really is, what underlies its study, and how it may be best cultivated to subserve the interests of humanity and of science. In glancing at the long list of Fellows of the College who have been intrusted with this honorable office from its establishment in 1814 to the present time, not a solitary name appears that is not creditably associated with the progress of surgery, while not a few of them occupied the highest position attainable in our profession. In 1877 and in 1879 this duty was discharged, respectively, by Sir James Paget and Professor George Murray Humphry, than whom Hunter has had no more worthy successors, or English surgery more able thinkers or more active workers.

With only three exceptions, there has been no break in the delivery of the oration since it went into operation; but in 1850 the Council of the College passed a resolution that the oration thenceforth should be delivered only every second year, it being regarded as "a hopeless task to seek for something new every year on so limited a subject."

By constant additions the Hunterian Museum now

forms the most enormous collection of anatomical, surgical, and zoological preparations in the world. The only approach to it is the Dupuytren Museum at Paris, which, however, is chiefly a collection of pathological specimens. The collection of Hunter at the time of his decease embraced nearly 14,000 preparations, wet and dry, besides numerous shells and fossils. Every specimen was accompanied, when practicable, by a brief account of the case from which it was obtained, if it was a morbid one; or by an opinion of the animal, bird, reptile, or insect, if it was new to him.* The museum as at present constituted is especially rich in specimens of ethnology and comparative anatomy. One is also struck in passing through this vast Golgotha with the immense number of human urinary and biliary calculi, as well as intestinal concretions, and calculi from the inferior animals. Only recently the museum was enriched by a series of the most beautiful and valuable dissections, in the form of wet preparations, arranged in bottles, of the muscles, bloodvessels, and nerves of the human body, the work of a trained museum hand, not a medical man, begun by Dr. James Bell Pettigrew, and carried on under the supervision of Professor Flower, the present very intelligent, popular, and distinguished curator. Nothing of the kind could be more complete, elegant, or instructive. Large as is the edifice in which the museum is contained, it will soon be too small for the purpose for which it was erected. It is highly creditable to the surgical profession of England that every member of it takes a deep personal interest in the subject, and closely identifies himself with its prosperity. No

* Henry Cline, Hunterian Oration for 1816. Adams's Life, p. 262.

labor or expense is spared to extend its growth and to promote its usefulness. Annexed to this enormous collection of objects of anatomy, surgery, and natural history, is the library of the Royal College of Surgeons, now numbering nearly 38,000 volumes, or nearly 15,000 separate works, embracing copies of all the works of the fathers of the profession, and 39,000 tracts, pamphlets, essays, reports, and theses. Hunter himself had no library in the true sense of the term. He read little, and had no great respect for other men's writings or opinions. Nevertheless, he was always scrupulously honest in awarding in his writings and published papers to every man his due; in other words, he never claimed or appropriated what was not his own. His pupils had often to tell him that such and such a discovery had been made before. His favorite volume was the book of nature, which he kept constantly spread out before him, studying it, not by fits and starts, but steadily and continuously, day by day and night by night, for upwards of forty years of his busy and, as it finally proved to be, eventful life.

The executors of Hunter were Dr. Matthew Baillie* and Sir Everard Home, the one his nephew on his sister's side, and the other his brother-in-law. To the latter alone, however, was confided the care of his MSS.,

* Dr. Baillie was the most popular and distinguished physician of his day in England. He was a pupil of his uncle, Dr. William Hunter, a brother of Joanna Baillie, the authoress, and the last medical man in London who carried the celebrated gold-headed cane, now in the possession of the Royal College of Physicians. In 1793 he published his celebrated work on Morbid Anatomy, for a long time the only treatise on the subject in the English language. It is he of whom the celebrated anecdote is told about the oysters. Having listened one evening until he was thoroughly disgusted to the prosy account of a lady who imagined herself ill he told her he was going to the opera, and taking his leave had nearly reached the front door when she screamed from the head of the stairs to know whether she might eat some oysters. "Yes, ma'am, shells and all."

covering not fewer than twenty folio volumes, with the express injunction that he should prepare a catalogue of the museum, without which it would be comparatively valueless. These precious papers were sent to Home in 1800 by Mr. Clift, the conservator of the museum, and for a short time one of Hunter's most valued assistants. Instead of carrying out the wishes of the testator, Home, it is asserted, appropriated his MSS. to his own use, and, in 1823, threw them into the chimney of his study, the flame thus kindled being, according to his own confession, so great and alarming as to call out the fire-engines! The papers embraced not only what Hunter had written on comparative and pathological anatomy, but also his lectures on surgery; everything, in fact, but the museum itself.* During the twenty-three years that Home retained these MSS. he contributed a greater number of papers to the Royal Society than any other Fellow of that distinguished body, besides publishing an elaborate work on comparative anatomy, most if not all of which had, it is alleged, been purloined, at least substantially, from Hunter's portly volumes. It is hard to believe that such a theft could have been perpetrated by any rational being, and yet such would seem to have been the fact. Possibly, however, its atrocity may, after all, not have been so great as it is generally believed to have been. Sir James Paget in his admirable Hunterian oration for 1877, expresses the belief that, through the care and fidelity of Mr. Clift, the MSS. had been, in

* In burning these MSS. Home asserted that he had simply acted in accordance with his brother-in-law's injunctions. I cannot, however, find any reference to this subject in Hunter's will, and as he died very suddenly and unexpectedly it is not very probable that any such instruction was ever delivered.

great degree, utilized to Hunter's advantage before they were committed to the flame.*

Among the manuscripts were nine folio volumes of dissections of animals, one volume on the natural history of vegetables, and numerous fasciculi on comparative and pathological anatomy. "The great masses of these writings were elaborate descriptions by Hunter himself of his dissections, investigations, and discoveries, and referred almost exclusively to the numerous preparations in his museum, which were unintelligible, and, in many instances, useless without them."†

Of Hunter's vast labors as an original investigator I shall not attempt to speak in detail; for to do this would carry me far beyond the limits to which I am compelled to restrict myself. A brief allusion to a few must suffice. We find that the first ten years of his professional life were devoted to the study of human anatomy, of which, as might readily be supposed, he made himself a thorough master, and added certain facts to the stock of knowledge previously unknown. Subsequently he devoted a large share of the time which he was able to snatch from his practice to researches in comparative anatomy, physiology, and surgery, and to the extension, classification, and arrangement of his museum. The composition of his various treatises and the papers which he contributed to the Philosophical Transactions also

* Mr. Clift was the first curator of the museum, and served in that capacity upwards of forty years. In speaking of Hunter's papers Paget remarks: "All that was most important in the manuscripts is now published, the greater part by Mr. Owen in the Essays and Observations and in his Physiological Catalogue of the College Museum. Whatever related in any way to the Hunterian specimens of morbid anatomy is printed in my Pathological Catalogue. The notes of the lectures are lost, and so also are some observations on surgery; but, on the whole," adds Paget, "I think that nearly all that was of great value was saved through Clift's fidelity."

† Chapman's Medical Institutions of the United Kingdom, p. 104, 1870.

consumed not a little portion of his time. He was the first to make known the existence of lymphatic vessels in birds, and of the communication of the air-cells of the wing-bones of birds with the air-cells of the lungs; to describe the organ of hearing in fishes; to trace the connection of the arteries in the gravid uterus with the placenta; to explain the nature of inflammation of the veins; to point out, on anatomical and physiological principles, the vast chains of sympathy existing between the different organs and structures of the body, and to perform an elaborate series of experiments upon the temperature of different animals, birds, reptiles, insects, trees, and vegetables, upon the blood, and upon man in health and disease. He was the first to interpret correctly the erosion of the stomach by the action of the gastric juice after death, an effect previously erroneously attributed to pathological conditions.

He was the author of the once famous doctrine, long current among medical men, that two diseases, or two morbid processes of dissimilar nature, in the same organ or in the same part, cannot go on at the same time. That this theory is true to a very considerable extent is unquestionable, although it is of much more limited application than Hunter had imagined. Thus, for instance, to go no further, scarlatina and typhoid fever, phthisis and cancer of the lungs, gout and dysentery are seldom found in association, and then generally only as accidental occurrences, and not as the result of any special laws. This doctrine has a much wider range and a more practical significance in surgery than in medicine, inasmuch as it lies at the root of the treatment by counter-irritation, often so useful in chronic diseases of the joints and of other parts of the body.

Hunter's ideas of the formation of monsters, a sub-

ject which at one time engaged much of his attention, were far in advance of those of his age, and strikingly in harmony with the peculiarities of his reasoning powers and his methods of study. Prior to his investigations, no attempts had been made to explain the formation of this class of beings upon physiological, philosophical, or scientific principles. Most writers regarded them as the offspring of chance, as freaks of nature, as proofs of the divine wrath or as effects of disease of fetal life. Even the theories of Huber and Malacarne, propounded so late as the middle of the last century, were more or less tinctured with the superstition of the times. Hunter, from a careful survey of the subject, founded upon the dissection of different classes of animals, concluded that these beings are simply so many deviations from the established order of nature, dependent upon an arrest of development in one case, and upon an excess of development in another; and that the cause in all exists in the primordial cell, in perverted nutrition, or in a disturbance of the ordinary laws of formative action, a fact now universally admitted by teratologists. In framing this theory he did not confine himself to the investigation of animal matter, but derived important illustrations from the study of vegetable life, and even of crystals. Indeed, he seldom, in the investigation of any subject that concerned the phenomena of life, whether in health or in disease, limited himself to the animal kingdom. His capacious mind took a higher view of things, and embraced every variety and form of organic structure. In his principles of surgery he attempts, in several places, to establish a connection between animal and vegetable pathology. He refers more especially to the changes induced in the oak-leaf, and endeavors to deduce from these changes

illustrations in support of his theory of inflammation. Again, in his experiments on heat, he requests Jenner to ascertain the temperature of trees and plants; and in speaking of sympathy, he remarks that "the most simple sympathy is perhaps to be found in vegetables, these being much more simple than the most simple animal."

