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Ones underlined
are in D.N.B.

Not written about
1865 when all were
living, except
Barker who died
during the writing.

Portraits of Eminent
Medical Men

1638

Photographed by Ernest Edwards 20 Baker Street W

THOMAS WATSON, M.D., D.C.L., F.R.S.

PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS.

"Forma mentis æterna: quam tenere et exprimere, non per alienam materiam et artem, sed tuis ipse moribus possis."—TACITI AGRICOLA, XLVI.

THE actions of great men live on in their effects upon the lives of others: character is more enduring than marble. Such is the purport of the words with which Tacitus closes his biographical sketch of a friend's career. No kind of literature less requires apology than biography. It arises from inquiries founded in our nature: no sooner do we hear of any one who has risen to eminence, than we ask, 'Whence and how did he rise?' Objections may be urged against cotemporary biography; but they can be applied fairly only to cases where its proper limitations have been disregarded; these we shall endeavour to observe strictly throughout the present work. Such necessary restrictions imply the exclusion of all controversial passages, and of all such details as belong strictly to private life. Our attention will be chiefly directed to the leading facts of professional life, and to the services rendered to the profession and to the public, by discoveries in surgery or medicine, by improvements in practice, and by contributions to scientific literature.

With due attention to these limitations, we cannot doubt that our series of correct biographical sketches of eminent medical men will be welcome to many readers, and especially, to young men in the profession, who, in striving onward, want the aid of good examples, and are glad to learn by what steps their more advanced cotemporaries have attained their several positions.

In this first number, we have the pleasure of presenting to our readers the portrait of a physician of forty years' standing,

President of the Royal College of Physicians, and author of the well-known 'Lectures on the Principles and Practice of Physic.'

Dr. Watson belongs to a family of respectability in Northumberland, and was born on the 7th of March, 1792, in the parish of Kentisbeer, near Collumpton, Devonshire, where his parents were then residing. He received his early education at the Grammar School of Bury St. Edmunds, and, in 1811, was admitted a pensioner of St. John's College, in the University of Cambridge, where he took the degree of B.A., as tenth Wrangler, in January, 1815. Two years later, he was elected a foundation Fellow of St. John's College, and, in the course of the next year, took the degree of M.A. When twenty-seven years of age, he began the study of medicine, at St. Bartholomew's Hospital, where he had the advantage of hearing the lectures and of enjoying the friendship of Mr. Abernethy. Apart from all reference to the scientific value of this teacher's exclusive theory of pathology, his lectures had on the students who heard them, that stimulating and encouraging effect which has been well described by an able medical writer. 'We never left his lecture room,' says Dr. Latham, 'without thinking him the prince of pathologists, and ourselves only just one degree below him.' Mr. Watson, with other students of St. Bartholomew's, at that time, shared in the stimulus received from the racy and dramatic lecturer; but, by no means accepted the narrow conclusions respecting practice to which Mr. Abernethy was led by a favourite theory. During the session of 1820-21, Mr. Watson prosecuted his studies by attending some of the medical classes in the University of Edinburgh, and then returned to Cambridge, in which University, in 1823-24, he held the office of Junior Proctor.

In the following year, he took the degree of Doctor of medicine, and married the daughter of Edward Jones, Esq., of Brackley, in Northamptonshire. He soon afterwards began to practise as a physician in London, and took up his residence in Henrietta Street, Cavendish Square. Here he had the misfortune of losing his wife, only five years after marriage. In the same street, though not in the same house, he has now resided forty years. In 1826 he became a Fellow of the Royal College of Physicians, and, in the following year, on the resignation of Dr. Southey, was elected physician to the Middlesex Hospital. In the course of his duties in this institution he acquired that practical knowledge of

numerous cases of which he made good use in his 'Lectures on the Principles and Practice of Physic,' subsequently delivered at King's College. In 1828, when University College was opened, and during the following two years, Dr. Watson, as Professor of Clinical Medicine in that institution, gave lectures on the cases of disease which came under his treatment in the Middlesex Hospital. He resigned the chair of Clinical Medicine in 1831, when he was appointed to the Professorship of Forensic Medicine in King's College.

Meanwhile his private practice had increased; but had left time for the discharge of his duties in Middlesex Hospital. In 1832, an incident occurred in his private practice which has associated his name with circumstances of melancholy interest in the closing life of Scotland's greatest imaginative genius. To Dr. Watson was entrusted the medical care of Sir Walter Scott on his last voyage from London to Edinburgh and his journey to Abbotsford.

In 1836, on the resignation of Dr. Francis Hawkins, the services of Dr. Watson were transferred from the chair of Forensic Medicine to that of the Principles and Practice of Physic. In this office he first delivered, during the session of 1836-37, the lectures which are now ranked among the classical works of modern medical literature. They were repeated, as the author informs us, with slight variations, for four successive years; and were first printed in the 'Medical Gazette,' at the request of many of his colleagues and pupils of King's College. Dr. Watson, in 1844, published these lectures in a collected form, and a second edition appeared in the course of the following year. The writer stated in his preface that, owing to other engagements, he had not found time for the thorough reconstruction and revision of his work, and that, consequently, the lectures remained, both in substance and form, nearly the same as when first delivered. No doubt the author's revisionary labour, if ample time had been afforded, would have led to some additions or improvements; but the circumstances that precluded this have had one advantageous result, in the preservation of a colloquial style which, united, as it is, with sufficient precision, and interspersed, on fit occasions, with passages of graver tone, forms one of the attractions of this course of lectures.

In 1840, when King's College Hospital was established, Dr. Watson declined to migrate from the Middlesex, and consequently,

resigned his place as Professor of the Principles and Practice of Physic in King's College. A few years later, in 1844, when his private practice had so much increased that it no longer afforded time for a due performance of duties at the Middlesex Hospital, Dr. Watson resigned his place in this institution. He now devoted his whole attention to the practice he had gained by a combination of scientific and practical attainments. He was extensively consulted by fellow practitioners, to whom his services were rendered very valuable by the strict punctuality and carefulness by which they were marked. His successes in consultation cases were not a little facilitated by the long-continued method of taking and preserving notes of cases, all duly dated and entered in an index, and so copious that, in the course of years, they made a goodly array of MS. volumes on the shelves of his library.

In 1859, Dr. Watson received the unsolicited honour of being appointed one of Her Majesty's Physicians extraordinary. He was consulted in the fatal illnesses of the late Princess Mary, the Duke of Cambridge, and the Prince Consort, and occasionally attended the late Duchess of Gloucester.

After the constitution of the General Council of Medical Education and Registration, by the Medical Act of 1858, Dr. Watson was the first elected Representative of the College of Physicians in that Council. He resigned his seat in it in 1860. He was first elected President of the Royal College of Physicians in 1862, and has been annually re-elected since that time. In the same year, the honorary degree of D.C.L. was conferred upon him by the University of Oxford, and, two years later, he received the corresponding honorary degree of LL.D. from his own University of Cambridge. Dr. Watson is a Fellow of the Royal Society, of the Council of which he was, formerly, a member. He is a member of the Council of King's College, London.

In modern medical literature, Dr. Watson holds a distinguished position as the author of one work—the 'Lectures on the Principles and Practice of Physic.' A happy union of the best qualities that can be combined in a medical teacher characterises the work. We find on the same page the clearness and correctness of studious writing, with not a little of the vigour and freshness of oral teaching. The author uses generally good plain English words. Latin, though the language of a people who made little progress either in science or in philosophy, has a precision that adapts it to

the purposes of scientific reasoning; but for giving briefly and clearly practical results and rules, our old English tongue has great advantages. Extensive reading and research are shown throughout the course of lectures, not by multiplied notes, quotations, and references, but by numerous allusions to facts and opinions, gathered from many books, as well as from actual observation. This is a merit demanding special notice; for a show of learning may be so easily made, and has been so common, that a book free from such pretension incurs some risk of being undervalued, as unlearned, because erudition is not served up on every page, in the shape of foot notes and references. True learning, when well assimilated, may be unostentatiously applied to any subject. An author who has read many books on the topic of which he treats, may convey the purport of his reading so unassumingly that his learning may be said to hide itself, while a writer, possessing no such learning, may easily make a show of it by crowding his pages with references to works which he has scarcely used for a better purpose. The absence of many references to authorities is, as Dr. Watson informs us, partly accidental. He wrote, at first, solely for the instruction of his pupils, and without a view to publication. 'He may therefore have used, without acknowledgement, not only the facts and reasonings, but, sometimes, perhaps, the very words of others.' This admission is freely made by the author, in an advertisement prefixed to the first edition; but it should be added that, throughout the work, we find the greatest readiness to acknowledge the services to science and humanity rendered by cotemporaries, as well as by the great men of past times, and a total absence of that professional jealously which, in some instances, seems to spring from an erroneous notion, that the field of medicine is too narrow for generous competition.

No apology is required for one of the pleasant features of the work—its familiar style in giving illustrative anecdotes that may, at least, serve a good purpose as aids to memory. It must not, however, be supposed that such familiarity of style, in some parts, is attained by any general sacrifice of a proper dignity. We cannot close this brief notice of Dr. Watson's work without giving, as a fair specimen of its general style, one passage in which he treats, with sound judgment, an important question in medical ethics:—

"Our influence over a sick person, and the efficacy of many of our remedial measures are remarkably increased by our evident acquaintance with the nature of his

complaint, and by the reliance which he, therefore, places on our skill and judgment. It is often of material consequence, in another point of view, that the fatal character of a disease should be plainly perceived. A sick man, made aware of his danger, is furnished with a motive and an opportunity for arranging his worldly affairs, in the settlement of which the future comfort and happiness of his family may be very deeply concerned; for making his will; and for more solemn preparation for the awful change that awaits him. For these reasons physicians have, in all periods, endeavoured to read, in the phenomena presented to them by diseases, the event to which those diseases severally tend. To *form* an accurate opinion on this head is, however, one thing, and to *divulge* it, another. There is always some hazard of losing, instead of gaining credit, by strong statements, and confident predictions of the death or the recovery of a patient. If you give an unfavourable prognosis, you incur the risk of losing your patient altogether; his friends argue very naturally, that you are not infallible, that you may be wrong, that if *you* know of no means of safety for him, some other practitioner may, and they will grasp at whatever straw comes near them. Do not suppose that this is merely a selfish view of the matter: it is often of much moment to the patient himself, that he should not be tempted to put his life under the charge of impostors, who will feed his hopes and promise largely, and torture him, perhaps, with their discipline, and have no mercy on his pocket. . . . . There are other reasons, too, why we must sometimes conceal the truth from our patients. It often happens that a person is extremely ill, and in great danger, but may yet recover if he is not informed of his peril. To agitate a person, in these circumstances, by telling him that he is likely to die, is to lessen, perhaps to destroy, his *chance* of recovery. You kill him if you take away his hope of living. It must be confessed that the duty of the medical man in these cases is very painful and embarassing: the patient and the patient's friends are urgently inquisitive to know whether there is any danger; or whether he is not yet out of danger. The rule which I have always adopted in circumstances of this perplexing kind, when I see clearly that the case is hopeless of cure, is to fix as well as I can, upon that person among the family or friends of the patient, to whose prudence the real state of the matter may be the most safely confided. If I think that there is a possible chance of recovery, and that a knowledge of his danger by the patient would diminish that chance, of course I urge the necessity of speaking to *him* with assumed cheerfulness and confidence: if I see that the case is absolutely and inevitably mortal, either soon or at some little distance of time, I leave it to the discretion of the person with whom I communicate to disclose or conceal my opinion, as he or she may think best. There are, I believe, practitioners, who make it a point, on principles of worldly policy, *never* to speak despairingly of a patient; but I cannot regard such a rule of conduct as honest, or justifiable, or consistent with one's Christian duty."—*Lectures on the Principles and Practice of Physic*, 2nd ed., Vol. I., p. 109 *seq.*

Throughout these Lectures, a superior ethical tone characterises the treatment of all those topics to which it is appropriate. The conclusion of the first Lecture is a fair example. If we had not, already, reached the limits of this biographical sketch, it would afford us pleasure, to quote some paragraphs from the observations on the responsibilities of medical practice.

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RICHARD OWEN, M.D., D.C.L., F.R.S.

SUPERINTENDENT OF THE NATURAL HISTORY DEPARTMENTS, BRITISH MUSEUM.

Richard Owen, youngest son of Richard Owen, Esq., of Fulmer Place, Bucks., was born at Lancaster, on the 20th of July, 1804. He received his early education at the grammar school in his native place, and matriculated, in 1824, at Edinburgh, where he attended the anatomical lectures of Dr. Barclay. After passing his medical examination in London, he was admitted, in 1826, a member of the Royal College of Surgeons; and in the following year commenced private practice, as a surgeon, in Serle Street, Lincoln's Inn Fields. While engaged as a practitioner, he communicated several cases to the Medical Society of St. Bartholomew's Hospital, of which he was a member; and, in a paper for the Medico-Chirurgical Society, he settled the question of the practicability of successfully tying the internal iliac artery, which had been mooted in connection with Dr. Stevens' famous case of aneurism of the gluteal artery. It was through the recommendation of Mr. Abernethy that he gained the appointment of assistant curator of the Hunterian Collections—an office that diverted his attention from medical practice to the pursuit of comparative anatomy. He was now led to resume the zoological studies he had commenced in Edinburgh, and addressed himself with zeal and energy to a task admirably fitted to call forth his extraordinary powers of research. His first arduous duty was to prepare a descriptive catalogue of the collections, which had been transferred by Parliament to the College of Surgeons. For this work he found little preparation made. Of all the specimens and drawings of animal and vegetable organs, scarcely one was accompanied by a notice of the species from which it had been derived. The new

curator industriously applied himself to the dissection of such animals as died in the menagerie of the Zoological Society of London, and thus gained the materials for many of his valuable contributions to the Proceedings of the Society, while the same facts were serving towards the preparation of the Hunterian Catalogue, of which the first volume appeared in 1833. Another was ready in the following year; and a third volume in 1836. But the two remaining volumes, relating to the most extensive and extraordinary department of the collections, viz., the 'Generative Organs and Products,' were not ready until 1840. These completed the great work of the 'Descriptive and Illustrated Catalogue of the Physiological Series.' The Council of the College expressed their acknowledgement of 'the unremitting labour which had been for years bestowed on this work by Mr. Owen, one of the conservators, and now Hunterian Professor of Comparative Anatomy and Physiology to the College.' They subsequently gave similar acknowledgements for the Catalogues of the 'Osteological Series,' 2 vols. 4to., pp. 914; of the 'Fossil Mammalia & Aves,' 4to., pp. 380, with plates; of the 'Fossil Reptilia & Pisces,' 4to., pp. 184, with plates; and of the portion of the 'Fossil Invertebrata,' 4to., including the class Cephalopoda, of which Hunter had collected a very numerous and beautiful series of specimens.

In 1834 Professor Owen was appointed to the chair of Comparative Anatomy in St. Bartholomew's Hospital, where he numbered among his pupils Rymer Jones, Arthur Farre, and White Cooper. In the following year, he married the only daughter of his friend and colleague in the Curatorship of the Hunterian Museum, William Clift, Esq., F.R.S.

A microscopic discovery made, at this time by Professor Owen, affords a striking instance of an important result attending what seemed at first, a mere curiosity of science. In 1835, Mr. Wormald, of St. Bartholomew's Hospital, sent to Professor Owen a piece of flesh in which he discovered a new entozoon—the now too-well known Trichina spiralis, which has been since found infesting the muscles of the human body, to such an extent as to cause death, and has produced the epidemic Trichinosis that has made its appearance, especially in Germany. The introduction of this entozoon into the system is traced to the consumption of diseased and ill-cooked pork.

In 1836, Professor Owen became a Fellow of the Royal Society, and of the Geological and Linnæan Societies, and, on the retirement of Sir Charles Bell, was elected to the Professorship of Anatomy and Physiology in the College of Surgeons. It had been stipulated by Parliament, in the purchase and transfer of the Hunterian Museum to the College, that its contents should be illustrated in a course of twenty-four lectures. These lectures Owen, as 'Hunterian Professor,' now undertook to deliver, and continued, on new subjects each year, to 1855. His observations on the 'blood-disks,' published in the 'Medical Gazette' (1839), and the important results of other microscopical studies carried on about this time, by Farre, Bowerbank, and Busk, issued in the formation of the 'Microscopical Society' (1840), of which Professor Owen was the first President. A further application of the powers of the microscope was suggested by the present made by Mr. Darwin to Professor Owen, of some fragments of the teeth of the extinct megatherium and other animals from South America. These fragments were in an incipient state of decomposition. A microscopic examination of their structure was followed by comparative investigations of the differences in the microscopical structure of the teeth of every class of animals, and the result was the production of the splendid work on 'Odontography' (1840-45), consisting of two quarto volumes of 650 pages, illustrated with 168 finely-executed plates. In 1844, Professor Owen received from the Royal Society the Royal Medal for his description of certain Belemnites from the Oxford clay. These fossils were so well preserved, that the Professor was enabled to compare their structure most clearly, with the corresponding parts of recent cuttle-fishes and with those of the 'nautilus pompilius,' which he had first dissected in 1831.

In 1837, Professor Owen published, under the title of the "Animal Economy," the papers by John Hunter, which had been published and collected during his lifetime, with the addition of the "Croonian Lectures," which had been read before the Royal Society, from 1776 to 1782. On the demise of Mr. Clift (who had been Hunter's last articled pupil), certain extracts from Hunter's writings on comparative anatomy and physiology, came into the possession of Professor Owen, and he published them, with annotations, in two octavo volumes, entitled 'Essays and Observations on Natural History, Anatomy, &c., by John Hunter' (1861).

Mr. Clift, whilst in charge of the collection, before its purchase by Parliament in 1799, had made certain copies from the Hunterian manuscripts on Natural History, Comparative Anatomy, Physiology, and Fossil Remains. These manuscripts were removed by Home, in 1800, and subsequently destroyed. On the completion of his work in editing the two volumes of 'Essays and Observations,' Professor Owen deposited in the library of the Royal College of Surgeons the extracts which had been made by Mr. Clift. In dedicating the two volumes to the Fellows and Members of that College, the Professor speaks of the publication as the 'last of his labours in making known the thoughts and works of the founder of Philosophical Surgery.'

After thus devoting a considerable part of the best years of his life to the illustration of the labours of the great John Hunter, whose collections he had enriched with donations, and made vastly more valuable by the descriptive catalogues, Professor Owen, in 1856, resigned the Curatorship of the Hunterian Collections, and received the appointment of Superintendent of the Natural History Departments (Zoology, Geology, and Mineralogy,) in the British Museum, which he still retains. On the state and advancement of these Departments, and the nature of the chief novelties added to them, the Superintendent has made Annual Reports, which have been laid before Parliament by the Trustees, and ordered to be printed. Estimates founded on the known numbers of species, in the ratio of the additions in past years, and on the spaces required for the exhibition of the several classes, have led Professor Owen to recommend a building covering 2½ acres, with a reserve of the same amount of space for future expansion. His matured ideas on this subject are published in his work:—'On the Extent and Aims of a National Museum of Natural History,' 8vo., 1862.

The Parliamentary Paper on the British Museum, issued 10th May, 1865, contains the last of Professor Owen's annual Reports, and concludes as follows: 'the present space allowed to the Natural History Collections restricts the labours of the staff, in regard to a large proportion of the specimens, to the business of conservation: whereas the purpose of the Collections is to be instructively exhibited, or arranged under conditions of light and access facilitating scientific scrutiny and comparison. Not only the Birds, the Shells, and the Minerals should be shown in serial sequence, but every other class of Natural History; nor

ought the bulk of the specimens in certain of these, to be a bar to such display: for, it is only in a National or British Museum that adequate space for such means of advancing Natural Science can be afforded or expected.' We trust that objections to providing the indispensable means of removing the obscurity which veils the history of the Whale tribe, and which are annually made, in scoffing ignorance, by certain members of Parliament, will have no weight with 'the House' in the settlement of the question of space for the Natural History Museum of a great maritime and colonizing country like England.

While holding this appointment, and engaged in researches so vast as to demand more than the time allotted to the life of man, Professor Owen has also served the public in other departments. He was engaged, with other scientific men, on the Commission for inquiring into the state of large Towns, for which he wrote the Report on the sanitary state of Lancaster. As member of the Commission for inquiring into the Health of the Metropolis, and of the subsequent one on Smithfield and other meat markets, he strongly advocated the entire suppression of intramural slaughter-houses, and the concomitant evil of droves of sheep and cattle through the crowded streets of London. For the Great Exhibition of 1851, he was on the preliminary committee of organization, and acted as chairman of the jury on raw materials, alimentary substances, &c., published an elaborate report of their awards, and, at the request of the late Prince Consort, delivered to the Society of Arts, a lecture on 'Raw Animal Products and their Uses in Manufacture.' Similar services were performed by him for the Exhibition Universelle of Paris in 1855. Professor Owen is an active member of the British Association for the Advancement of Science, of which he was president in 1858.

Meanwhile he has been most industrious as an author. To mention here merely the titles of his papers and more extensive writings would reduce the few pages at our disposal to the form of a catalogue. It seems, therefore, more suitable to attempt some brief statement of those higher laws of scientific generalization, which Professor Owen has ever sought to reach, through all the numerous details of observation; for it is by virtue of his great arguments on the homologies, the adaptations and the developments of animal structures, that he will always claim the highest rank among scientific men who have striven to look through nature into

the laws by which her processes are governed. While in quest of a law of unity, he has submitted a host of facts to the careful and sceptical scrutiny demanded by inductive reasoning, and, as a splendid result of such labours, he has established on a sure scientific basis, that doctrine of homologies which was first so remarkably predicted by the universal genius of GOETHE.

This doctrine of homology teaches that the various structures of vertebrated animals are developments of one archetype: for example—that we may find in the skulls of all vertebrated animals one common type, and that they are all built up, as a general rule, of the same number of pieces, arranged in the same general way. This harmony of design is, by no means, evident to superficial observation. To take the extremes of difference,—there would, at first sight, appear to be no considerable likeness between the skull of the serpent and that of man. For example, again, the centre bone of the upper jaw, which contains the incisor teeth, is found as a distinct bone, connected with the maxillary by sutures in the lower animals, while in man these sutures are not found. Yet Goethe, so long ago as 1784, trusting in his idea of a unity of design prevailing throughout nature, declared his belief in the existence of that which he had not seen—the intermaxillary bone in the human structure. At first, the doctrine was received with contempt, as opposed to established facts; for Camper, in his Comparative Anatomy, had made the absence of this bone, one of the chief marks distinguishing the human structure from that of the ape! Goethe, not only gave the idea, but pointed to the true method of demonstration, especially by an examination of the skulls of children, and also of the fœtal skull. As early as 1786, the doctrine was confirmed by the observations of the French anatomist Vicq d' Azyr, and though the great systematist, Cuvier, had contented himself with a rejection of the idea of an archetype, as having been first announced *a priori*, Professor Owen, in his important work 'on the Archetype and the Homologies of the Vertebrate Skeleton,' admitted that 'Goethe had taken the lead, in inquiries of this nature, in his determination of the homology of that part of the human maxillary bone, which is separated by a more or less extensive suture from the rest of the bone in the fœtus,' and went on to observe, 'the philosophical principles propounded in the great poet's famous anatomical essays called forth the valuable labours of the kindred spirits, Oken, Bojanus,

Meckel, Carus, and other eminent cultivators of anatomical philosophy in Germany.' But it is to Professor Owen himself, who thus generously refers to the services of others, that the doctrine of homologies is most indebted for its demonstration. The following passage from one of his lectures may serve as an example of his power of giving, in a popular form, the results of his extensive investigations :—

"We find," says the lecturer, "that the skull of all vertebrate, or back-boned animals, is built up, as a general rule, of the same number of pieces arranged in the same general way ; that these pieces, in most cold-blooded vertebrates, continue separate through life ; that the plan of their arrangement agrees in the main with the archetype governing the arrangement of the bones in the segments of the trunk-skeleton ; and that the skull is made up of four such segments. The four pieces of the fœtal occipital bone are now acknowledged by all anatomists to be the body and parts of the neural arch of the last of the cranial vertebræ. And this is the wider or more generalised explanation of the twenty-eight or more bones of which the human cranium, like that of all beasts and birds, is at first composed, although they, afterwards, coalesce into eight bones, and sometimes fewer. The law of the development of the skull provides and includes the condition of safety in childbirth. There is a time when this brain-case must pass through an unyielding passage narrower than the natural diameter of the case at that time. And what do we find to be the structure of the cranium then? Instead of eight, it consists of eight and twenty pieces ; and none of these are fastened or dove-tailed together by the unyielding, serrated, dentated structures. Most of the bones can slide over one another. The structure, therefore, admits of the required change of shape, and the soft brain within bears without injury the transitory alteration in the diameters of its case."

In the above passage, the doctrine of the homologies is shown to be compatible with that of a special adaptation of parts to certain uses. In the same lecture, we find striking instances of such adaptation clearly pointed out in the structure of the Aye-aye, or Chiromys Madagascariensis :—

"This quadruped is stated to sleep during the heat and the glare of the tropical day, and to move about chiefly by night in quest of wood-boring larvæ. The wide openings of the eyelids, the large cornea, and expansile iris, with other structures of the eye, are express arrangements for admitting to the retina and absorbing the utmost amount of light which may pervade the forests at sunset, dawn, or moonlight. Thus the Aye-aye is able to guide itself among the branches in quest of its hidden food. To discern this, however, another sense had need to be developed to great perfection. The large ears are directed to catch and concentrate, and the large acoustic nerve and other structures of the organ seem designed to appreciate any feeble vibration that might reach the tympanum from the recess in the hard timber, through which the wood-boring larva may be tunnelling its way, by repeated scoopings and scrapings of its hard mandible. How safe might seem such a grub in its teak or ebony-cased burrow! Here, however, is a quadrumanous quadruped in which the front teeth, by their great size, strong shape, chisel structure, deep implantation, and

provision for perpetual renovation of substance, are especially fitted to enable their possessor to gnaw down with gouge-like scoops to the very spot where the ear indicates the grub to be at work. The instincts of the insect, however, warn it to withdraw from the part of the burrow that may be thus exposed. Had the Aye-aye possessed no other instrument,—were no other part of its frame specially modified to meet this exigency—it must have proceeded to apply the incisive scoops in order to lay bare the whole of the larval tunnel, to the extent at least which would leave no further room for the retracted grub's retreat. Such labour would, however, be too much for the reproductive power of even its strong-built, wide-based, deep-planted, pulp-retaining incisors: in most instances we may well conceive such labour of exposure to be disproportionate to the morsel to be so obtained. Another part of the frame of the Aye-aye is, accordingly, modified in a singular and as it seems, anomalous way, to meet this exigency. We may suppose that the larva retracts its head so far from the opening gnawed into its burrow as to be out of reach of the lips, or tongue of the Aye-aye. One finger, however, on each hand of that animal has been ordained to grow in length, but not in thickness, with the other digits; it remains slender, as a probe, and is provided at the end with a hook-like claw. By the doubtless rapid insertion and delicate application of this digit, the grub is seized and drawn out. For this delicate manœuvre the Aye-aye needs a free command of its upper or fore-limbs; and to give it that power, one of the digits of the hind foot is so modified and directed that it can be applied thumb-wise to the other toes, and the foot is made a prehensile hand. Hereby the body is steadied by the firm grasp of these hinder hands during all the operations of the head, jaws, teeth, and fore-paws, required for the discovery and capture of the common and favourite food of the nocturnal animal."