Vegetable pathology had made too little progress, if indeed it had any existence, in Hunter's day to enable him to grapple with a subject of such vast proportions. It is, in fact, only recently that the subject began to attract the attention of scientists, and it was, therefore, not without the deepest interest that I listened along with many other medical men, for upwards of an hour, to the admirable and masterly address of Sir James Paget, on "Elemental Pathology," delivered in the Pathological Section of the British Medical Association, at the annual meeting, in Cambridge, August, 1880. In this address are adduced numerous examples of changes induced in trees and plants by injury and disease, and of the close resemblance which these changes bear to many of those that are witnessed under similar circumstances in man and other animals.

Color blindness attracted his attention, and he induced Jenner to investigate the matter experimentally. He was the first to describe accurately the gubernaculum of the testis. In a word, it is difficult to say what he did not do or discover. His treatise on the blood and on the vascular system is a masterly production, composed solely from the standpoint of personal observation and experiment; and what is true of this production is equally true of his surgical writings. Every page bears the impress of original work, of patient research, of carefully conducted experiment, and of inductive rea-

soning. His aims, as an author, were of the loftiest character; he took nothing for granted, nothing on credit, but subjected everything before he made it his own to the closest scrutiny and to the most searching analysis. He was too proud to borrow knowledge from others; too independent to rely upon their labors. Second-hand knowledge he despised; hence we seldom find any reference in his published works to the writings of his contemporaries or predecessors. Everything that emanated from his pen was stamped with the seal of originality. One is surprised in contemplating his character to find how a man who was so incessantly occupied with the duties of a large and laborious practice, and who had, in so many various ways, so many calls upon his time, could have performed such prodigies of labor; labor requiring such an enormous pressure upon his mental and physical powers. The mystery, however, is solved when we remember that he rose regularly at 4 o'clock in the morning and seldom retired before 12 o'clock at night. The compliment which Cecil paid to Sir Walter Raleigh was equally deserved by Hunter: "I know he can labor terribly." His mind was incessantly in his work. A regiment of such men would not be long in building a tunnel under the Alps, or erecting a bridge over the Atlantic Ocean.

As stated in a previous part of this memoir, Hunter was at one time deeply interested in the study of animal and vegetable temperature, and, as was his custom in everything he undertook to investigate, he appealed to personal observation, in which he was ably assisted by his faithful friend and pupil, Dr. Jenner. These researches, which were, it would seem, originally suggested by the well-known experiments of Dr. George Fordyce and Sir Charles Blagden, in which they ex-

posed themselves with impunity to heated air at a high temperature, occupied several years, and embraced a great variety of animals, birds, and reptiles, and brought out some very interesting and useful results. He had also studied the habits of hibernating animals, and from these and other considerations was led to believe that animals might be frozen and again brought to life, and he thought the operation might be extended to the human subject; that a person might be frozen, lie in an unconscious condition for an indefinite time, even for a hundred years, and then be resuscitated. He even dreamed that the scheme, if successful, might enable him to make his fortune! How this Rip Van Winkle affair terminated never transpired.

It is not a little surprising, when one reflects upon Hunter's philosophical mind and his keen perceptive and reasoning powers, that he should have entertained such very crude notions respecting the origin of life, insisting that life is not the result simply of organization, but of something superadded to animal and vegetable matter, not unlike electricity. Every sciolist of the present day knows that life is inherent in organic matter, that all growth, animal and vegetable, is inseparable from cell-development,—*omnis cellula e cellula*,—and that life, as such, has no independent existence. That such very odd ideas should have floated through the brain of the founder of scientific surgery is, I repeat it, strange enough, and yet they may perhaps be pardoned when we reflect that he lived in an age when science, properly so-called, had as yet made no satisfactory advances, when, in fact, it was still slumbering in its cradle; but that John Abernethy, one of his most brilliant and intelligent pupils, and one of the most able interpreters of his doctrines, should, a quarter of

a century after the death of Hunter, have indorsed and publicly defended those views, is one of those curious anomalies which are beyond our comprehension, and yet such as every one acquainted with the history of his career knows to have been the fact.*

It was the indorsement of this peculiar notion of life, and of its existence apart from organization, that led to the sad controversy between Abernethy and Lawrence, who strenuously supported the opposite view, now universally admitted by all scientists and philosophers.

Although Hunter was an incessant worker, he derived a vast deal of aid in the construction of his museum from his assistants; indeed, without their help, it would have been a comparatively meagre affair. His pupils and intimate friends also made important contributions. He never hesitated to press into his service any one who might be useful to him, and the surest avenue to his heart was some specimen of anatomy or natural history. Among the young men who were especially valuable to him in this capacity were Mr. William Hewson, Mr. Bell, Mr. Everard Home, and Mr. Clift. Hewson, who became so celebrated as an anatomist, was born at Hexham in Northumberland in 1739, and resided with John Hunter until the latter went into the army, soon after which he became

* "Mr. Hunter," says Mr. Abernethy, "was convinced that life was not the result of organization, and, though many have conjectured life to be something not dependent on structure, Mr. Hunter was the first who deduced the opinion, as a legitimate consequence of legitimate facts, that life actually constructed the very means by which it carried on its various processes, and that it could operate in semi-fluid and even fluid substances. His intelligent mind further perceived that no system of physiology could be perfect that did not equally explain the morbid as well as the healthy actions of life. I may say that he discovered a vital principle in physiology active in producing a correct pathology. Therefore he appears to me as a new character in our profession, and briefly to express his peculiar merit I may call him the first and great physionosologist, or expositor of the nature of disease."—Hunterian Oration for 1819, p. 28.

associated with Dr. William Hunter, whom he occasionally assisted in the delivery of his lectures. In 1770 he set up for himself as an anatomical teacher, and attracted crowds of students. His works on the Blood and on the Lymphatic System established his reputation as an original observer, and have left an enduring impression upon the medical literature of his age and country. His death was caused by a dissection wound in 1774, in the thirty-fifth year of his age. Home, who spent many years in Hunter's service, was on the most familiar terms with him, always attended to his practice when Hunter was obliged to absent himself from town, on account of ill-health or professional calls, and in 1792 succeeded him in his office of lecturer on surgery. Mr. Bell, who was an excellent draughtsman and an accomplished practical anatomist, was domiciled with him for upwards of ten years, during which he made numerous drawings for him, as well as many preparations, which added greatly to the value of his collection. Mr. André, another assistant, spent much of his time with Hunter, and was of great service in arranging his specimens. Clift, "a poor Cornish lad," as he is styled by Sir James Paget, took up his residence with him only about twenty months before his death. During this short time, however, he became warmly attached to him, and after the sad event which severed their connection, he remained true to his interests, and did all he could to preserve his museum and his MSS. He is represented as having been a most amiable gentleman, of very popular manners, and very fond of telling anecdotes about Hunter. Hunter, in his eagerness to obtain specimens from his friends, often played the part of an importunate beggar. This feeling grew with his years, and at length amounted

to a positive passion. Late in life he erected a large and costly building for the accommodation of his immense collection of objects of anatomy and natural history; and that his labors might not be hidden from the public, he threw it open twice a year,—in October, to the medical profession, and in May, to the nobility and to scientific men.

In order to show the high estimate which is placed upon the Hunterian Museum by the British Government, in a national point of view, as a nursery for the study of biology in its widest sense, it is only necessary to state that its Board of Trustees consists of the highest officers of the Crown, including the Prime Minister, and of the President of the Royal Society, the President of the Royal College of Surgeons, and the President of the Royal College of Physicians, together with many distinguished citizens representing the more exalted walks of life. The Royal College of Surgeons, which is the custodian of the Museum, was incorporated by royal charter in 1800, and is governed by a council consisting of twenty-four Fellows, whose president in 1880 was Mr. John Eric, Erichsen, the distinguished surgeon. What is called the Court of Examiners consists of twenty Fellows, whose duty it is to investigate the claims of all such candidates as may from time to time present themselves for admission into the College. Until recently no provision had been made for examinations in medicine, which now, very properly, hold a prominent place. The College, as will thus be perceived, is an immense corporation, of vast influence, binding all the surgeons of England in one great brotherhood, and virtually having charge of the educational interests of the surgical profession, as the Royal College of Physicians has of the medical.

To form anything like a correct idea of the extent of the Hunterian Museum, and of the work that is done by the College of Surgeons for its increase and preservation, it is absolutely necessary to visit it, and to spend not days but weeks, and even months, in the examination of its vast riches. The collection, in its present form, is a vast storehouse of specimens of anatomy, human and comparative, histology, physiology, morbid structure, plants, and fossils, of which nearly fourteen thousand were originally supplied from the Hunterian collection at the time of its purchase by the Government. The specimens are all classified and arranged in the order of their affinities, and are in the most perfect state of preservation, notwithstanding that many of them are upwards of one hundred years old.*

---

* The present condition of the Museum will be rendered apparent by the subjoined account copied from the Calendar of the Royal College of Surgeons for 1880. The original collection was estimated to consist of 13,682 specimens, distributed under the following heads:

Physiological Department, or Normal Structures.

Physiological preparations in spirit,	3745
Osteological preparations,	965
Dry "	617
Zoological "	1968
Fossils:	
Vertebrate,	1215
Invertebrate,	2202
Plants,	292

Pathological Department, or Abnormal Structures.

Preparations in spirit,	1084
Dry preparations (including bones),	625
Calculi and concretions,	536
Monsters and malformations,	218
Microscopic preparations,	215

Of the additions by which the size and value of the Collection have been so materially increased since it came into the possession of the College, very many have been presented by Fellows and Members of the College, and other persons interested in scientific pursuits. Among the largest contributions from this source have been the collection, consisting of 847 specimens, presented in 1811

Catalogues of the Museum were prepared many years ago by Professor Richard Owen and Mr., now Sir James, Paget, the latter having charge of the pathological specimens. The first curator, or, as he is styled in England, conservator, of the Museum was Mr. William Clift, Hunter's last assistant, who held the office from 1800 to 1842, when he was succeeded by Professor Owen, who, in 1856, gave way to Mr. Quekett. The present incumbent is Professor William H. Flower.