We have seen that, while Professor Owen has maintained the doctrine of a unity of type prevailing throughout the structures of vertebrate animals, he has also recognized those special adaptations of the type to various circumstances and uses, upon which the argument for design in creation is founded. As the last or highest generalization concluding his work 'On the Nature of Limbs,' he refers to the operation of natural laws, while admitting their nature to be unknown, as the secondary cause or condition of the successive developments of the one archetype, which have arisen in the course of geological time. But, in testing the ideas as to the *modus operandi* of such laws propounded by Demaillet, Buffon, and Lamarck, he points out phenomena which oppose their acceptance, to the exclusion of Creative Power fore-ordaining results. In his 'Palæontology' and 'Memoir on the Aye-aye,' the later 'Vestigian' and 'Darwinian' hypotheses, are, in like manner, weighed and found wanting; although they are admitted to be superior to their predecessors by virtue of the arguments, pointing to secondary powers originating species, derivable from the labours of the geologists, palæontologists, embryologists, and homological anatomists of the present century. As it has been inferred that the

admission of any continuously operating, secondary, creational law must supersede the theory of special acts of creation *de novo*, as necessary after each of those great revolutions of life, or succession of species, on our globe, of which geology testifies, Professor Owen's conclusions have been censured, as leading to a 'scientific pantheism,' or even to atheism. In his reply to such charges, he remarks, "could the pride of heart be reached whence such imputations came, there would be found unuttered,—'unless every living thing has come to be in the way required by my system of theology, Deity shall have no share in its creation.'"

While he has sought only for truth, without regard to its popularity, Professor Owen has brought to light not a few of the more recent curiosities in natural history and, in several striking instances, has found the conclusions deduced from his doctrines of homology and special adaptations, verified by the latest observations. Among other remarkable conformations, he has shown that the Australian 'Ornithorhynchus paradoxus'—the creature with a beaver's tail, a mole's skin, a duck's bill, and the spurs of a cock—is mammiferous, or suckles its young ones, which are provided with a short and soft beak during the time of lactation. The early infancy of the kangaroo has been explored up to the time when, with hind legs shorter than the fore legs, it clings for six months, to the nipple within the mother's pouch. The gorilla has been placed, in the scale of structure, above the chimpanzee, and fine specimens of the former remarkable animal have been secured for the British Museum. The study of a fragment of bone from New Zealand* has led to the reconstruction of a bird eleven feet high; and that common, but once mysterious fossil, the Belemnite, has been arranged in the order of Cephalapoda. The subjects of Professor Owen's writings, extending from the zoophytes up to man, and, with regard to time, reaching from fishes in the Old Red Sandstone down to the latest discoveries of living species, are too vast to be even outlined in our pages, and, having endeavoured to give a few of their leading thoughts, we must now conclude by referring the inquirer to the following more extensive works by our great Comparative Anatomist:—'Lectures on the Invertebrate Animals,' 1843; 'History of British Fossil Mammalia and

* This paper, entitled 'Notice of a fragment of the femur of a gigantic bird of New Zealand,' will be found in the 3rd volume of the 'Transactions of the Zoological Society of London,' 4to., p. 29.

Birds,' 1846; 'Lectures on the Vertebrate Animals,' 1846; 'On the Archetype and Homologies of the Vertebrate Skeleton,' 1848; 'On the Nature of Limbs,' 1849; 'On Parthenogenesis,' 1849; 'Palæontology,' (a condensation of all the author's and other anterior researches on extinct animals,) 1860-61; 'History of British Fossil Reptiles,' 4to. (six 'Parts' have appeared with upwards of 100 plates); 'On the Pearly Nautilus,' 4to., 8 plates, 1832; 'On the Mylodon,' 4to., pp. 176, 24 plates, 1842; 'On the Fossil Mammalia, collected during the voyage of the Beagle,' 4to., 32 plates, 1840; 'On the Megatherium,' 4to., 27 plates, 1860; 'On the Aye-aye,' (Chiromys), 4to., 14 plates, 1863; 'On the Gorilla,' 4to., 13 plates, 1865; 'On the Anthropoid Apes,' eight memoirs in the transactions of the Zoological Society; 'On the extinct wingless Birds of New Zealand, ('Dinornis,' 'Aptornis,' 'Palapteryx,' 'Notornis,' &c.,)' nine memoirs, in the same transactions; ten monographs on 'British Fossils,' in the publications of the Palæontographical Society; 'Odontography,' 2 vols. 4to., with 168 plates, 1840-45.

Among the monographs by Professor Owen may be mentioned—the memoirs 'On the Lepidosiren annectens and the singular sponge Euplectella,' in the 'Linnæan Transactions;' 'On the Rhinoceros;' 'On the Giraffe;' 'On the Great Ant-eater;' 'On the Placenta of the Elephant;' and 'On the Development of the Carapace and Plastron of the Chelonia.' These are mentioned here only as fair specimens of papers too numerous to be even named in this brief memoir. The 'Bibliographia Zoologiæ' of the Ray Society (1853) notices not less than two hundred and thirty publications by Professor Owen, and since that date he has written many others.

Professor Owen is a Fellow of the Royal Society, and of the Linnæan Society, and Geological Society; Foreign Associate of the Institute of France; and has received from the Emperor of the French, the Order of the Legion of Honour; from the King of Prussia, the 'Ordre pour le Mérite'; and from the King of Italy, the Order of St. Maurice and St. Lazare. From his own sovereign he has received the privilege of a residence in Richmond Park.

Photographed by Ernest Edwards 20 Baker Street W

SIR CHARLES HASTINGS, M.D. Ed., D.C.L. Oxon,

LATE MEMBER OF THE GENERAL MEDICAL COUNCIL,
FOUNDER OF THE BRITISH MEDICAL ASSOCIATION.

The name of Sir Charles Hastings is associated, not only with the records of a life of faithful medical service, extending over more than half a century; but also with our brightest hopes of the future, with regard to the status and influence of the medical profession. So deep is our impression of the importance of the views that led to the formation of the British Medical Association, that, while we would render due homage to the veteran physician who has, for more than fifty years, made his life a record of noble duties well discharged, we are still disposed to regard Sir Charles Hastings rather as a man of the future than of the past. Of his practical services we may safely say, they will not soon be forgotten, either in his own favoured sphere of duty at Worcester, or in the medical world: of the ideas and motives, scientific and ethical, that led him to found the British Medical Association, it may be safely predicted, that future years will only serve to develope their beneficent influence on the profession and on general society. Sir Charles Hastings, upwards of thirty years ago, saw clearly our defects of organization. He exposed them; and that was no slight service. But he did more: he provided a remedy. For success in such an undertaking, his own character was an element as important as the correctness of his views. With all the benefits of the Association as it now exists, and with the far greater results that we anticipate of its future, the name of Sir Charles Hastings will ever remain united.

Six or seven years after the commencement of this century, if anyone had seen a playful schoolboy, by no means very fond of books, but rejoicing in rambles along the pleasant river Teme, and

watching grayling rising for flies, it would have seemed too improbable to predict that the truant would, some day, be known as the most eminent medical man in his county, and as the founder of an association destined to raise the character of the medical profession. The boy who loved rambles in the Teme valley better than school books was the sixth son of the Rev. James Hastings, rector of Martley, and was born at Ludlow, on the 11th of January, 1794. He attended the Grammar school at Martley where, as we have intimated, he made no great progress in learning, and was soon afterwards sent to study medicine under the care of Messrs. Jukes and Watson of Stourport. After a few months of comparative indolence, a passion for study and a resolution to rise in his profession were almost suddenly developed in him, and his subsequent conduct proved how easily he could redeem what had seemed lost time in his boyhood. At the early age of eighteen, he was elected to the office of House Surgeon to the County Hospital, and fulfilled its duties so well as to win the confidence of those who, on the ground of his inexperience, had opposed his election. In this situation he had the good fortune to become acquainted with Dr. Wilson Philip, by whom he was employed in making a series of experiments on the functions of the cerebral, spinal, and ganglionic systems of nerves, and, especially, on the effects of galvanism in producing the results of nervous energy. However inconclusive these experiments might be, with a view to confirming Dr. Philip's theory of the identity of galvanism with nervous energy, they served to foster the love of science and to develope powers of observation in the young student.

These studies served also to give Mr. Hastings some status in the University of Edinburgh, where he matriculated in 1815. It so happened that, on the first evening of his attendance at the Royal Medical Society, the subject of discussion was so closely related to his recent course of experiments, that he was able to speak upon it so as to deserve attention. He now industriously attended several courses of lectures, and was favoured, with the friendship and esteem of Dr. Monro. After a short interruption of studies, on account of delicate health, he returned to Edinburgh, and devoted himself to microscopic observations with regard to the several doctrines of physiologists on the irritability of the blood-vessels. At that time, he was the only student in the University who made use of the microscope in such investigations, and,

subsequently, when he read before the Royal Medical Society, a paper giving the results of these observations, the paper was censured by certain authorities, because it was founded on microscopical data, which were declared to be inadmissible!

Meanwhile, he had served as clinical clerk to Dr. Home, and had been unanimously elected President of the Medical Society (1817). In his thesis, written near the close of his academical career, before receiving the doctorate, he adhered to his favourite subject, '*de vi contractili vasorum*,' and gained the recommendation of the professor of anatomy. A proposal that Dr. Hastings should succeed Dr. Gordon, as teacher of Anatomy and Physiology, was declined, on the ground of delicate health, and to escape from the harsh winters of the North, Dr. Hastings removed, in 1818, to Worcester. In the same year, he was appointed Physician to the Hospital in that city, and continued ably to discharge the duties of that office during the extraordinary period of almost half a century. His leisure hours were occupied in revising his observations on the action of the bloodvessels, and in recording and studying the numerous cases of affections of the mucous membrane treated in the course of his practice. As the results of these studies, he published, in 1820, a 'Treatise on Inflammation of the Mucous Membrane of the Lungs,' with introductory essays entitled, respectively, 'An Experimental Inquiry into the Action of the Bloodvessels,' and 'An Inquiry into the Nature of Inflammation.'

Soon afterwards, Dr. Hastings succeeded to a great part of the practice of Dr. Wilson Philip, and, in 1823, married the eldest daughter of Dr. Woodyatt of Worcester. Years of prosperity followed this happy union, and, amid the engagements of a well-established practice, Dr. Hastings found leisure to turn his thoughts to the general interests of the profession, especially in the provinces. He had long observed, with regret, the want of efficient means of promoting union, for both scientific and social objects, among provincial medical men. His first endeavour to supply this want was by the publication of a quarterly journal, under the title of the 'Midland Medical and Surgical Reporter' (1828). It was well supported by contributors and subscribers, and its founder published in its pages, among other papers from his pen, an essay on the 'Medical Topography of Worcestershire.' A change of plans, however, was soon suggested by the failure of the publisher of the Reporter, and Dr. Hastings was now led to

contemplate something more than a journal. He proposed the formation of an association for the promotion of the following objects :—the collection and publication of recent medical information; the study of medical topography, in connection with endemic and epidemic diseases; the advancement of medico-legal science; and—last, but most important—the maintenance of the honour of the profession. This proposal issued in the formation of the Provincial Medical and Surgical Association. Its first meeting was held in Worcester, on the 19th of July, 1832, when Dr. Hastings delivered the inaugural address. Shortly afterwards, the first volume of Transactions was published, and, in 1840, the weekly periodical of the Association first appeared under the title of the 'Provincial Medical and Surgical Journal.' Meanwhile, the Committee had prepared memorials to Government and petitions praying for the introduction of measures to provide for the better organization of the profession, and recommending uniformity of primary qualifications, equal rights of practice, and the adoption of the representative system in the formation of councils. Such were the plans that have resulted in the establishment of our British Medical Association of the present time.

This we regard as the *opus magnum* of Sir Charles Hastings. The lapse of time, since 1832, has served to demonstrate the soundness of his conclusions, and to add to their importance, especially with regard to the social duties of the institution. The wider diffusion of popular information, the increase of competition, and other changes during the last thirty years, have rendered more than ever desirable measures tending to conserve the honour and respectability of the profession. 'A house divided against itself cannot stand,' and medical men, living in times abounding in rash theory and practice, and surrounded by unlicensed claimants of medical responsibility, must, like the guard of a besieged garrison, feel the importance of well-concerted plans of defence and co-operation. The Association is the organ by which such plans must be made effectual. The principles asserted by its founder, must be not only maintained but further developed. It may be expected that, in accordance with the general spread of intelligence, the educational qualifications for entering the profession should be raised; that the Association should be made available as a court of appeal in certain cases, and that something should be done towards establishing a high standard of medical ethics. If we contend that

the last of these objects is the worthiest to which the Association can devote attention, we are faithful to the original purport of the founder. In his address at the twelfth Anniversary Meeting, held at Northampton, in 1844, he concluded by remarking, that 'he decidedly approved of everything that tended to elevate the moral character of man over the intellectual,' and asserted, that without such subordination, the intellectual character became monstrous and by no means inviting to contemplate.

The office of joint secretary to the Association was held by Dr. Hastings until 1843, and, on his retirement, he was appointed permanent president of the council and treasurer. In compliance with the wishes of many of the leading members, the honour of knighthood was, in 1850, conferred on the founder of the Association. Our sketch may be concluded by a notice of other honours that have followed the faithful services we have briefly described. In 1839, at the meeting held in Liverpool, the members of the Association, anxious to confer on Dr. Hastings some lasting token of regard and gratitude, presented a beautiful and faithful portrait of him to his wife; engravings from the portrait becoming the property of the subscribers. At the Annual Meeting of the Association held in London in 1862, a resolution was passed by the Council to offer a prize Gold Medal to the writer of the best essay on a subject connected with the medical profession—the medal to bear the profile of Sir Charles Hastings, and to be called the Hastings Prize Medal. The first presentation of the medal took place at the meeting held in Cambridge in 1864, when it was adjudged to Dr. Thudichum.