Not the least interesting feature of the College is the long list of portraits of distinguished Fellows and of English surgeons of prominence a short time anterior to the establishment of the College, as John Banister, William Cowper, William Cheselden, Percivall Pott, and John Hunter himself. Among the more recent ones are those of William Blizard, Anthony Carlisle, Cæsar Hawkins, George Guthrie, Samuel Cooper, William Lawrence, and William Ferguson. Among the busts which grace the halls of the College may be enumerated those of Abernethy, Everard Home, Cline, Dalrymple, Arnott, Travers, Charles Bell, Liston, Lawrence, Green, and Brodie.

---

by Sir William Blizard, and a valuable series of pathological specimens presented in 1851 by Sir Stephen L. Hammick. At the same time the Council of the College have availed themselves of various opportunities as they have occurred to purchase specimens of interest, especially at the dispersion of private anatomical and pathological museums, as that of Sir A. Lever in 1806, of Mr. Joshua Brookes in 1828, of Mr. Heaviside in 1829, Mr. Langstaff in 1835, Mr. South in the same year, Mr. Howship and Mr. Taunton in 1841, Mr. Liston in 1842, Mr. Walker in 1843, and, deserving of especial mention on account of the great number and value of the specimens acquired, those of Sir Astley Cooper in 1843, and Dr. Barnard Davis in 1880.

The Histological Collection, of which the 215 Hunterian specimens—prepared by Hewson—constitute the nucleus, was chiefly formed by the late Professor Quekett, with considerable additions by purchase from Dr. Tweedy J. Todd, Mr. Nasmyth, and Professor Lenhossek. It now contains upwards of 12,000 specimens, all arranged and catalogued so as to be readily available for reference.

When John Hunter entered upon the active duties of his profession very little accuracy had been attained in the study of medicine, or in that of natural history, in any of their branches. Linnæus had published his Systema Naturæ and his classification of plants; Morgagni had issued at Venice his masterly treatise on morbid anatomy, entitled De Sedibus et Causis Morborum; Albert von Haller was busily engaged upon his immortal work on physiology, and Buffon had given to the world the first five or six volumes of his equally immortal work on natural history. Comparative anatomy was in an embryonic condition, and pathology was rocking to and fro in the brains of Gaubius, De Haen, and Van Swieten. Science, properly so termed, that is science in its largest and widest sense, was without a master. Joseph Priestly, in 1774, discovered oxygen, or dephlogisticated air, as he called it, and along with Black, of Edinburgh, and Lavoisier, one of the victims of the French Revolution, laid the foundation of scientific chemistry. Bordeu and Carmichael Smith foreshadowed the advent of general anatomy, which, under the plastic genius of Xavier Bichat, at the close of the century, became a new branch of study, and a powerful element of scientific progress, under the name of histology, by which it is now universally known. The microscope had as yet no scientific significance, or any definite use as an instrument capable of elucidating healthy and morbid structure. Surgery in England at the commencement of Hunter's career, as well as for a long time after, was at the lowest possible ebb, sterile, and, as intimated in a former sentence, strongly scented with the odor of the barber-shop. Of works on medicine there were none worthy of the name, and medicine itself was, if possible, in a

more degraded condition than surgery. England had not one solitary medical college, and in the few private schools which then existed in the metropolis, the teaching was of the poorest and most limited kind. Bromfield, at St. George's Hospital, embraced anatomy and surgery in a course of thirty-six lectures; Nicholls, a man of note in his day, contented himself with a nearly equal number of lectures on anatomy, physiology, pathology, and midwifery; and Nourse, in 1748, at St. Bartholomew's Hospital, taught "totam rem anatomicam," in twenty-three lectures, hardly as many as the modern teacher devotes to the description of the skeleton. The surgical lectures of William Hunter, at his school in Great Windmill Street, could not have been conducted on a large scale. He was a great anatomist but no surgeon. It is difficult for any one at the present day to believe that no distinct or separate professorship of surgery existed in the University of Edinburgh, so renowned as a seat of medical education, until 1831, when the chair that has since existed was created for Mr. Turner. Up to that time surgery was taught by Monro, the third, merely as an appendage to anatomy, in a few hurried lectures, towards the close of the session. The labors and investigations of John Hunter formed the dawn of a new era in surgical science; he touched the corpse with his magic wand, and it sprang, like a young Hercules, to its feet; and what he accomplished for his specialty, William Hunter accomplished for midwifery, and William Cullen for medicine. These three men, all Scotchmen by birth, became the medical luminaries of their day, and the founders, respectively, of scientific surgery, scientific midwifery, and scientific medicine; in a word, the creators of a new epoch in the branches of medicine to

which they respectively devoted their time, their talents, and their genius. Each labored zealously to advance our knowledge and to place his specialty upon a sure, solid, scientific foundation. They fertilized and vitalized everything they touched.

The great aim of Hunter's life was to study and to teach physiology as an experimental science, and as the only true basis of medicine and surgery. In his investigations he not only employed the inductive method, after the example of Hippocrates, Harvey, and Sydenham, but he availed himself of every source of information within the range of his comprehensive mind. Comparative anatomy, natural history, insect and vegetable life, morbid anatomy, all were laid under contribution as means of illustrating the principles of the healing art or of surgical pathology and practice.

Hunter, as might be supposed, was endowed with great reasoning powers, and it may boldly be asserted that there was no man in his day, in any part of the world, who was capable of taking a deeper or a more philosophical view of any subject that engrossed his attention than he. He had an unconquerable love for work, and a passion for original investigation, which outweighed all minor considerations, the fascinations of wealth, the pleasures of society, and the temporary plaudits of his fellow-citizens. To these qualities, so essential to success in any great pursuit, he added remarkable powers of generalizing, an indomitable will, an ardent and unfaltering enthusiasm, and an industry which knew no break or chasm, and which no obstacle could check or abate. Of the 13,682 specimens which adorned his collection at the time of his death, it is safe to say that at least one-fourth were prepared with his own hands. He dissected more than five hun-

dred species of animals, and of more than three hundred of these he left more or less elaborate descriptions. During the first ten years of his life he was incessantly engaged in the study of practical anatomy, spending nights and days in the foul air of the dissecting-room; and in his maturer years, during which he was encumbered with a large private practice and a daily hospital attendance, he never, unless compelled by sickness, relaxed for one hour in his pursuits as an experimenter and an original investigator. His mind, which was eminently many-sided, was constantly in a state of tension and concentration, incessantly busy, always thinking, forever intent upon the acquisition of new knowledge, forever drawing in new inspiration at every fountain within its reach. Such was John Hunter, a man of vast designs, of noble deeds, and of extraordinary genius, one of those rare beings whom an all-wise and beneficent God, at long intervals, sends into the world to astonish and enlighten mankind, and to direct the human intellect into new channels of thought and action. The sparks which were emitted by Hunter's genius kindled a flame which set the medical and scientific world on fire.

It is a remarkable feature in the life of Hunter that he should have possessed such marvellous powers of abstraction and analysis, and yet have been totally unacquainted with mathematics and geometry, a knowledge of which Plato and his school considered so essential to the full growth of the reasoning faculties. Of logic, as an elementary study, he was equally ignorant. It must not, however, be forgotten that Hunter's massive mind was cast in the Scotch mould, and that the Scotch mind is an eminently thinking mind, capable, in its higher developments, not only

of the loftiest flights of fancy, but of the most patient research, of great powers of endurance, and of the most profound ratiocination. Hunter, notwithstanding that all his riper years were passed among Englishmen, whose modes of thinking are, in many respects, so different from those of the Scotch, always retained more or less of his native mental bias, and hence, like his former countrymen, Thomas Reid, Dugald Stewart, and other great thinkers, believed in the doctrine of innate ideas; while in his dealings with ordinary matter, as it came under his notice in nature's workshop, or in his daily contemplations, his philosophy partook more of the inductive than of the deductive method. "I love to think," was one of his common sayings, and he might with equal truth have added, "I love to work." If I were to express my convictions concerning Hunter's mental operations, or the manner in which he performed his mental labors, I should say that he had been a "law unto himself," and that he did things very much after his own fashion, little influenced by the example of other men, either ancient or modern. Certain it is he never substituted hypotheses for facts, or made facts subservient to speculative views. In all his inquiries into the laws of animal and vegetable life, and in all his investigations of healthy and morbid structure, his great aim was the establishment of principles founded upon facts deduced from laborious and carefully conducted observations and experiments.

The lesson of the life of such a man, in every respect so grand and colossal, so powerful and majestic in intellect, and so indissolubly associated with the scientific history of his age and country, is full of instruction, not only to the members of our own profession, but to men in every avenue and pursuit of life.

His example of industry and of steady, persistent effort in the cause of human progress reflects the highest credit upon his character, and is worthy of the imitation of every student ambitious of distinction and usefulness. Nowhere, either in ancient or modern times, can there be found a nobler pattern for the formation of a truly scientific career. Commencing life as an erratic, hesitating youth, undecided what to do, or whither to turn, without any promise or definite aim, a source of constant annoyance to his family and of disappointment to his friends, he became eventually one of the most illustrious men in all Europe, leaving behind him imperishable monuments of patient research, of vast genius, and of wonderful philosophical acumen, destined to grow brighter and more stately as the ages roll on, and as men become more and more appreciative of man's work and of man's intellectual powers.

Nearly one hundred years have elapsed since the death of this remarkable man, this apostle of surgery, this high priest of nature. When the century shall be completed it will be a fitting act on the part of the medical world to place upon his tomb a wreath of immortelles, commemorative of the event and of the high sense of their gratitude for the services which he rendered to our profession and to mankind. Although Hunter is dead, the spirit which animated him will live in all future ages to encourage and to stimulate the student of surgery, of science, and of human progress. His career affords an illustrious example of a man of great intellectual powers triumphing over early defective training, and marching onward, step by step, despite vast obstacles, to the highest pinnacle of human greatness.