On the ninth of January, 1862, a meeting was convened at Worcester, to present to Sir Charles Hastings, a splendid testimonial, commemorative of his *forty-nine* years of service as Physician to the Infirmary. On receiving this token of general esteem, Sir Charles, after returning thanks, observed;—'In early life, I resolved so to run my course, as to obtain a prize—so to fight the battle of life as to get a victory.' Then, referring to the Infirmary and its rapid increase in utility during the time of his service, he added,—'It is a vast privilege to us connected with the medical profession, to be able to carry forward those benefits which the wealth of the community enables us to bring to the door of the poorest sick person. I can assure you, that some of the happiest hours of my life have been spent within the walls of

that noble institution. Often have I said to myself, as I ascended the steps which lead to that sanctuary of sorrow— at any rate, I, to-day, shall be carrying solace to some person, I shall be endeavouring to relieve some sick individuals, who could not otherwise obtain relief. Such a feeling is a reward far greater than rubies.'—These beautiful words are worthy of one who has endeavoured to exalt the moral character of the profession.

The demands made on our limited space by the most important of the services rendered to science and society by Sir Charles Hastings, have prevented detailed accounts of others that might also be found worthy of notice. The study of natural history has supplied for Sir Charles his favourite recreation amid more arduous pursuits, and the excellent Museum in Worcester owes mainly its existence and success to his exertions. In 1834, Sir Charles published 'Illustrations of the Natural History of Worcestershire' and, subsequently, an account of the Salt Springs of the same county. This latter publication supplied a great part of the materials used by Sir Roderick Murchison, in treating the same subject, in his celebrated work on the 'Silurian System.'— To conclude this imperfect biographical sketch—the first duty of a physician is, of course, faithful attention to his own practice. When this has been paid, it is well if he can find recreation in studies not too remote from those of his profession; and when an established position has been gained, it is desirable and becoming that he should look beyond his own immediate field of action and co-operate with others in some generous design. We may say, without adulation, that, when viewed in all the above relations, the career of Sir Charles Hastings leaves to his successors the benefit of a noble example.

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GEORGE BURROWS, M.D., F.R.S.,

PRESIDENT OF THE GENERAL MEDICAL COUNCIL OF THE UNITED KINGDOM.

Dr. George Burrows is the eldest son of the late Dr. George Mann Burrows, F.R.C.P., author of 'Commentaries on Insanity,' and chairman of the Association of Surgeon-Apothecaries of England. In conjunction with other members of that body, Dr. George Mann Burrows obtained the passing by the legislature of the well known Act of Parliament, by which the first great impulse was given to the improvement of medical education in this country.

The subject of the present memoir received his early education at the private school conducted at Ealing, Middlesex, by the Rev. Dr. Nicholas, of Wadham College, Oxford. Having obtained a Tancred Studentship, Mr. Burrows entered at Gonville and Caius College, Cambridge, and graduated as B.A. in 1825, when he was tenth wrangler on the mathematical tripos of honors. He was immediately elected Fellow and Mathematical Lecturer of his College. Shortly afterwards, he entered at the Medical School of St. Bartholomew's Hospital, where he attended the lectures and practice during two years. Having obtained a slight independence from his college fellowship, he determined to prosecute his anatomical studies abroad, where the facilities for dissection were so much greater than in England. With this intent, he made himself the private pupil of M. Breschet, in Paris, dissected at the Ecole de Médecine, and studied clinical medicine in the wards of Andral, Louis, and the successor of Laennec. In the following winter, Mr. Burrows placed himself under the guidance of the illustrious Scarpa and Professor B. Panizza, of Pavia, and thence, after making the tour of Italy, went to the hospitals of Vienna and Berlin, where he stayed six months. In 1829 he returned to

St. Bartholomew's Hospital, and resumed his studies in medicine and surgery under Dr. Latham and Mr. Lawrence. In the same year he passed his examination at the College of Physicians, and, in 1831, took the degree of M.D. at Cambridge. In the following year he was elected Fellow of the Royal College of Physicians. In 1834 he married the youngest daughter of the celebrated John Abernethy. In the same year Dr. Burrows was elected Assistant Physician, and, in 1841, Physician to St. Bartholomew's Hospital and Lecturer on the Principles and Practice of Medicine. These offices he resigned at the close of the year 1863, when he was elected Honorary Consulting Physician to St. Bartholomew's Hospital. He was appointed Physician to Christ's Hospital, London, in 1860. In 1846 he had the honour of being elected a Fellow of the Royal Society.

During the seven years from 1839 to 1846, Dr. Burrows held the office of Censor of the Royal College of Physicians, and was elected, for several years in succession, a member of the Council.

In the year 1847, while Dr. Burrows was serving the office of Senior Censor, he was summoned to appear as a witness before the Select Committee of the House of Commons upon Medical Education. At the conclusion of the sittings of the Committee, the College of Physicians, at their Comitia, passed a vote of thanks to Dr. Burrows, to the effect 'that he had discharged his duty with great ability, and that he deserved their thanks for the conscientious and independent way in which he had given his evidence.'

Dr. Burrows delivered, in the years 1834, 1835-6, and 1843-4, the Gulstonian, Croonian, and Lumleian Lectures in the College: these lectures were published in the Medical Times and Gazette. In 1860 he was chosen representative of the Royal College of Physicians in the General Medical Council, and was elected President of that Council in 1864.

In 1862, when the British Medical Association assembled for the first time in the metropolis, Dr. Burrows presided. In his address delivered on that occasion, he gave a condensed and able survey of the history of several great corporations, noticing the benefits they had conferred on society, and then proceeded to give a sketch of the history and of the present functions of the Royal College of Physicians. After some comments on the Royal College of Surgeons in its relations with the General Medical Council, and a notice of the Apothecaries' Society, the President observed

that, at the present time, none of these three medical corporations discharges an important part of their original functions—the maintenance of a wholesome moral influence over the whole medical community. From these data the President argued for the necessity of such a society as the British Medical Association.

In 1846 Dr. Burrows published his most important work—a treatise on the 'Disorders of the Cerebral Circulation.' This work consists of two parts, the first of which may be regarded as a physiological inquiry into the circulation of the brain, while the second investigates the relation which exists between affections of the brain and diseases of the heart. The first part of the work submits to a strict experimental examination certain doctrines respecting the cerebral circulation, which had exercised considerable influence on the views of practitioners respecting the nature and the treatment of affections of the brain. These views had been maintained by Alexander Monro and Dr. Abercrombie, and were believed to be especially supported by the experiments performed upon animals by Dr. Kellie. On these experiments the assertion had been based, that the cranium, as an unyielding case of bone, so incloses the brain as to exclude all atmospheric pressure. Consequently, allowing the brain to be a nearly incompressible organ, the quantity of blood which circulates in it can never undergo any material variation. Hence it would follow that determination of blood to the head could never take place, and that bleeding to remove the pressure of blood upon the brain must be an erroneous practice. Dr. Burrows gives, in the first place, an account of the experiments made by Dr. Kellie, and the propositions based upon them. These were as follow:—that in the brains of animals that have died of hæmorrhage, there is no lack of blood; that congestion of the cerebral vessels is not met with in such cases as those of persons hanged or strangled, where we should most expect to find it; and lastly, that the quantity of blood in the cerebral vessels is not affected by gravitation. These were the conclusions, said to be founded on a series of well-conducted experiments; but Dr. Burrows distrusted the whole process of the proof and determined to repeat the experiments. His results, given in his treatise on the 'Disorders of the Cerebral Circulation,' are directly opposed to the conclusions of Monro, Abercrombie, and Kellie. He shows, in the first place, that hæmorrhage has a certain effect in depleting the cerebral

blood-vessels; secondly, that congestion of the cerebral vessels generally follows strangulation; and lastly, that such congestion may be induced by posture, as in the case of suspension with the head downwards. It seldom occurs that two series of experiments on the same question are so flatly contradictory of each other. Dr. Burrows has explained certain sources of fallacy in the opposite theory and its attendant experiments. He refutes the assumption that the cranium entirely excludes atmospheric pressure. While admitting the existence of cases in which little or no vascularity is found within the skulls of persons who have died of strangulation, he shows that this apparent difficulty may be disposed of without recourse to the theory of Monro and Kellie. He would rather explain the fact by the subsidence of the fluid blood, after death, through the vertebral sinuses and special plexus of veins, which are scarcely, if at all, affected by the compression of the rope. Again, he observes that the mode in which the post mortem examination of such cases has generally been conducted admits of fallacy, as the blood, still fluid, has been allowed to gravitate from the cranium and pour itself from the divided cervical vessels into the chest. In the second part of the treatise, Dr. Burrows investigates the relation which exists between affections of the brain and diseases of the heart. From an examination of one hundred and thirty-two cases of apoplexy and hemiplegia, he induces the conclusion that 'in any given number of cases of apoplexy and hemiplegia, no less than three-fifths may be expected to present heart disease, either hypertrophy, dilatation, or valvular disease, separately or conjointly.'

This treatise by Dr. Burrows on 'Disorders of the Cerebral Circulation,' has been universally accepted as a valuable contribution to the theory and practice of medicine. Its refutation of a theory which had been supposed to be based upon experiments, is a striking proof of the necessity of using all possible precautions against the fallacies to which inductive reasoning is liable. Among other contributions of Dr. Burrows to medical literature may be named;—the articles on 'Hæmorrhage,' 'Scarlatina,' and 'Rubeola,' published in the 'Library of Medicine'; 'Clinical Lectures on Medicine,' published in the 'Medical Times and Gazette,' and several papers in the 'Transactions of the Royal Medical and Chirurgical Society.'

Photographed by Ernest Edwards 20 Baker Street W.

JAMES LUKE, F.R.S.,

LATE PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS; CONSULTING SURGEON TO THE LONDON AND ST. LUKE'S HOSPITALS.

The importance of the services of a medical man can, by no means, be estimated by the materials they may afford for narrative interest in a biographical sketch. The results of long and arduous exertions may, often, be very briefly stated. To the ordinary reader, it may not be very interesting to learn that a surgeon, by an improved method of operation, has greatly reduced the rate of mortality in certain cases. To see the value of the result, we must reflect on the number of such cases annually occurring. The story of a man who saves one life from drowning may be made interesting, though it is but an individual case, and only one life has been saved. The improved operation for hernia adopted by Mr. Luke has, already, saved many lives, and its benefits will be felt as long as mankind require the aid of surgery.

In 1816 Mr. Luke became a student at the London Hospital, and, subsequently, attended the lectures of Mr. Abernethy, at St. Bartholomew's, and of Sir Astley Cooper, at Guy's Hospital. In 1821 he began to teach Anatomy, and was appointed Lecturer on Anatomy at the London Hospital, in 1823, and Lecturer on Surgery, in 1825. In 1827 he was elected Assistant Surgeon to the London Hospital, and Surgeon in 1833. Upon his resignation of the last-named appointment, he was elected Consulting Surgeon in 1861. As this Hospital is remarkable for the number of its severe casualties, the practice of Mr. Luke has been very extensive, and the results of his experience must be proportionately valuable. It may be regretted, therefore, that his papers are only to be found scattered through the pages of several medical journals. Among

the most important, may be noticed a paper in the 'Medical Gazette' for August 27th, 1841, which treats of the operation for strangulated hernia by Petit's method.

In the 'Medical Gazette' for May 7th, 1841, Mr. Luke gave a description of a bed, constructed for the treatment of fractures of the thigh and other cases, which has been found very useful in affording comfort and quietude to the patient, and is, at present, in use at the London Hospital. In the same journal for September 24th, in the same year, Mr. Luke gave some observations on experiments made for the purpose of ascertaining the uses of the round ligament of the hip-joint. Mr. Luke inferred, from these, that the round ligament had more important uses than had been assigned to it by Sir A. Cooper, Mayo, Dr. Knox, and other authorities, and, especially, that it served as a stop to concussion. In the 'Medical Gazette' for 1841, Mr. Luke gave a description of an improved 'Suspensory Apparatus for Fractures.' This simple apparatus is very advantageous in the treatment of fractures of the leg, whether simple or compound, inasmuch as 'the very important desideratum of uniting comfort and convenience of the patient to security of the limb against displacement is obtained. This improvement is now extensively adopted in practice.

An important paper on 'Cases of Strangulated Hernia, reduced *en masse*, with observations,' was read at the Royal Medical and Chirurgical Society, in 1843. In this paper Mr. Luke shows that such cases, though rare, are not so infrequent as they have been supposed to be; but must be regarded as coming within the ordinary range of probabilities of surgical practice. In 1845, Mr. Luke contributed to the 'Medical Gazette' a case in which a large femoral aneurism was cured by compression, and appended some remarks on the use of indistinct terms to distinguish the different kinds of aneurism. He objects to the terms 'true,' 'false,' and 'diffused,' as unsatisfactory; and proposes to designate the different kinds of aneurism under the terms—1, saccated; 2, tubular; 3, dissecting; 4, varicose; and 5, capillary; which terms will embrace every known variety. In the 'Lancet,' for the same year, we find a paper by Mr. Luke on the 'Treatment of Fistula in Ano by Ligature,' in which its advantages over the use of the knife are clearly set forth.

In 1843, Mr. Luke was elected a Fellow of the Royal College of Surgeons, and, subsequently, became a member of the Council and

Court of Examiners. He was elected Vice-President in 1851, and President in 1853, being elected a second time Vice-President and President, respectively, in 1860 and 1862. Mr. Luke is a Fellow of the Royal Society, and holds the appointments of Consulting Surgeon to the London Hospital and to the Marine Society, and Surgeon to St. Luke's Lunatic Hospital. His general merits as a practical and operative surgeon are too well known to require any description here; but one of his contributions to the progress of modern surgery demands especial acknowledgment.

As early as 1718, Petit had performed, successfully, without opening the sac, the operation for crural hernia, and the patient, an aged woman, was cured in eighteen days. When assailed by numerous objections, he replied that he, by no means, recommended his mode of operation for all cases of hernia, and made exceptions, especially, of gangrenous herniæ, and those cases in which the intestine is loaded with scybala or contains foreign bodies. Petit seems, indeed, to have been, in a great measure, ignorant of the importance of his own innovation, and of the frequency of the cases in which it would be applicable. The danger of the ordinary mode of operating was well illustrated by Dr. Monro, in a series of experiments upon the lower animals. The results clearly showed that the principal source of danger in opening the hernial sac was from exposing the peritoneal cavity and the intestine to the action of the atmosphere. The operations for hernia by Monro, in the course of the twelve years, 1770-82, were followed, long afterwards, by those of Sir Astley Cooper, who cautiously recommended Petit's method, in certain cases, while he refrained from giving it such a sanction as might have led to its general adoption. In 1829, Mr. Aston Key first attempted to render the adoption of Petit's method more general, and advocated its more extensive use in a monograph published in 1833. But it is to Mr. Luke that we are chiefly indebted for the revival and the confirmation of a method which has, already, greatly lessened the rate of mortality from hernia. He reduced the operation for femoral hernia to a small longitudinal incision over the seat of stricture, and a subsequent division of the stricture, with as little disturbance of the tissues as possible. Accounts of cases thus operated upon with success may be found in the 'Medical Gazette,' 1843, the 'Medico-Chirurgical Transactions,' vol. xxxi., p. 108, and in other papers contributed by Mr. Luke to medical journals. Arguments against

the ordinary method, however dangerous it had been proved to be, could never have established Petit's innovation, without the aid of such statistics as have been supplied by the success of Mr. Luke. He has shown its advantages, in the smallness of the incision required, and in the lessening the risk of peritonitis, resulting in many cases, though not in all, from the opening made, by the old method, into the cavity of the abdomen. If any doubt could now be entertained of the advantage and safety of operating without opening the sac, such doubt must yield to Mr. Luke's statistics of mortality. Out of eighty-four cases in which he operated, in twenty-five the sac was opened, and in fifty-nine it remained unopened. Eight deaths occurred in the twenty-five cases of opening the sac, while only seven deaths followed the operation in the fifty-nine cases in which the sac was left unopened. This shows a diminution of mortality to the amount of twenty per cent. in favour of Mr. Luke's method. Through this success, it may be now considered as established, that the safer method should be attempted in all cases where the hernia has not been long strangulated, where it shows no sign of gangrene, and where it is either umbilical or femoral. It is especially advisable, when the hernia is of large size and irreducible. In such a case, Mr. Luke has shown that the old adherent parts are rarely seriously strangulated, and that if the new protrusion be liberated and reduced, all that is required will be effected. It must also be noticed, among other advantages of the safer method, that it allows the further procedure of opening the sac, if this should be found necessary.

As one improvement opens the way for another, Mr. Luke's successful adoption of Petit's principle has been followed by Mr. Gay's operation for limiting the incisions to the neck of the sac—a method especially applicable to a great majority of cases of crural hernia. Several of the statements given in our sketch of the progress of Petit and Luke's method, are taken from the elaborate and valuable treatise on 'Femoral Rupture' by Mr. Gay.

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GEORGE EDWARD PAGET, M.D., F.R.C.P.,

PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION; MEMBER OF THE COUNCIL OF THE SENATE IN THE UNIVERSITY OF CAMBRIDGE.

We have the pleasure of presenting to our readers the portrait of Dr. Paget, of Cambridge.

George Edward Paget, son of Samuel Paget, Esq., was born at Yarmouth, in Norfolk, on the 22nd of December, 1809. He received his early education at the Charterhouse, and, in October, 1827, went to Cambridge, as a student of Gonville and Caius College, of which, in the following year, he became a scholar. In January, 1831, when he took the degree of B.A., he stood as eighth wrangler in the list of mathematical honours. As a consequence of this high position, attained when just twenty-one years of age, Mr. Paget was elected, in the following year, a Fellow of Gonville and Caius College. The Fellowship happened to be one founded by the celebrated Dr. Caius, whose statutes required that the Fellow holding it should study medicine and proceed to the degree of M.D. In obedience to this requirement, Mr. Paget now commenced the study of medicine and its correlated sciences. After visiting the medical schools of Paris, and attending the practice of St. Bartholomew's Hospital, he took the degree of M.B. in 1833, the '*Licentia ad practicandum in Medicina*' in 1836, and the M.D. degree in 1838. In the following year, he was elected Physician to Addenbrooke's Hospital, Cambridge, and became a Fellow of the Royal College of Physicians of London. About this time, and during several subsequent years, repeated attacks of rheumatic fever seriously interfered, from time to time, with the professional duties of Dr. Paget. He was, however, generally able to fulfil the duties of the several offices he held in his own College, and to give assistance in managing the affairs of the University, in which he has always taken an active interest.

The greatest of all the services which Dr. Paget has rendered to the University of Cambridge, and, consequently, to the general progress of education, is to be found in his consistent and

persevering advocacy of an extension of studies, so as to include the physical sciences. He was one of the first to urge and promote the study of these sciences, and to contend for the position that some portion of the numerous scholarships and other prizes which are in the gift of the several colleges, and have long been bestowed, exclusively, as rewards for proficiency in mathematics or classics, should be used to encourage the culture of the physical sciences. In various ways, Dr. Paget has endeavoured to promote this innovation in his own College, and in the University at large, and has not laboured without success.

For the advocacy of such an extension of University studies Dr. Paget was, in several respects, singularly well qualified. Had he been known only as a specialist in some department of physical science, his claims in this department could not have qualified him to judge of the merits of any general plan of studies. On the contrary, they must have suggested a liability to undue partiality. In the general question laid before the University—how to combine new studies with the old routine—the evidence of specialists, in favour of the respective claims of their several studies, could have little weight. Again, if Dr. Paget had attained no high position in the favourite studies of Cambridge, his observations respecting the exclusiveness of those studies might have been mistaken; but of this, as the facts stood, there was not the slightest danger. He spoke of studies in which he had excelled, which he fully appreciated and would conserve. He was, by no means, disposed to dispute the position,—maintained, as he says, 'by many of the most thoughtful and discerning men in all ages,'—'that the study of mathematics and of language (as exemplified in the classical writers of Greece and Rome) are, above all other studies, those which best fulfil the purpose of a liberal education.' Dr. Paget, we believe, would be almost the last man in the world to propose, as a substitute for the old routine, that medley of random notes '*de omnibus rebus et quibusdam aliis*,' now dignified with the title of 'education' in too many schools. The moderation of his demand for some extension of studies deserves and insures success. He looks forward to the improvement that will be effected, when 'no one shall be called well-educated who has not been trained in the knowledge of some natural science.'

In 1851 Dr. Paget married Clara, daughter of the Rev. Thomas Fardell, LL.D., Vicar of Sutton. Having thereby vacated his

fellowship in Caius College, he was released from many collegiate duties, and now devoted a larger share of his time and attention to the practice of his profession. During the years 1855-56, he held the office of President of the Cambridge Philosophical Society. In the latter of these years, when an act of Parliament established, as the chief legislative body for the University, the Council of the Senate, he was one of the first elected seventeen members, and has, since then, been twice re-elected; so that he has remained in the Council since its first institution. In 1863 he was elected as Representative of the University of Cambridge in the General Medical Council, and, in the following year, presided over the British Medical Association at its thirty-second annual meeting held in Cambridge. On this occasion, he delivered an able and interesting address, taking for his chief topic the importance of an extended culture of the physical sciences in the University and elsewhere.

One of the leading arguments in this address was based upon observations, which, although perfectly sound, might, at a first glance, appear paradoxical. The President maintained that the spread of a knowledge of the splendid results of physical science, without a corresponding knowledge of the processes by which such results had been obtained, had strangely been made to give countenance to credulity with regard to absurd dogmas and theories utterly unsupported by inductive evidence. He noticed the fact that such credulity might even be found among men well-educated, in the usual sense of the words, not excluding eminent writers and men holding high offices, and from these facts he inferred, that a general education in classics and mathematics, cannot be a substitute for that culture of habits of careful observation and correct induction which the physical sciences supply. He proceeded to argue, that, for want of such culture, men, otherwise respectable and intelligent,—statesmen, lawyers, and ministers of religion—have placed in the same category, as alike wonderful and alike founded in strict science, the facts of electric telegraphy and the fictions of 'table-turning'; statements supported by abundant evidence and in harmony with the whole body of science, on one hand, and impostures set forth in some thin disguise of scientific terms, on the other. In order to dispel such ignorance, and diffuse generally the light of the natural sciences, Dr. Paget urged on the attention of his brethren the

necessity of maintaining, in the medical profession, a high standard of scientific attainments, and proceeded to say, 'every ignorant man admitted into our profession has an injurious influence on the estimation in which the entire body is held. His demerits have a tendency to lower us throughout the circle in which he is known. The want of confidence in him—the want of respect for him—begets distrust and disrespect for the profession in general. Contrast with this the influence on our social status of such men as Mead, Freind, and Arbuthnot, Thomas Young, Abercrombie, and Brodie, and of the many others, whose acquirements or achievements in literature or science, have raised them to eminence in the eyes of the world. Have they not elevated in some degree the whole body medical; nay, are there not some of our own associates, now living, who have made us all their debtors by the lustre they have thus reflected on our common calling?'

Dr. Paget is a member of the Boards of Medical Studies and Natural Sciences in the University of Cambridge, and Linacre Lecturer on Physic. His publications include a 'Paper on Rhythmical Movements,' published in the 'Edinburgh Medical Journal,' 1846, and the Report of a Case of Paralysis with 'involuntary tendency to fall precipitately forward.' In the latter paper (given in the 'Medical Times and Gazette,' 1855,) Dr. Paget suggested that the case might afford reasons for questioning the conclusion, that the cerebellum, alone, might be regarded as constituting the organ for co-ordination of movements. In this case, the cerebellum and its connexions were free from signs of disease, while a mass of disease occupied the centre of the right *crus cerebri*. In 1860, Dr. Paget contributed to the 'British Medical Journal' a Report of a Case of Epilepsy with automatic laughter, which well illustrates some interesting views in physiology.

Among other writings by Dr. Paget may be mentioned—an account of 'Remarkable Abnormities in the Voluntary Muscles,' published in the 'Cambridge Philosophical Transactions,' (1858); a 'Notice of an unpublished MS. of Hervey' (1850); and a pamphlet written to expose the inconvenience that would have resulted from the use of the new Grain in Apothecaries weight, which had been proposed by the Committee of the new British Pharmacopœia.

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SIR JAMES CLARK, Bart., M.D., F.R.S.,

PHYSICIAN IN ORDINARY TO THE QUEEN.

In order to estimate fairly the merit of an introduction of anything new in theory or practice, or of a further development of truth previously admitted, we must place ourselves in the times and circumstances when such innovation was made. For example, the statement that a suitable change of climate is likely to prove more beneficial than the use of medicines in the earliest stage of phthisis, is a doctrine that now scarcely requires further arguments for its support. But this was not the case in the early part of the present century, when Dr. Clark made the observations that led him to such a conclusion. To him belongs the merit of an early and effective recommendation, not only of this improved treatment of one disease, but of several sanitary and therapeutical measures which still hold their place among the most important developments of modern medical science.

The eminent physician whose portrait accompanies this brief memoir was born in December, 1788, at Cullen in Banffshire. After preparatory training in the Grammar School of Fordyce, he continued his education in King's College, Aberdeen, studied medicine at the University of Edinburgh, and passed the examination of the College of Surgeons of that city, and also that of the Royal College of Surgeons, London. After spending some time as Assistant Surgeon in the Navy, he returned to Edinburgh and, in 1817, took the degree of M.D. He then visited the medical schools of Italy, France, and Germany, and especially directed his attention to the qualities possessed, or supposed to be possessed, by various celebrated medicinal springs, and to the sanative influence of climate.

Having paid more than ordinary attention to phthisis, he had, in the early part of his career as a physician, seen the importance of employing, for the arrest of the disease in its incipient stage, remedial means more permanent in their action than the resources of the pharmacopœia. He was led, both by study and by direct observation, to regard as the most effectual of all means the speedy removal of the patient to a suitable climate. To the skill of Dr. Clark in the diagnosis of the early stage of phthisis, and to the clearness and decision of his views respecting its treatment, may be partly ascribed the celebrity that led to the honourable position he has so long enjoyed. During his residence at Rome, where he practised, for some years, as a physician, he became acquainted with Prince Leopold of Saxe Coburg, and was appointed his physician when the Prince came to reside in England. Shortly afterwards, Dr. Clark was appointed Physician to St. George's Parochial Infirmary.

He published, in 1829, his useful work on 'The Influence of Climate in the Prevention and Cure of Chronic Diseases,' of which a fourth edition appeared in 1856. He had observed, in the early part of this century, the facts on which he based conclusions which, though now generally accepted, were not at that time regarded as confirmed medical doctrines. He had seen clearly the inconsistency and the unsatisfactory results of attempting the arrest of phthisis by the administration of medicines, under circumstances where the influences tending to the development of the disease are almost constantly acting on the system. Change of air, accompanied by suitable diet and regimen, was, therefore, made the basis of his therapeutics in such cases. He saw that such facts as the mitigation, and even the disappearance of all the symptoms of incipient phthisis, under the influence of change of climate during a long sea voyage, had by no means received that share of attention to which they were justly entitled. He gave to change of air the prominence it has since maintained among prophylactic and therapeutical resources, and thus greatly contributed to the extension of the studies of medical topography and meteorology. These studies have already produced great results; but have, probably, far greater results to unfold in the future. Dr. Clark investigated the effects of change of climate in its special suitability to tubercular cachexia and argued that, during this morbid condition and before the disease has manifested

itself in the actual production of tubercles, change of air must form a powerful adjunct to the other means employed for removing such a state of the system. In his article on 'Climate,' in the 'Cyclopædia of Practical Medicine,' he especially urged the importance of trying its sanative influence in the early stage of tubercular cachexia, and supported his arguments by the statistics of Dr. Renton of Madeira, which showed clearly that the ratio of successful treatment had increased in proportion to the number of cases in which an early trial of change of air had been made.