When Hunter entered upon the study of his profession, medicine and surgery, although emancipated from many of the absurdities and crude practices with which ignorance, superstition, and prejudice had surrounded them, had not yet attained to the rank of sciences. They were simply arts, consisting of isolated facts, without any philosophical basis, or any attempt whatever at systematic classification. Light, it is true, was beginning to dawn upon the professional mind. Much rubbish had been cleared away, but the horizon was still overhung by heavy clouds, and it required genius of the highest order to place these branches of the healing art upon a just and enduring foundation. Hunter, awakened from his early slumbers, saw the darkness which everywhere existed, and determined to dedicate his life to its removal. Guided by the Baconian philosophy, he perceived at a glance that pathological processes could be correctly interpreted only by a comprehensive knowledge of anatomy and physiology, not merely of man, but of animals, and even of plants. In a word, he appealed to life in all its forms, from the most humble to the most exalted, for illustrations of the various processes carried on in the system in health and disease. No such work, no such generalization, upon so grand or scientific a scale, had ever before been attempted. The outgrowth of these studies, extending over a period of forty years, was the erection of a temple whose corner-stone neither time nor circumstances can move or shake.*

* Of the low state of surgery in England in the time of Hunter some idea may be formed when it is stated that a certain judge proclaimed from the bench his conviction that "a bone-setter was just as skilful and efficient in his business as any surgeon;" that the celebrated Mrs. Mabb used to drive about London in her carriage-and-four to set the dislocated limbs of the nobility and gentry; that the brothers Taylor, two noted charlatans, were the most distinguished oculists in

The most prominent surgeons in England in that day were Cheselden, Nourse, and Douglas. They were the acknowledged leaders in this branch of the profession, and all occupied high positions as operators, especially Cheselden, whose fame as a lithotomist was unrivalled; Douglas was also well known as an able practical surgeon, and all three held hospital appointments. Douglas's tracts on the High Operation for Stone in the Bladder may still be consulted with profit. Cheselden, who studied anatomy under Cowper and surgery under Ferne of St. Thomas's Hospital, was born in 1688, at Somerby, Leicestershire, England, and rapidly rose to eminence. In 1711 he was elected a member of the Royal Society, and in 1713 he published his Anatomy of the Human Body, which passed through eleven editions in London, was reissued in this country, and was translated into different European languages. He succeeded Ferne at St. Thomas's Hospital, was Surgeon to Queen Anne, and Consulting Surgeon to St. George's Hospital and to the Westminster Infirmary, and his name stands first on the list of corresponding members of the Royal Academy of Surgery of Paris. He wrote a treatise on the High Operation for Stone in the Bladder, and, in 1733, published his celebrated work on Osteography, or Anatomy of the Bones. He simplified surgery, was fruitful in resources as a practitioner, and, although endowed with great sensibility and tenderness of feeling, was remarkably cool and self-possessed as an operator.* He performed

England; and that even Hunter himself was occasionally obliged to meet such knaves in consultation, as in the case of Thurlow, Bishop of Durham, and brother of the famous Lord-Chancellor. Ottley's Life, p. 87.

* "If," in speaking of lithotomy, "I have any reputation in this way, I have earned it dearly, for no one ever endured more anxiety and sickness before an

lateral lithotomy, in which he effected great improvements, two hundred and thirteen times, with only twenty fatal results. In 1733, on retiring from active practice, he was appointed Chief Surgeon to Chelsea Hospital, England's great asylum for disabled sailors, a position which he retained until his death, which occurred in 1752, in the sixty-fourth year of his age.

It was under Cheselden that Hunter began the study of surgery, but whether he was bound to him as an apprentice or not I am unable to say. However this may have been, the connection was short-lived, as Cheselden died soon after, when, as previously stated, he became a pupil at St. Bartholomew's Hospital, and attended the lectures of Mr. Pott. Hunter, after he had attained the meridian of his professional life, had no rivals in the variety, extent, or profundity of his knowledge. That he had, however, his equals—if, in some respects, not also his superiors—in experience, wisdom, and practical skill, every one familiar with the history of surgery in the latter half of the last century will freely admit. Pott, Bromfield, Sharp, Warner, and Hawkins, his immediate contemporaries, were all men of great merit and influence, occupying important hospital positions, and enjoying an extensive private practice. As operators, several of them were Hunter's superiors, while, as a classical writer, Pott was without a rival at this period in England. As a practitioner, too, he held the highest rank, and as a lecturer he had no equal in his day. Next to Hunter he left a deeper and more enduring impression upon his time than any other of

---

operation, yet from the time I began to operate all uneasiness ceased; and if I have had better success than others, I do not impute it to more knowledge, but to the happiness of a mind that was never ruffled or disconcerted, and a hand that never trembled during any operation."

his contemporaries. Who is not familiar with the name of Percivall Pott, associated as it is with great works on surgery and the description of diseases, as spinal curvature and senile gangrene, until then little, if at all, understood? His account of injuries of the head, of fractures, and of dislocations will forever hold a prominent place in our literature. He rendered vast service in simplifying surgery and divesting it of its cruelties. Born in London in 1713, fifteen years before Hunter, he was left an orphan at the age of four years, and at sixteen, without the aid of a good classical education, was bound apprentice to Mr. Nourse, Surgeon to St. Bartholomew's Hospital. In 1745 he was appointed Assistant Surgeon, and in 1749 full Surgeon, to this institution, retaining his connection with it until a short time before his death, a period of forty years. He died in 1788. As a man of polished, amiable, and agreeable manners, he was eminently popular, and was justly regarded, both at home and abroad, as the greatest practical surgeon of his day in England. No man operated more gracefully, or lectured more ably or more eloquently.

Although Hunter attended Pott's lectures, and was for a long time on the most friendly terms with him, yet, as he advanced in reputation and influence, invidious comparisons were often instituted between them, both by the profession and the public, which finally had the effect of alienating them from each other. There was also a direct quarrel between them, William Hunter having accused Pott of stealing from him and his brother his knowledge of the true nature of congenital hernia, without any allusion to it in his paper on the subject. For such a charge there was no just ground, as the

affection had been previously described by Haller, and hence it was promptly repelled by Pott.*

William Bromfield is now remembered chiefly in connection with the tenaculum, an instrument for tying arteries; but he was an accomplished anatomist and an intrepid operator, whom no unexpected accident could disturb, and he introduced several important improvements into practical surgery. Devoid of modesty and simplicity, he was rough and blustering in his manners, and quarrelsome in his disposition. He was one of the founders of the Lock Hospital, Surgeon to St. George's Hospital, and Surgeon to George II. He wrote on various subjects, and, in 1773, published, in two volumes, his Chirurgical Observations and Cases, a work which was translated into the German language, and republished in this country. He was born in 1712, and died in 1792.

Of Samuel Sharp's early history nothing is known beyond the fact that he was a pupil of Cheselden, and afterwards pursued his studies at Paris. He served as Surgeon to Guy's Hospital, was a member of the Royal Society, and wrote two works, which attracted considerable attention in their day, A Treatise on the Operations of Surgery, and A Critical Inquiry into the Present State of Surgery. He died in 1778.

Joseph Warner, an apprentice of Samuel Sharp, was born in the island of Antigua, and attained to high distinction as an anatomist and surgeon. He served for a short time with the army during the rebellion in Scotland, was a member of the Royal Society, and filled the office of Surgeon to Guy's Hospital for forty-four years. In 1754 he published a volume of Cases

* Ottley's Life, p. 18.

in Surgery, which was reissued in this country, and greatly increased his reputation. His death occurred at an advanced age in 1801.

None of these men, with the exception of Pott, had any of the characteristics of Hunter, and were, therefore, little in sympathy with him or with his labors. They were good operators, and, doubtless excellent practitioners, but they were destitute of genius, and contributed little to the advancement of surgery, and nothing whatever to the mental patrimony of the race.

In medicine, during the latter half of the eighteenth century, England had not a single man who could be regarded as a man of science in any respect comparable to Hunter. There were many excellent practitioners, chief among whom was Jenner, whose researches shed lustre on the profession, but whose labors were mainly directed to the improvement of vaccination and to its dissemination among the people of his own and other countries. William Cullen, a Scotchman, and a man of great genius, was the first writer in Great Britain who produced a scientific treatise on medicine. His work, one of the classics of our literature, was for nearly half a century the textbook of the student throughout the civilized world, and contributed more than any other production to place medicine upon a scientific basis. Indeed, Cullen may justly be regarded as the founder of scientific medicine, as John Hunter was of scientific surgery. Like Hunter and Sydenham he employed the inductive method in his investigations, and appealed largely to physiology as a means of illustrating the principles of medicine.

In midwifery William Hunter, John's brother, stood pre-eminent. Smellie, who long taught midwifery in five

lectures at ten shillings the course, and the two Douglases were able men, but Hunter far exceeded them as an original observer, a shrewd investigator, and a clear, lucid writer. His Anatomy of the Gravid Uterus, a magnificent folio volume, on which he was engaged for nearly thirty years, alone was sufficient to insure his immortality. More learned than John, and not less industrious, he was distinguished for his urbanity and the polish of his manners, and occupied for many years the loftiest position as an obstetric practitioner in England. As an anatomist he also ranked very high; but he was inferior to his brother in genius and in his powers of generalization, and hence, great as he unquestionably was, was overshadowed by him. His museum, the work of many years of arduous labor, and constructed at a cost of upwards of £20,000, consisting of a large number of anatomical and obstetric preparations, a library of rare Greek and Latin books, a collection of fossils and other objects of natural history, and a cabinet of ancient medals, was bequeathed to the University of Glasgow with the sum of £8000 for its preservation and increase. William Hunter was the founder of the Anatomical Theatre in Great Windmill Street, the nursery, for three-quarters of a century, of great anatomical teachers. He was also the first man who ever delivered systematic lectures on surgery in London, thus anticipating his brother John by a number of years.

One reads even now, at this distant period, not without a deep sense of regret, the accounts of the disputes that were carried on for nearly twenty years by the two brothers respecting the claims set up by each to the discovery of the connection between the placenta and the uterus during pregnancy, and the nutrition of

the fetus. Whatever the merits of the controversy may have been, the circumstance reflects no credit upon either. An appeal was made by William to the Royal Society to settle the affair, but that body declined to interfere, and the question of priority was never settled. The alienation thus produced continued up to the time of Dr. William Hunter's last illness, when a partial reconciliation was effected, John, at his own solicitation, being permitted to visit his brother until he died.

With the exception of Dease, who wrote a good treatise on injuries of the head, I am not aware that Ireland produced a first-class surgeon in the latter half of the last century. Scotland was more fortunate. In Benjamin Bell, of Edinburgh, she had a surgeon of marked ability, highly educated, a learned writer, and an excellent operator. It is said that he cut one hundred and eighty times for stone in the bladder; and, as is well known, his great work on surgery, in seven octavo volumes, passed through seven editions at home, was translated into the French and German languages, and was reprinted in this country, where it had many readers and admirers. It held for a long time the first place in the medical libraries of Europe, and no one can study its ample pages without the conviction that it was a great performance, creditable alike to the author, to Scotland, and to our profession. Besides this work, Bell published two remarkable treatises, one on ulcers and the other on the venereal disease, which may still be read with advantage. Bell was born at Dumfries in 1749, and died in 1806. An excellent memoir of him was published in 1868 by his grandson, Mr. Benjamin Bell, one of the surgeons of the Royal Infirmary of Edinburgh. I say nothing in this connec-

tion of the Monros, second and third, for they were far more distinguished as anatomists than as surgeons, and added little, if anything, to the progress of surgery; nor of John Bell, a great operator and a renowned teacher, but a controversial writer, who seems to have cared little, if anything, about John Hunter or his doctrines.

On the continent of Europe, Hunter's more prominent contemporaries were Chopart and Desault in France, Nannoni in Italy, Richter in Germany, and Balthaser in Holland. Of their works Hunter probably never heard, certainly never read a page, with the exception, possibly, of Desault's.

CHAPTER II.

HUNTER'S PUPILS.

AMONG Hunter's pupils, the most distinguished, unquestionably, were Edward Jenner, John Abernethy, Henry Cline, Philip Syng Physick, Astley Paston Cooper, Everard Home, John Thomson, James Macartney, Thomas Chevalier, James Wilson, and Edward Coleman. These men were proud of their master; they regarded him with profound respect and reverence, and accepted his teachings as a kind of revelation from heaven. Others there were who sneered at his doctrines, and who were unable to comprehend them, either because they were deficient in capacity or too indolent and impatient to study them. The pupils whose names are here recorded constitute a galaxy of illustrious men, upon whose shoulders the mantle of the master worthily rested, and who, in their turn, transmitted it untarnished to their successors. They

played so conspicuous a part in disseminating Hunter's doctrines, and in correcting his errors, that a brief sketch of each of them cannot fail to be of interest in connection with the history of his own life. The glory of the master is often eclipsed by the reputation of the pupil; but in this instance, illustrious as many of the disciples became, the glory of the master is rendered only the more brilliant and enduring.

Of all the private pupils of Hunter, Edward Jenner was at once the most beloved and the most valued. A life-long intimacy, founded on mutual esteem and kind offices, existed between them. Jenner began the study of medicine in London in 1770, being at the time in his twenty-first year, while Hunter, already a hospital surgeon, and a man of considerable reputation, was in his forty-second year. The menagerie which Hunter had opened at Brompton for the study of the habits and structure of animals had been for some time in successful operation, and Hunter, impressed with the value of Jenner's services, was solicitous that he should remain in the metropolis as his assistant, hoping thereby to profit by his labors in the dissecting-room, in his researches into natural history and in the extension of his museum; objects which he had so greatly at heart and which had already been absorbing so much of his time and income. He even urged Jenner, within five years after he became his pupil, to join him in establishing a school of natural history on a scale till that time unknown in Great Britain. To these flattering offers, however, Jenner lent a deaf ear, preferring the pure air of the country to the dingy and uncongenial atmosphere of London. He accordingly, on the expiration of his pupilage, returned to Berkeley, in Gloucestershire, the place of his nativity, where he soon

after effected his great discovery, which has been instrumental in saving so many human lives and of conferring so much honor upon the medical profession. Jenner cherished the warmest love for his preceptor, of whom he generally spoke as the "dear man." For his intellectual powers he had the most profound respect, and his conduct affords a beautiful example of the devotion with which, during a period of nearly a quarter of a century, he aided him by experiment, observation, and the supply of specimens, in studying the habits of various animals, birds, and reptiles. Indeed, the patience of Jenner, despite his love and veneration for the "dear man," must often have been put to the test by the frequent demands made upon his time, at periods when his own attention was absorbed in perfecting his discovery, and in disseminating its blessings among the nations of the earth. The numerous letters which passed between them would, if they had been preserved, have filled several large volumes. Fortunately some of the more interesting and valuable have been published in Barron's Life of Jenner and in Ottley's Life of Hunter. Hunter's letters, while they are generally distinguished by great earnestness and vigor of intellect, are almost invariably defaced by wretched grammar and inelegance of style. Not a few of them are as badly composed as Byron's first epistle, written at the age of seven years. Jenner died in June, 1823.

John Abernethy was of Scotch-Irish descent, and was born in London in 1764. His early education was limited; he commenced his professional novitiate at the age of sixteen under Mr., afterwards Sir, Charles Blick, a surgeon of St. Bartholomew's Hospital; attended Hunter's lectures on anatomy and surgery, and on the death of his master succeeded to his office. His

labors in authorship began in 1793. His earlier works consisted of a series of physiological and surgical papers, marked by great originality and conceived in the true spirit of philosophy. These publications were followed more or less rapidly by his celebrated Treatise on Tumors, Constitutional Origin and Treatment of Local Diseases, Diseases Resembling Syphilis, and a tract on Injuries of the Head. Abernethy was a great admirer of Hunter, and one of his most able, devoted, and illustrious disciples. In his work on the Constitutional Origin of Local Diseases, he was the first to point out the true nature of many affections which, up to that time, had been little, if, indeed, at all understood by practitioners; he laid special stress upon the condition of the stomach as a prolific cause of disease, and went so far as to declare his convictions that the vast majority of cases of sickness depended upon gastric or gastro-enteric disorders, for the rectification of which blue pill and a properly regulated diet, aided by exercise, were the sovereign remedies. Although Abernethy made a hobby of this practice, there is no question that it was a step in a most important direction, the value of which has been generally acknowledged, on account of the principles involved in its physiological and pathological bearings.

As an operator, Abernethy was equal to any emergency He was the first to extend the principles of the Hunterian operation for aneurism to the common carotid and external iliac arteries; and he held in common with Hunter the erroneous opinion that operations in general are a reflection on the healing art. He also adopted his notions, as previously stated, that life is superadded to organization, and not in any way antecedent to it. He went much further than Hunter in

regard to the subtilty of this agent and of its supposed influence on matter. His style as a writer was clear and vigorous, and as a lecturer he never failed to rivet the attention of his pupils, who regarded him as a kind of Sir Oracle. Dogmatism was a prominent feature of his teaching. Abernethy died in 1831. Many anecdotes, some of them of a very humorous character, are related of him, and go to show that, while he was one of the most eccentric of men, he was also one of the best and most kind-hearted.

Henry Cline, one of Hunter's most valued and intelligent pupils, was born in 1751, and made himself early in life thoroughly acquainted with anatomy, on which he lectured with extraordinary eclat. He was for many years Surgeon to St. Thomas's Hospital, was a practitioner of great skill and judgment, and was much esteemed by his professional brethren. He died in 1827, universally regretted.

In this country the principal expounder of Hunter's doctrines was Philip Syng Physick, beyond question one of his most distinguished pupils. Who Physick was, what he accomplished for medicine and surgery, how he was venerated, not only by his professional brethren but by the public, and how his memory is enshrined in the hearts of American students, is almost too well known to require any comment. It is only yesterday, as it were, that he passed from among us, leaving behind him an imperishable name.

Physick's father was an Englishman, and the mother the daughter of a silversmith, a vocation which he was often heard to say he deeply regretted he had not himself adopted. He was born in this city in 1768, and at the age of eighteen was graduated Bachelor of Arts in the literary department of the University of

Pennsylvania. He attended the lectures in what was then known as the Philadelphia College of Medicine; and, in 1780, without a degree from that school, went, in company with his father, to London, where he was at once placed under the instruction of Hunter. When asked by the father what books his son would be expected to read, Hunter with characteristic force and earnestness said: "Sir, follow me; I will show you the books your son has to study," and leading the way to the dissecting-room, he pointed to several bodies, adding, "These are the books which your son will learn under my direction; the others are fit for very little:" noble words, too little heeded by teachers of medicine! Physick entered at once upon his duties, and such was the rapid progress which he made and the neatness of his work, that he received the highest commendation from his master, who had such confidence in his judgment and honesty that he intrusted him with the performance of a number of his experiments on the blood and on inflammation. After a sojourn under Hunter's roof of nearly a year and a half, Physick, in 1790, was elected house-surgeon to St. George's Hospital, an office which he held for twelve months, during which he discharged its functions in so able and faithful a manner as to elicit, at the close of his term of service, a vote of thanks from the managers. On leaving the hospital, Hunter, foreseeing his future greatness, and the advantages which such a man might be to him in the prosecution of his researches, made him an offer of a share in his business; but, fortunately for his country, this he declined, and soon after, namely, in 1792, in the twenty-fifth year of his age, he returned to Philadelphia, where, after a few years of hardships, incident to most young men of merit

in all professions, he entered upon that brilliant career which eventually secured for him the enviable title of the father of American surgery. In 1794, two years after his return from Europe, he was elected Surgeon to the Philadelphia Hospital, and the following year to the Almshouse Infirmary. In 1800, at the age of thirty-two, he gave a private course of lectures on surgery, and, in 1805, he was honored with the chair of Surgery in the University of Pennsylvania. His lectures were always prepared with great care, and, without being ornate or brilliant, were delivered with earnestness from his manuscript. His habit for many years was to rise at four o'clock in the morning, and to study the subjects of his discourse thoroughly before he went before his class. Such industry and conscientiousness had their reward; for whatever he uttered was received with implicit confidence by his admiring pupils.