The observations of Dr. Clark on the 'Influence of Climate,' had reference chiefly to diseases of the respiratory organs; but some of the facts on which they were founded may serve to suggest applications of the same remedy to the treatment of other diseases. Such facts as have been already collected respecting the comparatively rare occurrence of calculous diseases, gout, rheumatism, aneurism, and heart disease in the climate of the West Indies, for example, serve to show that the study of medical topography and meteorology is likely to lead to further important results. Dr. Clark rendered an important service, apart from his treatment of phthisis, by directing attention to the importance of forming correct medico-meteorological tables on which further inductions may be based.

The work thus briefly noticed was followed, in 1835, by a 'Treatise on Pulmonary Consumption and Scrofulous Diseases.' To the 'Cyclopædia of Practical Medicine' Dr. Clark contributed, besides the article on 'Climate,' already referred to, a paper on 'Change of Air,' in which he gave illustrations of the well-known observation, '*differre pro natura locorum genera medicinæ*,' and gave practical remarks on the principal circumstances which should guide the practitioner in prescribing change of air to patients. In a pamphlet on 'Clinical Instruction,' he pointed out defects in this department of our several medical schools, and indicated the improvements which have since been introduced.

On the establishment of the University of London, Dr. Clark was elected a member of the Senate. The formation of the College of Chemistry was owing to his endeavours, and several sanitary and hygienic measures which have now passed safely through the stage of controversy, found in him their early and consistent supporter.

Dr. Clark was elected a Fellow of the Royal Society in 1832, and has, at various times, served as a member of its Council. On the death of Dr. Maton, he was appointed physician to H.R.H. the Duchess of Kent and to the Princess Victoria, and on the accession of the latter to the throne, he received the appointment of First Physician in Ordinary to the Queen. In 1838 he was created a Baronet of the United Kingdom. On his retirement from practice, Her Majesty presented to him Bagshot Park House, in Surrey, where he has since resided.

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JOHN PROPERT, ESQ., M.R.C.S.,

FOUNDER AND TREASURER OF THE "ROYAL MEDICAL BENEVOLENT COLLEGE."

The roads are various by which medical men have risen to eminence. In the most difficult of all—the way of discovery—we find comparatively few travellers, and these are such heroes as Harvey, Hunter, and Jenner. Others have combined medical researches with literary skill, like that of Sir Henry Holland and Dr. Copland in our own day; or, like our poets Akenside and Armstrong, have been so far devoted to the muses, that their medical reputation has been eclipsed by their literary fame.

Others, again, have made their professional position a basis for the exercise of philanthropy; have been pioneers of physical and social improvement; have, at least exposed, and with some success, have also combated the common maladies that afflict humanity, or the special sufferings of certain classes in society, and have devoted no inconsiderable share of their attention to objects of public interest, rather than private emolument. For such services as these, society is not a little indebted to a profession whose failures have, often, been too severely judged, because it has been forgotten, that it has to deal with one of the most difficult of all problems, the health of man in an artificial state of society. As medical men, themselves, must take their share of the maladies they would combat, for the good of others, it is right that their philanthropic efforts should be rewarded by some care bestowed upon them 'when the evil days come,' and they are no longer able to defend themselves from sickness, old age, and adversity. This claim of the less fortunate members of the medical profession has been eminently supported by the gentleman to whom this biographical sketch is devoted.

It cannot be said that Mr. Propert's own experience has directly suggested the need of a benevolent Institution like that founded, under his direction, at Epsom. Though he rose, we believe, from a comparatively humble position, and came, with but scanty resources, to London, in 1811, his rise in his profession was rapid. He did not suffer long from 'hope deferred.' But, in rising thus, he must have become acquainted with the dangers of the way over which he, himself, safely travelled. He must have noticed the occasions where he might have failed. He must have seen, for example, how any serious interruption of health at the critical period of 'battling with the world,' at the outset of a career, may prove sufficient to make the whole campaign of life both wearisome and unsuccessful. It is well that Mr. Propert has taken a modest view of the causes of success and failure; for too many of the winners in the race have thought otherwise, and, with logic as false as their want of charity is deplorable, have concluded that all who have not won have only themselves to blame. Mr. Propert's experience and observation have led to a widely different conclusion, and, in behalf of medical men who have not been prosperous like himself, he has devoted his efforts to the accomplishment of a plan of benevolence which now, after encountering considerable opposition, is crowned with success.

John Propert is the only son of the late Thomas Propert, Esq., of Bluenpistill, in the county of Cardigan, and was born on the 19th of July, in the year 1793. He received his early training, under the late Rev. Thomas Morgan, at the Grammar School at Cardigan. When only fifteen years old, he joined one of the regiments of the county militia, and carried the colours at the jubilee of George the Third, in October, 1809. Finding, however, that his own slender means, in addition to his pay, were insufficient, and seeing little prospect of advancement in military service, he articled himself to a respectable practitioner, Mr. Noot, of Cardigan, and was for some time employed, chiefly, in dispensing medicines. His wish to rise more rapidly was favoured by a relative, who advanced money for the support of the young student in London, where he arrived on the 30th of October, 1811. On the same day, he entered as perpetual pupil to the celebrated Abernethy. At the end of six months, and when only eighteen years old, he passed his examination at the College, with the intention of immediately seeking an engagement as a naval surgeon. Domestic

circumstances led him to change his purpose, and returning to town after a short absence, he pursued his medical studies, and in 1814, gained his diploma. Two years later, he was well established in practice, and his subsequent course has been singularly prosperous and rapid. Mr. Propert had the honour of filling the office of High Sheriff for his native county in 1857, and is now a Magistrate and Deputy Lieutenant.

As we have said, this successful career has not rendered Mr. Propert unobservant of the difficulty of the race which he has run so safely. He has looked back upon the field, and on those left behind, and has not been content to utter common-places on the uncertainties and perils of professional life. He has come forward to give assistance, and the Asylum and College at Epsom are proofs of the wisdom and the benevolence of his designs.

The Royal Medical Benevolent College includes, in the first place, an Asylum in which duly qualified medical men, or their widows, each having an income of fifteen pounds per annum, are provided with suitable furnished rooms, and receive each twentyone pounds per annum, with four tons of coal, having their food allowed at contract prices. Each has a perfectly distinct residence, consisting of three well-furnished rooms with all conveniences attached. It is also intended that, as soon as possible, the Asylum shall be opened to, at least, some few deserving and duly elected persons, who may not possess even the small income above named.

A school is founded, in which a liberal education is now given to two hundred boys, the sons of duly qualified medical men. Of these pupils, the majority pay each £40 per annum, for education, books, board, lodging, washing, and medical attendance, while the rest are orphans—maintained, educated, and clothed, entirely at the cost of the institution. It is proposed, in addition, to grant annuities and occasional pecuniary assistance to distressed members of the profession, as the funds of the College may, from time to time, allow. Enlargements of the school have now made it capable of accommodating three hundred scholars.

An institution so judicious and beneficent in its design has not, however, been carried into execution without opposition. It has been erroneously supposed that there might exist some rivalry between this institution and the Medical Benevolent Fund. But injurious rivalry, as distinct from generous emulation, mostly occurs between parties occupying the same ground and having,

almost, or precisely, the same objects. This is far from being the case with regard to the College and the Fund. The latter exists for the purpose of granting immediate relief in cases of temporary distress, and thus it tends, as far as it goes, to save the families of unfortunate members of the profession from needing the greater and more permanent assistance offered by the College, in widely different cases of necessity. The College cannot, to any great extent, rival the Fund in affording speedy relief of urgent temporary difficulties. While its charity is larger and more permanent, in sheltering old age and infirmity from adversity, and in affording a liberal education to the young, the means of access to these important benefits must, naturally, be more operose. The recipients of such benefits must be duly proposed, supported, and elected, after more or less competition.

Happily, further argument in support of the College may now be spared. It speaks for itself. The foundation stone was laid by Earl Manvers, in July, 1853, and the College was opened, in 1855, by the late Royal Consort, Prince Albert, accompanied by the Prince of Wales. In 1857, the Chapel attached to the College was opened. The present condition of this noble establishment is a sufficient answer to all doubts respecting either the need of such an institution or the excellence of its design.

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HENRY WENTWORTH ACLAND, M.D., F.R.S.,

REGIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFORD.

The writings of the Regius Professor of Medicine in the University of Oxford reflect the various important undertakings in which he has been engaged. In addition to the services more strictly belonging to his profession, he has taken an active part in promoting improved methods of education, and in urging on the attention of the Government the necessity of those sanitary reforms which must be classed with the foremost measures of true progress in the present age.

Henry Wentworth Acland, the fourth son of Sir Thomas Dyke Acland, Bart., was born in August, 1815. After spending some years at Harrow, he entered at Christ Church, Oxford, and in 1840 graduated in Arts. In the same year he published a description of the plains of Troy, giving the results of his own observations, made during several visits to the Troad in the year 1838, and illustrated with an original drawing. This early work was favourably noticed in the 'Quarterly Review.' After being elected a Fellow of All Souls' College, Mr. Acland began the study of medicine at St. George's Hospital, and received private instructions from Mr. Bullock, Mr. Squire, and Professor Quekett. In 1843 he entered the University of Edinburgh, and for more than a year lived with Dr. Alison. In the following year he gained the gold medal in the class of medical jurisprudence, by an essay on 'Feigned Insanity.' This essay was not published; but a few copies were printed for private circulation. Having graduated in medicine at Oxford, in 1846, and having passed the London College of Physicians, Dr. Acland devoted himself to the discharge of the duties of Lee's Readership in Anatomy, to which office he had

been appointed in 1845, and at once commenced the formation of that extensive physiological series which has since been removed from Lee's Anatomy School at Christ Church, to the Oxford Museum. Of this collection he published a synopsis in 1855.

Meanwhile, he had been appointed Physician to the Radcliffe Infirmary (1847,) and, in the same year, was elected a Fellow of the Royal Society, and appointed Local Secretary to the British Association when it met for the second time in the city of Oxford. A few years later, he was President of the Ashmolean Society. About this time he instituted courses of practical Physiological instruction, and formed Microscopic classes, which were attended by members of the University of all ages.

In 1854, when Oxford was visited by cholera, the sanitary regulations for the city were placed mainly under the direction of Dr. Acland, who afterwards prepared an elaborate 'Memoir' on the circumstances attending the spread of the epidemic. This is one of the most precise and important of all the local reports on the same subject, and forms a valuable contribution to sanitary science. Some of its statements respecting the condition of a city so favoured with wealth and learning were startling, and soon led to great improvements. Although Oxford is not a locality suited to afford striking examples of Dr. Farr's rule—that 'the elevation of the soil has a more constant relation with the mortality from Cholera than any other known element,' this law is nevertheless corroborated by Dr. Acland's observations on the comparatively level district of Oxford and its neighbourhood. In connection with this topic, may be noticed Dr. Acland's persevering and successful efforts to press the consideration of the sanitary condition of river basins on the attention of the Government. In his evidence given before the Select Committee on the Sewage of the Metropolis, he supported his former statement, 'that the condition of the Thames valley was a national disgrace,' and contended that the drainage of the basin should be systematically worked as a whole: and now at length (1865,) a Royal Commission has been appointed for this important purpose.

As we have said, a combination of sanitary and educational services with those more strictly belonging to his profession has marked Dr. Acland's career at Oxford. From the year 1847 onwards, he continued to take an active part in the work of re-organizing and collecting into one Museum, with all appliances

for making them available, the scientific collections of the University. Few persons are aware of the great amount of labour involved in such an undertaking. In this department, indeed, he performed, on a smaller scale, a task analogous to the gigantic work of Professor Owen in the Hunterian Museum of the College of Surgeons.

On the death of Dr. Kidd in 1851, Dr. Acland was elected Radcliffe Librarian. He brought about, in 1862, the transfer of the scientific books from the Radcliffe library to the newly erected Museum, and the opening of the building as a Public Reading Room. After having lectured for twelve years as Lee's Reader in Anatomy, he became, in 1857, on the death of Dr. Ogle, Regius Professor of Medicine. He then commenced a Pathological Collection at the new Museum, and effected, in 1864, the purchase of Van der Kolk's private Pathological Museum. He had, in the meanwhile, taken a very active part in obtaining new buildings at the Radcliffe Infirmary.

Dr. Acland was attached to the suite of the Prince of Wales on his journey to America, in 1860; and, on his return, was made Honorary Physician to his Royal Highness.

The various services to medical science, and to the progress of educational and sanitary improvements, which have been thus briefly noticed, are represented in Dr. Acland's contributions to literature. On sanitary topics, besides the 'Memoir on Cholera at Oxford in the year 1854,' already noticed, Dr. Acland has published, a short but practically important brochure entitled 'Fever in Agricultural Districts;' 'Notes on Drainage, with especial reference to sewers and swamps of the Upper Thames;' a 'Report on the general sanitary condition of Cowley Industrial School;' and 'Forms for registering the condition of Cottages, for the use of landowners, district visitors, and others.'