Physick occupied the chair of surgery until 1818, when, on the death of his nephew, Dr. Dorsey, the following year, he was transferred to the chair of anatomy; "from the place," to use the language of one of his biographers, Dr. John Bell, "where he was emphatically at home to one in which he was comparatively a stranger." "The act," to quote the language of another biographer, "was a descent from his high estate, which dimmed and deadened his academic lustre." There is great force in these remarks. The change was beyond question a serious injury to Physick, if not also to the University of Pennsylvania. In the chair of surgery he was *facile princeps*, while in that of anatomy he simply did what might have been done quite as well, if not better, by a dozen of his Philadelphia contemporaries. As a teacher of the principles

and practice of surgery Physick was, so long as he held his surgical chair, without a rival in this country. Although he was not, as already stated, a brilliant talker, his lectures, from the soundness of their precepts and the variety and extent of their information, attracted great attention, and I have heard some of his older pupils, long since dead, declare that they possessed a charm that was altogether irresistible. That they partook largely of the doctrines which he had imbibed from Hunter does not admit of doubt; for no teacher in those days could have derived any materal aid from any other source for the illustration of the great principles of surgery. No man that ever adorned the American medical profession enjoyed so universal a reputation as Physick. Nor was he known simply as a surgeon; he ranked high, very high, also as a physician. His pupils, who idolized him, and who were scattered through every nook and corner of this continent, disseminated his doctrines far and wide, and not a few of them became the founders of medical schools and the great expounders of the art and science of surgery. When he entered upon his career the field of surgery in this country was almost untrodden. Dr. Jones, of New York, was, in fact, almost the only surgeon of any prominence, and he did not stand long in his way. Afterwards appeared simultaneously, or in more or less rapid succession, Wright Post, Hewson, Parrish, Barton, Gibson, Davidge, Wagner, Randolph, Horner, McClellan, Mott, Warren, and Dudley, not to mention others, men who had either been his pupils or who had, in some way, profited by his teaching. Physick has left no substantial memorial as a surgeon. He had an aversion to authorship, and, as a consequence, his vast experience was buried with

his ashes, save only a few fragments garnered by his pupils. He died in 1837.

William Shippen, one of the founders of the University of Pennsylvania, was a pupil of John Hunter, and for a short time resided in his family. He also studied anatomy under William Hunter, and on his return to Philadelphia delivered the first course of lectures on anatomy ever given in this city. He no doubt had formed a high estimate of the value of Hunter's labors, but as he never illustrated surgery it would be out of place here to give a more extended notice of him.

One of the most illustrious of Hunter's pupils, and one who shed more substantial light upon the surgical profession than any other man of his age in England, was Sir Astley Paston Cooper, a man of magnificent mien and stature, the son of a Norfolk clergyman, born in 1768, twenty-five years before Hunter's death. Commencing his career under an apothecary at Yarmouth, he was subsequently apprenticed to his uncle, William Cooper, Surgeon to Guy's Hospital, by whom he was shortly afterwards transferred to Mr. Henry Cline, of St. Thomas's. His medical education was completed in Paris, under Desault and Chopart, whose names are so well known to professional men all over the world as great surgeons. In 1821 he was made a baronet by George IV, and a few years later Sergeant-Surgeon to his Majesty. He held successively various offices of trust and honor, lectured for many years on anatomy and surgery, and in 1837 received the degree of D.C.L. from the University of Oxford. As an operator he possessed uncommon skill, and no surgeon in any part of the world ever realized so vast an income from his practice, which in one particular year amounted, it is said, to £21,000. His pa-

tients were mainly from among the nobility and the higher classes of society, and consequently could afford to pay large fees. He was an indefatigable student to the last days of his life, possessed a strong, inquisitive, and original mind, and was the author of numerous works evincing great research, patient industry, and extraordinary powers of observation. Among these works the treatises on hernia, the diseases of the breast and testis, and on dislocations and fractures are worthy of special commendation. A complete edition of his surgical works, in three volumes octavo, was published in 1836 by Alexander Lee, the elegant editor and translator of Celsus. It is profusely illustrated by colored drawings, interspersed through the text. Sir Astley died in 1841. A magnificent statue has been erected to his memory in St. Paul's Church, London.

As to Home who, Judas Iscariot-like, betrayed his master, little need be added to what is said of him in a former part of this memoir. Born in 1756, at Greenlaw Castle, in the County of Berwick, Scotland, he studied with Hunter, assisted him in his work, became his brother-in-law, and ultimately the custodian of his MSS. He practiced surgery with great credit for forty years, was, for a time, a surgeon in the army, acted as President of the Royal College of Surgeons, and was surgeon to George IV and William IV, by the former of whom he was created a baronet in 1813. He was the author of numerous contributions on medical and scientific subjects, of Lectures on Comparative Anatomy, of a treatise on Strictures of the Urethra and Œsophagus, of Observations on Cancer, and of a monograph on Diseases of the Prostate Gland. Every one of these works displays marked ability, and formed in its day a useful addition to the literature of the pro-

fession. Alas, for poor Home! It would have been well if he had not been born!

But of all the expositors of Hunter's pathological doctrines, by far the most able, luminous, and efficient was Dr. John Thomson, for a number of years Professor of Military Surgery in the University of Edinburgh, born March 15th, 1765, at Paisley, Scotland. After having completed his studies at Edinburgh, he entered Hunter's school in Leicester Square, where he remained until it passed into the hands of Home. His great work on Inflammation was published in 1813, just twenty years after the death of the illustrious English philosopher, and at once obtained a wide circulation, not only in Great Britain, but on the continent of Europe and in America. It was in no long time translated into the German, Italian, and French languages, and two editions of it were reprinted in Philadelphia, the last in 1831. Large portions of it were also transferred to Cooper's famous Surgical Dictionary. Thomson was beyond question the most able and faithful interpreter of Hunter's views of the principles of surgery, and the first to point out, in clear and distinct terms, the modifications produced by inflammation in the different textures of the body. His work was, in fact, a treatise on medical pathology, and could, therefore, be read with equal advantage and profit by the physician and the surgeon. It is not doing injustice to the author to say that it is a sort of running commentary on Hunter's Treatise on Inflammation, enriched by the results of his own vast experience acquired in the field, in civil life, and in hospital practice. This masterly production, one of the classics of medical literature, long held its place in the esteem of the profession, and served many a teacher

as a text for his lectures, and many an author as a mine in which he dug his material.

Thomson's early life was not without its struggles. He was the son of a silk weaver, and when his father failed in business he was bound to him as an apprentice, and worked at his trade for two years after his time had expired. He then studied medicine, and rapidly rose to distinction as an industrious student and a man of brilliant intellect. His early professional career was marked by his fondness for chemical researches, and there is no doubt that if he had remained faithful to his original predilections he would have acquired a high reputation as a chemist; but he gradually lapsed into surgery, of which he was destined to become so brilliant an ornament. He was a man of a very active and inquisitive mind, a copious writer, an incessant worker, and a most popular and accomplished teacher. He served with distinction as a surgeon in the Peninsular War, and occupied with great eclat for thirteen years the chair of Military Surgery in the University of Edinburgh, at the expiration of which he was transferred to the chair of General Pathology, created at his special instance. As an operator he was not particularly distinguished. Among his later productions was his Life of Dr. William Cullen, of whom, as well as of Hunter, he was a great admirer. He expired on the 11th of October, 1846, in the 82d year of his age.

The name of James Macartney, another celebrated pupil of Hunter, is well known in the United States, although nearly forty years have elapsed since his death. He was widely distinguished as an eloquent teacher in connection with the chair of Anatomy in Trinity College, Dublin, and rendered himself immortal by his work on Inflammation, in which he distinctly enunciated,

for the first time, his peculiar views respecting the healing of wounds by what is now known as the modelling process, or union without inflammation and an effusion of plasma; a doctrine foreshadowed by Hunter and now generally accepted in the schools. Armagh had the honor of his birth. His monograph on Inflammation created a deep sensation in the medical world at the time of its publication, and was the occasion of much spirited criticism. Macartney was a very accomplished anatomist, a laborious worker, and the founder of a valuable museum, which is now in the University of Cambridge. He died, if I mistake not, in 1843. He was one of Hunter's most devoted followers and one of his warmest admirers.

There were three other pupils of Hunter who, from the high position they attained, reflect honor upon his memory, and are deserving of brief notice in a work designed to commemorate the life and character of the founder of scientific surgery. I allude to Thomas Chevalier, James Wilson, and Edward Coleman. Chevalier was Surgeon to the Prince of Wales, Professor of Anatomy and Surgery to the Royal College of Surgeons, and the author of a Treatise on Gunshot Wounds, of a Course of Lectures on the Operations of Surgery, and of numerous papers in the Medico-Chirurgical Transactions. In his Hunterian oration for 1821 he gave a most learned and lucid exposition of the doctrines of his illustrious master. He died in 1824.

James Wilson was a great anatomist and an able lecturer; he succeeded Hunter in the celebrated anatomical school in Great Windmill Street. There he taught many of the young men who became afterwards, in their turn, distinguished anatomists and surgeons, as well as authors. He was a Fellow of the Royal Society,

and was the first to describe the muscles which surround the membranous portion of the urethra, and which are now universally known by his name.

Edward Coleman, a special favorite of Hunter, was born in 1765 in Kent County, England. His father was a farmer; and at an early age he was apprenticed to a surgeon at Gravesend, with whom he remained seven years. In 1789 he went to London, and became a pupil of Mr. Cline, the eminent surgeon, in whose house he resided until 1792. While in this situation he completed an elaborate series of experiments, commenced at Gravesend, on dogs and cats, illustrative of the nature and treatment of asphyxia, the results of which were embodied in an essay, to which was awarded a prize medal. On the death of St. Bel, an eminent veterinarian, he was, on the recommendation of Hunter and Cline, appointed a professor in the London Veterinary College. Here he exerted himself with great ability, and soon placed the institution upon a successful basis. In 1798–1802 he published, in two volumes, his celebrated treatise on the Anatomy and Diseases of the Foot of the Horse, which, together with some of his other works, was translated into the German language, and greatly enhanced his reputation as a scientific veterinarian. He took a deep interest in the shoeing of horses, in the ventilation of stables, and in the improvement of the breed of horses, dogs, and cattle throughout England. Late in life he received the appointment of Veterinary Surgeon-General, and was elected a member of many learned and scientific societies at home and abroad. During his apprenticeship with Mr. Cline he attended the lectures of Hunter, the principles of which he afterwards taught in his own lectures, and applied in his practice to the treat-

ment of the diseases and injuries of the lower animals. Coleman was much respected by the public as well as by the medical profession, and was on terms of intimacy with Jenner, Babington, Abernethy, Charles Bell, Brodie, and Sir Astley Cooper, between the latter of whom and himself the warmest friendship existed, which terminated only with their lives. He died in 1839. Frequent reference is made to this great veterinary surgeon in the writings of Sir Astley Cooper, and in the admirable works of Youatt and other veterinary surgeons. He may justly be regarded as the founder of scientific veterinary surgery in Great Britain.

It is a source of regret to me to be unable for the want of material to add to these biographical sketches a brief account of the life of Nathaniel Rumsey, to whom the world is indebted for the only correct report of Hunter's Lectures on the Principles of Surgery. These lectures were delivered in 1786 and 1787; and, although there are other copies of them extant, they are all very imperfect in comparison with that of Rumsey, used in Palmer's edition of Hunter's complete works. In referring to this subject, Palmer remarks that one might almost suppose, from the accuracy and fulness of the report, that the writer had had access to Hunter's MSS.; a circumstance which derives additional support from the fact that the style is characteristically Hunterian, and that the text in various places is interspersed with cases and illustrations in proof of the view expressed in it. Rumsey was a resident of Cheston, England, and probably never acquired any reputation beyond that of a local practitioner. In view of the importance of his services, he well fulfilled his mission, and his name deserves to be held in lasting remembrance.

There are five men whose names are so intimately associated with the progress of British surgery, who were such great admirers of Hunter's teachings, and who have left behind them such a noble record, that it would be unjust, it seems to me, to pass them by in silence. I allude more especially to Samuel Cooper, Benjamin Travers, Benjamin Collins Brodie, William Lawrence, and Joseph Henry Green. These men, although none of them were his pupils, imbibed much of their early professional knowledge from a profound and thoughtful study of his writings; they were animated by his example, and carried onward the work which his own immediate pupils had left unfinished.

Who is not familiar with the name and fame of Samuel Cooper, the author of the First Lines of Surgery, and of the celebrated Surgical Dictionary? As for myself, many of my most pleasant professional recollections are associated with these works, and there is not in this country a surgeon or physician who has attained the age of fifty who is not familiar with their contents, or who does not consult them even now, after so many other treatises have appeared upon the subject, with the certainty of being deeply interested as well as greatly instructed. Samuel Cooper was a native of Salisbury, England, where he was born in 1780. With the sole exception of John Thomson, he did more to give currency to Hunter's doctrines at home and abroad than any other man in Great Britain. His First Lines appeared in 1807, when he was only twenty-seven years of age, and was followed in 1809 by the Surgical Dictionary, each of which passed through seven editions during his lifetime. The former of these works was long used, both in Great Britain and in this country, as a class-book for the student, while the latter,

which raised its author to the highest pinnacle of fame as a learned and accomplished writer, found a place in the library of every intelligent practitioner, and was translated into the French, German, Italian, and Russian languages. In this country it passed through a number of editions, the first under the supervision of Dr. John Syng Dorsey, of this city, in 1810, and the last under that of Dr. D. Meredith Reese, of New York, in 1842. The Dictionary is a work of vast erudition and of stupendous labor, which only a man like Cooper, an able scholar, thoroughly familiar with the literature of his profession, and the French, German, and Italian languages, could have produced. Gallons of ink were spilled in its composition, and cartloads of paper consumed in sending it into the world. Like a busy bee, the author gathered honey from every source within his reach. Educated at St. Bartholomew's Hospital under the guidance of Ramsden, Abernethy, Blick, and other distinguished surgeons, he entered upon his career, destined to be so useful, soon after the death of Hunter, and by the publication of his two popular works thus became the earliest expounder of his teachings, copious extracts from his treatises on inflammation and on the venereal disease being introduced into the Dictionary. Cooper served for a time in the army, and was present at the battle of Waterloo, where he performed numerous and important operations. In 1831 he succeeded Sir Charles Bell in the chair of Surgery in the London University, and was at the same time appointed Senior Surgeon to University College Hospital, a position which he retained until a short time before his death, in 1848. As an operator he is said to have been painfully slow, and as a teacher without force or impressiveness. If he was not a man

of genius, and no one who knew him will claim for him such a distinction, he possessed a rare combination of talents, which eminently fitted him for the successful execution of his noble mission. His forte evidently lay in his pen, which he wielded with uncommon facility, and with scholarly elegance. A new edition of his Dictionary was issued in 1861–72, under the supervision of Mr. Samuel Lane, of London, assisted by various eminent surgeons. As a vast storehouse of surgical knowledge, embodying the results of the observations and experience of the most prominent surgeons in the civilized world, it is destined to have a long survival.

By a singular coincidence, Travers, Brodie, and Lawrence were born in the same year, namely, in 1783, within a few months of each other; and all attained to high distinction as original observers and men of earnest, philosophical minds. Travers died in 1858, Brodie in 1862, and Lawrence in 1867. Travers, in his professional youth, published his Inquiry into the Process of Nature in Repairing Injuries of the Intestines; and at a later period his famous work, in two volumes, on Constitutional Irritation, a subject until then little understood by professional men.

The Surgical Essays of Sir Astley Cooper and Mr. Travers appeared in 1818, the latter having contributed a number of valuable papers. He subsequently published Observations on the Pathology of Venereal Diseases, A Further Inquiry Concerning Constitutional Irritation, and the Pathology of the Nervous System, and finally, in 1844, Physiology of Inflammation and the Healing Process. These works, it will be observed, partook largely of a medical character, and his contemporaries paid their author the high compliment of

saying that, distinguished as he was as a surgeon, he would have been a greater physician if his mind had been specially turned in that direction. In 1810, soon after Mr. Travers received his diploma, he was appointed Surgeon to the London Infirmary for Diseases of the Eye, since called the London Ophthalmic Hospital, and while in this position published a beautiful little work, entitled Synopsis of the Diseases of the Eye and their Treatment. In the early part of the century this class of diseases was almost exclusively in the hands of charlatans, and no man of his day did more than Mr. Travers in placing the subject in its proper light before the medical profession of Great Britain. When the trustees of the Infirmary offered him the appointment of oculist, he promptly declined it unless they would annex to it the title of surgeon, such was his dislike to be regarded as a specialist.

Mr. Travers was the son of a sugar-baker, and after receiving his elementary education was placed in his father's counting-room. He had, however, a great aversion to mercantile pursuits, and in 1800 he was apprenticed to Mr., afterwards Sir, Astley Cooper. He obtained his degree in 1806, after which he spent some time in the University of Edinburgh. His early professional success was not brilliant, but he gradually rose to eminence, and became eventually the recipient of many well-merited honors. In 1813 he was elected a Fellow of the Royal Society, and in 1815 Surgeon to St. Thomas's Hospital. He was President of the Medico-Chirurgical Society and of the College of Surgeons, Hunterian orator in 1838, member of the Council and Court of Examiners, Surgeon Extraordinary to the Queen, and Surgeon in Ordinary to the Prince Consort. He was a sound anatomist and a safe but

not dashing operator, and his lectures were characterized by good taste and a scholarly style. In a word, Travers worked nobly for his profession and his country. His magnificent physique and genial manners combined to form the type of a man of distinguished appearance.

With the name of Sir Benjamin C. Brodie every American student is familiar. With no English writer of the present century is the progress of surgery more intimately associated than with Brodie. He was not only a great practical surgeon, but a most accomplished physician, an excellent physiologist and pathologist, a profound thinker, and a true philosophical disciple of the Hunterian school. Born only ten years before the death of the immortal founder of scientific surgery, he devoted himself zealously to the study of his profession, in which he gradually rose to the highest eminence. His surgical writings bear on every page the impress of close observation, of scientific scrutiny, and of a well-ordered, well-balanced mind; while his physiological researches display great philosophical acumen and deep insight into the mysteries of life. "His mind," says one who thoroughly knew him,* "was keenly alive to the value of purely scientific research, but amidst all his scientific pursuits he never for a moment lost sight of the importance of utilizing his knowledge for the relief and cure of disease." He was the professional adviser of three sovereigns, Corresponding Member of the French Institute, a D.C.L. of the University of Oxford, President of the Royal Society, and President of the Medical Council.