On the questions now discussed respecting improved systems of education, Dr. Acland, in his evidence given before the 'Public Schools' Commission,' in 1862, especially recommended the studies of physics, chemistry, and physiology; while, at the same time, he spoke against any great addition to the work already given to boys, and expressed his fears that the present 'cramming system' might be injurious to the physique of coming generations. His general views on education may be found in the several brochures entitled 'Health, Work, and Play,' 1856; 'Remarks on the Extension

of Education at the University of Oxford;' a 'Note on teaching Physiology in the Higher Schools;' and 'A Letter to the Chancellor of the Exchequer on the formation of the Initiative Board in the University of Oxford.' Besides these writings may be mentioned a 'Biographical Sketch of Sir Benjamin Brodie,' written for the 'Proceedings of the Royal Society;' 'Remarks on the Oxford Museum;' and reports on the 'Transfer of the Radcliffe Library to the Oxford University Museum.' Professor Acland has been twice elected by the University a Member of the General Medical Council. He was made Honorary Student of Christ Church in 1860, and Honorary LL.D. of Cambridge in 1863.

In June, 1865, Professor Acland delivered the Harveian Oration at the Royal College of Physicians, when he chose as his subject the doctrine of final causes, and treated it with a special reference to Comte's denial of the use of the crystalline lens. In the course of the address, the speaker paid a worthy tribute to the genius of Harvey and defended his methods of observation. This was the first occasion on which the Harveian Oration was ever given in the English tongue.

Photographed by Ernest Edwards 20 Baker Street W

JAMES COPLAND, M.D., F.R.S.

Medicine has shared with some other studies the reproach of having failed to keep pace with the progress of the exact sciences, especially mathematics and mechanics. So far as this charge must be admitted to be true, it will be found, on consideration, to amount to little more than the statement, obviously true, that the data from which Medicine has to rear a scientific structure, are far more complicated than those of the sciences more closely related to mathematics. The object of medicine is the study and treatment of man, not regarded simply as a piece of mechanism, but as qualified by numerous conditions irreducible to exact forms of calculation. So far as man is regarded as a mechanical object, the progress of medical science has been as certain as that of any of the sciences. The bones, tissues, and secretions of the human body have been measured, weighed, and analysed, as correctly as any other substances in nature. But when all this, and far more, has been done; when the human frame has been accurately examined and described, so far as it belongs to the departments of mechanism and chemistry, we have still to study man as existing under far more complex conditions,—in his relations to the mineral, vegetable, and animal departments of nature, and as affected by climate, subject to hereditary transmission of diseases, and modified by social circumstances, by mental operations, and by his own will.—It is clear then, that we have here an exceedingly complex study, and that no such certain progress can be reasonably expected in all its departments as may be looked for in those sciences which treat of objects under comparatively simple conditions.

But, whatever the prospect of ultimate success in reducing the data of medicine to science may be, it is clear that one essential

condition of such success must be the collection and due collocation of the materials. If analogies, that may be proved to be founded in laws, exist between the several branches of medicine, as between medicine itself and other sciences, these will be seen most clearly when the *disjecta membra* that have lain scattered widely in many books by many writers, are brought together and placed so as to reflect light upon each other. This is the *magnum opus* of Dr. Copland. He has performed this herculean task of medical literature in his 'Dictionary of Practical Medicine.' It might have been regarded as an undertaking demanding the services of a company of able writers and medical men of great experience; but the persevering labour of the author has, at length, fully justified that reliance on his own powers which was modestly, though firmly, expressed in the prospectus issued in the year 1829.

James Copland is a native of the Orkney Islands. He was born in November, 1792, and was the oldest of nine children. His father having a lease of one of the most romantic of the Shetland cluster of Isles, removed there when he was a child. He was placed at the age of nine with the parish clergyman of the town of Lerwick, and afterwards with the clergyman of the parish of Tingwall, noted for its Norse Antiquities. In 1807, he matriculated in the University of Edinburgh, and studied in the literary and philosophic classes, until November, 1811, when he commenced his medical curriculum. Having completed this course, he obtained his degree of Doctor of Medicine on the 1st of August, 1815. He immediately went to London; and, having made himself acquainted with the course and character of medical study, education, and practice, in the metropolis, he soon after proceeded to Paris, and subsequently to north and south Germany. The diseases, especially fevers, dysenteries, &c., so prevalent in the north of France and Germany, consequent upon the campaigns of 1812 to 1815 in those countries, furnished him with extensive opportunities of observing these diseases, which were further facilitated by the urbanity of the medical authorities, and their disposition to encourage a young physician from a celebrated Scotch University. These opportunities he industriously improved, making numerous notes and references to works of reputation. He had, during the latter years of his indefatigable study of medicine in Edinburgh, remarked the meagre state of medical literature, and more especially of practical medicine, in this

country; and having observed the very frequent complications, associations, and sequelæ of disease, resolved to attempt a description of diseases as he had observed them in the Infirmary of Edinburgh, and as he hoped to observe them in other countries.

During the vacations of college he returned to the Shetland Isles, where he studied the natural history of these interesting places, and engaged in rowing, fishing, shooting, rock-climbing, &c., thereby strengthening a constitution excellent by descent, and enabling it to resist the dangers and infectious emanations to which he was subsequently exposed.

Dr. Copland went on the continent in August, 1815, and returned to London early in 1817. He had studied in the continental hospitals, cities, and towns, the varying forms and associations of infectious and sporadic diseases; and he was desirous of observing also the maladies incidental to inter-tropical countries. Soon after his return to London in 1817, he obtained the appointment of medical officer to the African Company's Settlements on the gold coast of Africa, and proceeded thither in April of that year, touching at Senegal, the Gambia, and Sierra Leone. In this latter place he remained about three weeks. Soon after leaving Sierra Leone the yellow fever appeared among the crew of the vessel in which he had taken his passage, and three-fourths of the crew were prostrated by it. Fortunately he was the last attacked. The two first seized died, but those who were afterwards infected recovered. The treatment he adopted in these latter cases, consisting chiefly of powerful stimulants and tonics, is fully described in his work on practical medicine. After visiting the several European forts and settlements on the west coast of Africa, and having resided some time at Cape Coast Castle, he returned by the way of Accra and the settlements on the coast of Benin to England. He soon afterwards visited Edinburgh, the Shetland Isles, and returned to London. He subsequently went again on the continent of Europe, and having resided a few months in Paris, he arrived in London in the summer of 1820, became a Licentiate of the Royal College of Physicians, and was elected physician to the Royal Infirmary for diseases of children, to which institution he continued the senior physician for many years, and afterwards consulting physician. In 1821, he published several papers on Fever, and on the Medical Topography of the west coast of Africa, which appeared in the 'Quarterly Journal

of Foreign Medicine.' In these Dr. Copland gave the results of his own experience and observations. About this time he offered his services to the Government for an investigation of the origin and nature of the epidemic Yellow Fever prevailing in Spain in 1821. But for this duty a Military Medical Officer, who had previously written on one side of the question which he was sent to examine and report upon, was preferred. In that year he was principally instrumental in founding the South London Dispensary, of which he was senior physician for three years. During this year several valuable papers appeared from his pen, especially a memoir, with experiments on the use of terebinthinate remedies in diseases, on Tubercular and Chronic Peritonitis, and on Human Rumination.

In 1820, Mr. William Bullock, on the occasion of his being about to proceed to Mexico with his family, *viâ* the Island of Cuba, applied to Dr. Copland for instructions with the view of preventing the diseases of those countries. These instructions were fully set forth; and, upon Mr. Bullock's safe return with his family to this country, were published as an appendix to his travels. These instructions were afterwards printed and published separately.

In January, 1822, Dr. Copland became editor of the 'London Medical Repository,' and in March of that year, he delivered the annual oration to the London Medical Society, in which he contended that the phenomena of attraction or gravitation, chemical affinity, combustion, crystallization, magnetism, light and heat, (as they exist in the solar rays, and as they are otherwise produced), in short, that all the phenomena of the inorganised world and of the solar system may be referred to electrical and electro-galvanic agency. In the 'Medical Repository,' of which he continued the editorship for five years, Dr. Copland published numerous memoirs and reviews, not always destitute of severity; and among others one respecting the Bye-laws of the London College of Physicians, in which he advised reforms, which have subsequently been adopted. He also wrote the life of Dr. Baillie, with estimates of his professional character and works.

Amongst other articles, those on the Pathology of Fever, on Life and Organisation, on Artificial eruptions in the cure of disease, on several articles of the Materia Medica, and outlines of researches into the Anatomy, Physiology, and Pathology of the Ganglionic nervous system, deserve a more particular notice. It would exceed

our limits to enter more fully into the works accomplished for medical literature during his editorship of the 'Medical Repository.' In addition to his labours in this capacity, he contributed reviews of scientific works to quarterly and to monthly publications. In 1823, he was elected Consulting Physician to Queen Charlotte's Lying-in Hospital. In 1824, he published an edition of M. Richerand's Elements of Physiology, with copious appendix and notes, a second edition of which appeared in 1829. From 1824 to 1829, he edited some medical works to which he did not attach his name.

He had, when studying abroad, and after returning to this country, been engaged in making notes of what he had observed in practice, and references to the published works, opinions, and experiences of other medical writers, and had thus prepared himself for the long intended labour of producing an 'Encyclopædia of the Medical Sciences,' of which he issued, in 1829, a detailed prospectus, and having invited several eminent contributors. The publishers, with whom he had agreed respecting the work, receded from their undertaking, and he had the mortification of finding that another work of a similar kind, though of a less comprehensive design, was afterwards undertaken by them, entitled a 'Cyclopædia of Practical Medicine,' and supported by a staff of not less than sixty contributors. By such an apparently formidable opposition Dr. Copland was by no means daunted. In the course of less than a year, he made an engagement with other publishers, Messrs. Longman and Co., and came forth, alone, to contend for the honours of medical literature against the little army arrayed in opposition. *Finis coronat opus.* After the labour of twenty-eight years, the work is completed, and the perseverance and careful study that have marked the progress of this great undertaking are worthy of the highest praise, and justify the boldness of its first design.

To convey, to those who have not examined such a work, any adequate estimate of its value, with regard both to the quality and the quantity of its contents, is obviously impossible. It consists of three large octavo volumes very closely printed in double columns. Perhaps, it may be best described by a quotation of a few words from its prospectus:—'It contains, in an abstract and condensed, yet comprehensive, form, the opinions and practice of the most experienced writers, British and Foreign, so digested

and wrought up with the results of the author's practice, that the student and the young practitioner will not be bewildered in the diversity of the opinions and facts adduced for their instruction, but be guided in the difficult path on which they have entered, and enabled, with a due exercise of their powers of observation and discrimination, to arrive at just conclusions and successful practical results.' We may add, that each disease is treated in the following style:—the name, with synonymes and definitions, being prefixed, a full description of its several stages and varieties is given, and its various complications are fully treated. Then follow sections on diagnosis and causes, treatment, remedies, diet and regimen, and lastly the article is completed by a copious list of the best authorities on the subject. The work is prefaced by a Classification of Diseases, arranged in progressive order, from the simple to the complex, so as to form a key to the systematic study of medicine. An appendix contains upwards of a thousand formulæ, derived from various Pharmacopæias, from the writings of physicians, and from notes of the author's own practice, arranged in alphabetical order. If we might specify any one article, as an example of the writer's exhaustive style of treating a subject, it might be that on 'Cholera,' which was published separately, in 1832, when the epidemic first appeared in England. The recent announcement of Dr. Copland's 'Dictionary of Practical Medicine,' abridged from the larger work by the author, and complete in one octavo volume, will be welcome to numerous medical students and practitioners.

It may be here noticed, that Dr. Copland holds a very prominent place among the pioneers of Sanitary Reform. He anticipated, as long ago as when some of the earliest articles of his 'Dictionary' appeared, the sanitary doctrines that are now ranked with the commonplace items of medical science. He strenuously contended both in the early parts of his 'Dictionary,' and in other works, against burying the dead in or near to large towns or cities; and he fully pointed out the chief domestic, endemic, and epidemic causes of diseases, and the measures which should be adopted to counteract or prevent these causes, and the maladies usually resulting from them. He studied these measures fully in respect of all classes of the community and of the public services; and successfully recommended during a practice of forty-five years, the measures requisite for the personal

prevention of disease in unhealthy and inter-tropical countries. In proof of the success of these means we have already referred to the instructions given to Mr. Bullock, and we may also refer to a note in his 'Medical Dictionary,' where he has quoted the prescriptions he gave to his friends the late Drs. McWilliam, Stanger, and Daniell, on their proceeding to Africa with the unfortunately well-known Niger expedition; they survived to bring it back to Fernando-Po, to return to England, and to call on Dr. Copland and thank him for his valuable instructions.

Dr. Copland was elected a Fellow of the Royal Society in 1833, and a Fellow of the Royal College of Physicians, London, in 1837. He has discharged the duties of Junior and Senior Censor, and has been successively, Gulstonian, Croonian, and Lumleian Lecturer to the College. He delivered the Latin Harveian Oration in 1857, and has on several occasions been elected into the Council. He was lately president of the Royal Medical and Chirurgical Society of London, and of the Pathological Society. He is an honorary member of the Royal Academy of Sciences of Sweden, of the American Philosophical Society, of the Royal Academy of Sciences of Belgium, of the Medico-Chirurgical Society of Berlin, and of several other Foreign Scientific and Medical Societies. He is also Consulting Physician to several institutions in the metropolis.

Photographed by Ernest Edwards 20 Baker Street W

WILLIAM FERGUSSON, F.R.S., F.R.C.S.,

SURGEON TO KING'S COLLEGE HOSPITAL; PROFESSOR OF SURGERY IN THE ROYAL COLLEGE OF SURGEONS; AND SURGEON EXTRAORDINARY TO HER MAJESTY THE QUEEN.

Of the hand of the great surgeon, Liston, it was said, by Lord Robertson, that, 'if hard as iron and true as steel in the theatre of operation, it was soft as thistledown, when applied to the throbbing pulse or aching brow.'—Such a union of opposite qualities is essential to the development of the highest surgical skill. The great operator must be bold: yet how dangerous may courage be, if not duly tempered with caution!—He must be thoughtful: but how often has profound study ended in indecision! He must be self-reliant: but how necessary that he should duly weigh the opinions of predecessors and compeers!—In few words, then, he must be bold and cautious; thoughtful and decided; firm yet open to conviction. To such a rare union of opposite qualities we must ascribe the remarkable operative skill of the great surgeon, whose portrait we now present to our readers.