Lawrence I have always regarded as the most ac-

* Acland, Biographical Sketch, p. 16.

complished surgical writer of his day in England, an opinion fully shared, if I mistake not, by his countrymen and by the medical profession generally. His style, indeed, is a model of the purest Anglo-Saxon type. Lawrence studied surgery as an apprentice for five years under Abernethy, gradually rose from the office of Demonstrator to the Professorship of Anatomy and Surgery at the Royal College of Surgeons, and was until 1865, two years before his death, Surgeon to St. Bartholomew's Hospital. His principal works are Lectures on Physiology, Zoology and the Natural History of Man, issued in 1819, a publication which, on account of its liberal views, brought upon him the displeasure of his old master, as well as of many churchmen; a Treatise on Hernia, issued in 1807; and a Treatise on the Diseases of the Eye, issued in 1841. All these are classical productions, destined to retain a permanent place in our literature. In 1863 he published a volume of lectures on the Principles of Surgery, delivered at St. Bartholomew's Hospital, written in that clear, lucid style for which he was so justly distinguished. As a lecturer he is said to have been without a rival. The profession owes him a lasting debt of gratitude for the valuable services which he rendered to surgery in an age prolific of great men and great works. The honor of knighthood was conferred upon Lawrence only a few years before his demise.

Joseph Henry Green was born in London in 1791. He was the only son of his parents, the father being a highly respectable merchant, and the mother, a lady of uncommon culture, a daughter of Mr. Cline, the eminent surgeon. After having received a thorough elementary education he was apprenticed to his uncle, who

was Surgeon to St. Thomas's Hospital, where he henceforth pursued his studies. In 1815 he obtained the diploma of the Royal College of Surgeons, and immediately entered upon a career which eventually proved to be so brilliant and honorable. Ascending rapidly from the demonstratorship of anatomy to the junior surgeoncy, he was appointed full surgeon to St. Thomas's in 1820, and became at once associated with Sir Astley Cooper as joint lecturer on anatomy and surgery. While engaged in his more humble position he published a small but useful work, entitled the Dissector's Manual. In 1824 he was elected Professor of Anatomy to the Royal College of Surgeons, and delivered a course of lectures on the comparative anatomy of the animal kingdom. In the following year he was elected a Fellow of the Royal Society, and also Professor of Anatomy to the Royal Academy. In 1830, on the establishment of King's College, he was appointed Professor of Surgery in that institution, and held the office until 1836. "His lectures," says Mr. Simon, his biographer, "were models of systematic technical teaching," admirable in method, lucid in style, comprehensive in completeness, and on a level with the existing state of the science. Mr. Green delivered the Hunterian oration in 1840 and again in 1847, selecting for his subject on the first occasion "Vital Dynamics," and on the last "Mental Dynamics, or A Groundwork of a Philosophical Education." His mind was eminently speculative, due partly to natural or innate tendencies, and partly to his German training in the schools at Hanover; much of his leisure was devoted to the study of the ancient philosophers and their writings. He was a great admirer of Hunter, as well as one of his most able and eloquent interpreters, and it was

under his administration as President of the Royal College of Surgeons that Hunter's remains were interred in Westminster Abbey. A posthumous work in two volumes, entitled Spiritual Philosophy Founded on the Teaching of Samuel Taylor Coleridge, was published under the supervision of John Simon, F.R.S., a former pupil. He died in December, 1863. As a highly educated philosophical surgeon Mr. Green was equal to any man of his day in Great Britain, while in point of intellectual powers and thorough training he was far above the great majority of his professional brethren. In fact, in many respects, he stood alone, and he would probably have been a still greater man if he had not been led astray by transcendentalism.

I must pass with bare mention over the names of Edward Stanley, a great surgeon and the author of the first scientific work ever published on the diseases of the bones; of John F. South, the able translator of and learned commentor on Chelius's Surgery; and of Cæsar Hawkins, Surgeon Extraordinary to the Queen, Surgeon to St. George's Hospital, an accomplished scholar, an excellent lecturer, and an expert and judicious operator. To this list might be added the names of many more men who have illustrated their profession by advancing and successfully carrying on the great work instituted by Hunter in the interests of scientific surgery, but to do so would require far more space and time than the limits to which I am restricted will permit. In no period of the history of Great Britain has surgery made such rapid strides as during the last quarter of a century, or been illustrated by the labors of so many learned, educated, and accomplished men. The heritage which was left to them by John Hunter has borne rich fruit, the salutary effects of which will be felt in all future ages.

While these and other men, all excellent in their way, but less gifted and less renowned, were engaged in advancing the interests of surgery in England, the honor of Irish surgery was nobly upheld by Colles, Cusack, Carmichael, Crampton, Robert Smith, Adams, Porter, and others, whose labors and writings have contributed so much to exalt our art, and to shed lustre upon their age and country. In Scotland, during the early part of the present century, more was done for scientific surgery by John Thomson than by any other man, and at a later period that country found noble followers of Hunter in Liston, Syme and Fergusson, so recently lost to surgery. In France the most able surgical pathologists of this period were Baron Boyer, the author of a great work on Surgery; and A. N. Gendrin, whose luminous monograph on Inflammation—Histoire Anatomique des Inflammations—was published at Paris in 1826. Germany had Graefe and Rust, of Berlin, Langenbeck, of Göttingen, Vogel, of Brunswick, and Chelius, of Heidelberg. Italy could boast only of one man, but that man was a truly great surgeon. Who is not familiar with the name of Antonio Scarpa and his noble works, honorable alike to his genius and to his country?

APPENDIX.

CHRONOLOGICAL LIST OF HUNTER'S WRITINGS.*

1762.—1. On the Descent of the Testis.

1762.—2. On Absorption by Veins.

1766.—3. An account of an amphibious Bipes, by J. Ellis, with supplement by J. Hunter.

1771.—4. Treatise on the Natural History of the Human Teeth, Part I.

1772.—5. On the Digestion of the Stomach after death.

1773.—6. Anatomical Observations on the Torpedo.

1774.—7. An account of certain receptacles for air in Birds, which communicate with the lungs and Eustachian tubes, etc.

1774.—8. Observations on the Gillaroo Trout, commonly called in Ireland the Gizzard Trout.

1775.—9. An account of the Gymnotus electricus.

1775.—10. Experiments on Animals and Vegetables, with respect to the power of producing heat.

1776.—11. Proposals for the recovery of people apparently drowned.

1776–1792.—12. Croonian Lectures on Muscular Motion (never printed).

1777.—13. On the Heat of Animals, etc.

1778.—14. Treatise on the Natural History of the Human Teeth, Part II.

1779.—15. An account of the Free Martin.

1780.—16. Account of a Woman who had the small-pox during pregnancy, and who seemed to have communicated the same disease to the fœtus.

1780.—17. An account of an extraordinary Pheasant.

1782.—18. Account of the Organ of Hearing in Fishes.

1784.—19. Observations on the inflammation of the internal coats of Veins.

1785.—20. Description of a new Marine Animal, in a letter from Everard Home to J. Hunter, F.R.S., with a postscript by Hunter, containing anatomical remarks upon the same.

1786.—21. Treatise on the Venereal Disease.

1786.—22. Observations on certain parts of the Animal Œconomy, being a republication of certain papers above mentioned, in the Phil. Trans., to which were added the nine following:

23. A description of the situation of the Testis in the Fœtus, with its descent into the scrotum.

* This list is copied verbatim from Ottley's Life, and affords an excellent idea of the marvellous amount of literary work accomplished by Hunter during a period of less than a quarter of a century.

24. Observations on the glands situated between the rectum and the bladder, called vesiculæ seminales.

25. On the Structure of the Placenta.

26. Some observations on Digestion (almost an entirely new paper).

27. On a secretion in the crop of breeding Pigeons for the nourishment of their young.

28. On the color of the Pigmentum nigrum in different animals.

29. The use of the oblique Muscles.

30. A description of the Nerves which supply the Organ of Smelling.

31. A description of some branches of the fifth pair of Nerves.

1787.—32. Observations tending to show that the Wolf, Jackal, and Dog are all of the same species.

1787.—33. An experiment to determine the effect of extirpating one ovarium upon the number of young produced.

1787.—34. Observations on the Structure and Œconomy of Whales.

1789.—35. Supplement to the paper on the Wolf, Jackal, and Dog.

1789.—36. On Introsusception.

1789.—37. An account of Hunter's method of performing the operation for the cure of Popliteal Aneurism, by Everard Home, Esq., from materials furnished by Hunter.

1790.—38. A case of Paralysis of the Muscles of Deglutition cured by an artificial mode of conveying food and medicines into the stomach.

1790.—39. Some observations on the loose cartilages found in joints, and most commonly met with in that of the knee, by Everard Home, Esq., from materials furnished by Hunter.

1790.—40. General observations on the mode of collecting and sending home animals, and on the nomenclature and classification of animals.

1790.—41. Description of the Kangaroo.

1790.—42. Description of the Wha Tapoau Roo.

1790.—43. Description of the Dingo, or Wild Dog of Australia.

1790.—44 Description of the Tapoa Tafa or Tapha.

1790.—45. Description of the Poto Roo, or Kangaroo Rat.

1790.—46. Description of the Hepoona Roo.

1791.—47. Observations on certain horny excrescences of the human body, by Everard Home, F.R.S., from materials furnished by Hunter.

1792.—48. Observations on Bees.

1793.—49. Some facts relative to the late J. Hunter's preparation for the Croonian Lectures, by E. Home, Esq.

1794.—50. Observations on the Fossil Bones presented to the Royal Society by the Margrave of Anspach, by the late J. Hunter.

1794.—51. Treatise on the Blood, Inflammation, and Gunshot Wounds.

1794.—52. The case of a young Woman who poisoned herself in the first month of pregnancy, by Thomas Ogle; to which is added an account of the appearances after death, by the late J. Hunter.

1794.—53. Hunter's opinion concerning the Anatomy of the Camel's Stomach.

1794.—54. Notes on the Anatomy of the Jerboa, by Hunter.

1798.—55. Experiments and observations on the growth of Bones, from the papers of the late J. Hunter, by Everard Home, F.R.S.