William Fergusson was born at Prestonpans, East Lothian, on the 20th of March, 1808. After a preparatory training at the grammar school of Lochmaben, Dumfriesshire, he was removed to the Edinburgh High school, and, afterwards, studied at the University. So rapid was his progress in medical studies, that, when only twenty years old, he was a Licentiate of the College of Surgeons of Edinburgh, and, in the following year, passed his examination for the fellowship of the College of Surgeons. In this year he commenced writing a 'Manual of Practical Surgery,' but the work was soon laid aside, and was not resumed until the year 1842. Under his able teacher, Dr. Knox, he displayed

talents that soon qualified him to act rather as a partner than as a pupil, and inspired hopes that he might even rival Liston. At the age of twenty-five, he had established his reputation in Edinburgh, where he had delivered several courses of lectures, (from 1831 to 1840,) and had been elected surgeon to the Royal Public Dispensary, (1831), and surgeon to the Royal Infirmary, (1836). He had married, in 1833, a lady who was heiress to an estate in Peebleshire, and now seemed likely to maintain himself in the highest position of professional life in Edinburgh.

It is generally necessary for rapid and striking success in professional life, that an energetic use of great talents should coincide with splendid opportunities. Such good fortune awaited Mr. Fergusson. Liston had removed from Edinburgh to London, but Mr. Syme remained to contend for the palm of surgery. At this time the appointments of Professor of Surgery in King's College and Surgeon to the King's College Hospital were vacant, and Mr. Fergusson was the successful candidate. His consequent removal to London, while it expanded his field of observation and action, exposed him to a far more formidable competition for the highest honours of a profession that included such men as Liston, Sir Astley Cooper, and Aston Key! These and other eminent surgeons held against the new comer the vantage-ground of established metropolitan fame; while he, in addition to his abilities, had the great advantage of having attained the position he already occupied at the comparatively early age of thirty-two! He could afford to 'bide his time,' until the veterans retired, one after another, from the field, and left around him more open space for the display of his prowess. But he had not long to wait. In the course of a few years, Sir Astley Cooper, Liston, Aston Key, Samuel Cooper, and other eminent men, had been called away by death; while Vincent, Thomas, Babington, and Mayo had retired from surgical practice. Meanwhile, Mr. Syme had established himself in London, and it seemed probable that in him the young surgeon of King's College might find a formidable rival; but, shortly before the decease of Mr. Aston Key, the chair of clinical surgery at University College was vacated by Mr. Syme, who unexpectedly returned to Edinburgh. The open field thus left for Mr. Fergusson, in the earlier years of his practice in London, rendered more facile and rapid the success which his remarkable talents must, ultimately, have won, even in circumstances less favourable.

He was elected an Honorary Fellow of the College of Surgeons in 1843, and, soon afterwards, Fellow of the Royal Society. On the death of Liston, in 1847, Mr. Fergusson was elected consulting surgeon to the Hospital for Consumption at Brompton, and surgeon to the Scottish Hospital. Shortly afterwards, on the death of Mr. Aston Key, the office of surgeon to the late Royal Consort, Prince Albert, became vacant, and it was naturally expected, that this high appointment would be conferred on some surgeon who, to his superior skill, added the recommendation of seniority; but,—as it has been commonly represented,—the comparative youth of Mr. Fergusson was, in this instance, regarded as a qualification, and the honour of this post was conferred upon him in the most flattering manner.

So far, as we have said little of the surgical labours of Mr. Fergusson, it might seem that fortune had smiled with more than her ordinary amiability on the rising surgeon; but a man must be well prepared for the smiles of fortune, or her favours will be vainly conferred. Mr. Fergusson proved himself worthy of the favourable circumstances that attended his early career in London. We have now to notice briefly the work done to merit this extraordinary success. In the first place, Mr. Fergusson had proved himself one of the most eminently 'conservative' of surgeons. He was bold, calm, and self-possessed in operation; but profoundly deliberative in cases where the amputation of a limb would have been more readily undertaken by surgeons of an older school. As a proof of his courage and firmness, he would operate, even upon a personal friend, for removal of the greater part of the tongue, in cancer, when even such men as Syme and Brodie had declined the operation. This was shown in the case of Dr. John Reid, who died from a return of the disease, after the operation, but always expressed gratitude to his friend, Mr. Fergusson, for some months of release from torture. Mr. Fergusson's general rule, however, has always been 'to save life and, if possible, limbs.' He has no admiration of stumps, or wooden limbs; but, in the worst cases of diseases of the knee-joint, has ever contended strongly for the conservation of all that can be conserved with safety to life. This rule is ably maintained in his lectures recently delivered at the Royal College of Surgeons.

The improvement and successful practice of lithotrity is another of Mr. Fergusson's claims on our attention. He has improved the

instruments used in M. Civiale's process, and has proved his delicacy and accuracy of manipulation in a large number of cases. The ligature of the subclavian artery; the excision of the entire scapula; the resection of the upper part of the femur; several successful operations for cleft palate (by division of the levator-palati and palato-pharyngeus muscles) and, lastly, several cases of conservation of limbs by excision of the knee;—these are among the triumphs of Mr. Fergusson's surgical practice. As a teacher he is, at once, firm, kind, and considerate. His writings, which are not numerous, include an 'Essay on Lithotrity,' published in the 'Edinburgh Medical and Surgical Journal,' and papers on 'Cleft Palate,' published, respectively, in the 'Transactions of the Medical and Chirurgical Society' (1845), and the 'London Journal of Medicine' (1849). 'A Manual of Practical Surgery,' begun, as we have stated, as early as 1829, was mostly written in 1842, and has been very well received, both at home and abroad.

As Mr. Fergusson had not passed his examination at the College of Surgeons in London before 1840, he had not, in 1861, when he was proposed for a seat in the Council, the requisite claim of seniority. The conservatives of old standing rules, therefore, apart from all personal motives, determined to oppose his election on the simple ground that 'it was not his turn.' On the other hand, the friends of Mr. Fergusson contended that the old exclusive rule of seniority should be amended, and, moreover, that all rules must be subject to exceptions. The innovating party was successful, and Mr. Fergusson, though 'out of his turn,' was elected a Councillor.

In June, 1864, Mr. Fergusson delivered, at the Royal College of Surgeons, a course of lectures 'On the progress of Anatomy and Surgery during the present century.' In the first lecture, which is marked by comprehensive views and a liberal spirit, he bestows ample praise on Liston, Lizars, Syme, and others, but, above all, on the great hero of the profession, John Hunter; and then proceeds to enumerate the several improvements made during the time under review; especially, the development of lithotrity, as an efficient operation, far safer, in numerous cases, than the preceding exclusive practice of lithotomy; the treatment of distortions, including strabismus, by division of tendons, muscles, and fasciæ; plastic operations; the application of the stethoscope to diagnosis; ophthalmic surgery, and resections. But, among all these steps forward, the lecturer justly awards the highest praise to the

beneficent discovery and application of anæsthetic agents, for which we are so greatly indebted to America. Other benefits are special, or are applicable only to certain cases; this extends its benign influence over almost the entire range of surgical operations, and while it spares torture to so many patients, affords to the surgeon opportunities of performing his duties with a calmness and freedom from disturbance that could rarely be enjoyed by his less favoured predecessors.

In his second lecture, Mr. Fergusson treats of his favourite theme—conservative surgery. 'To save life and limb,' he says, 'is a grand feat; it may be said to be the highest reach in surgery.' Though he was first to make use of the term 'conservative surgery,' ('Medical Times and Gazette, 1852,') he, by no means, claims the honour of being the first to recommend its practice. On the contrary, he recognizes the grand principle of conservation of limbs, where possible, in Hunter's ligature of the superficial femoral artery for popliteal aneurism, and pays a generous tribute to the merits of Sir Benjamin Brodie in this direction.

The third lecture describes several successful operations for hare-lip and cleft palate. In these cases the lecturer had operated upwards of four hundred times. The fourth lecture is devoted to lithotomy and lithotrity, and especially recommends great caution in the former operation, when performed on children, or patients under the age of puberty. The fifth and sixth lectures give ample details of the author's theory and practice with regard to excision of the knee, as a means of preventing amputation of the leg. In these lectures, Mr. Fergusson pleads for the conservation of the foot and the leg, with an enthusiasm which he amply justifies. He bestows due honour on the great surgeon, Park, who, eighty years ago, proposed excision *versus* amputation, and then proceeds to give details of certain of his own operations, of which he is justly proud. The whole course of lectures is worthy of the author's reputation. Important improvements in surgery are heartily yet temperately advocated; the merits of predecessors and compeers are generously acknowledged, and Mr. Fergusson's own labours are fairly described, modestly, yet not without the enthusiasm that seems to be the faithful ally and support of first-class talents.

In the present year (1865), Mr. Fergusson has delivered, at the Royal College of Surgeons, a course of six lectures on the 'Progress of Surgery during the Present Century.' The first,

on 'Minor Surgery,' pleads well in behalf of scientific attention to the minor but more common ailments of humanity. In the second and third lectures, on 'Lithotrity' and 'Lithotomy,' the author's previous arguments in favour of the former operation are ably reinforced, and highly important statistics, derived from his own very extensive practice are given. Mr. Fergusson has operated in 162 cases by lithotomy, and in 109 by lithotrity. 'Of these 271 cases, 217 were adults; 110 have been treated by lithotomy, and of this number 33 have died; 109 have been treated by lithotrity, and of this number 12 have died.' The fourth lecture treats of the most interesting of all modern innovations in surgery—'Operations on the Jaws.' The fifth and sixth lectures are devoted respectively to 'Amputation' and 'Operations and Practical Surgery.' See 'Lancet,' June and July, 1865.

If our limited space would permit, we should have pleasure in dwelling on several passages in these able lectures, which are marked by more than their author's usual vigour and liveliness of style, and are full of suggestive observations on the most interesting questions in modern surgery.

Photographed by Ernest Edwards 20 Baker Street W

WILLIAM SANDS COX, F.R.S.,

FOUNDER OF QUEEN'S COLLEGE, AND OF QUEEN'S COLLEGE HOSPITAL, BIRMINGHAM.

We present to our readers a photograph of the Founder of the Queen's College and the Queen's College Hospital, Birmingham. Mr. Sands Cox is an able surgeon, and has worthily contributed to the progress of surgical science; while his indefatigable exertions in the foundation and extension of the two institutions above named, have conferred most important benefits on his native town and the surrounding district.

William Sands Cox, the eldest son of Edward Townsend Cox, Esq., and the descendant, on the maternal side, from an old Norman family, was born in 1802. Originally intended for the Church, he received his early education at King Edward's Grammar school and under private tuition. In his nineteenth year he was articled to his father, and commenced the study of medicine in the General Hospital, Birmingham, under Freer, Wood, Vaux, Johnstone, Male, and Booth. During the years 1821-4, he continued his studies in London, and attended the lectures and practice of Guy's and St. Thomas's Hospitals, under Sir Astley Cooper, Travers, Lawrence, Joseph Henry Green, Grainger, and Armstrong.

At this time, he resided in the house of his former schoolfellow, the late Edward Grainger, founder of the Webb Street School of Anatomy, from whose success the idea of founding a School of Medicine at Birmingham first suggested itself. After some time spent in attending the practice of the London Ophthalmic Institution, Mr. Cox went to prosecute his studies in Paris, where he took out inscriptions at the Ecole de Médicine, and attended the lectures of Orfila, Richerand, Dumeril, Breschet, Royard Collard, Alibert, and Beclard. Having taken out his inscription at the College of France, he pursued his chemical studies under Thénard, and attended the lectures of Cuvier at the Jardin des Plantes. He attended, also, the practice of Dupuytren at the Hôtel Dieu, of Boyer and Laennec at La Charitè, of Lisfranc at la Pitie, and Baron Larrey at the Military Hospital Val de Grace.

During his stay in Paris Mr. Sands Cox enjoyed the friendship of the late Dr. Jones Quain, who was then preparing himself to teach anatomy. Mr. Sands Cox attributes his success, in a great measure, to his early association with several diligent students bent upon thoroughly qualifying themselves for future duties in teaching. Shortly after his return to England, in the year 1825, Mr. Sands Cox was elected Surgeon to the Birmingham Dispensary, which office he held for a period of sixteen years. In the same year, he was accredited by the Board of Guardians of the Poor, to act with his father, who, for forty years, held the appointment of one of the Surgeons of the Town Infirmary.

As we have said, as early as 1824, Mr. Sands Cox had entertained from the success of his friend, Grainger, the idea of founding a School of Medicine for Birmingham and the Midland Counties. This plan occupied no small share of his attention, while he was on his foreign travels. With a view to finding models for the projected institution, he inspected various schools and hospitals in France, Germany, and Italy, and compared their methods of instruction with those adopted for schools in England, Ireland, and Scotland. In 1828, soon after his return to his native town, he succeeded, with the aid of several professional friends, in founding a School of Medicine in Birmingham.

Encouraged by the success that followed this undertaking, he enlarged his views, and by the support of that great philanthropist,—Dr. Warneford,—was enabled so to expand the design of the Medical School, that it became a College, to which Her Majesty the Queen was pleased to grant the sanction of her name, and a Royal Charter of Incorporation. 'Soon afterwards,' to quote the report for 1851, 'the College was enlarged, and divided into two departments, the Junior department preparing students for entering upon their medical studies in the Senior department, with greater advantage. Other departments, under the sanction of a supplemental Charter and the Royal warrant, were quickly added, till by rapid steps, Mr. Sands Cox was enabled to complete—thanks to Dr. Warneford's continued munificence—a combined system of education in all its branches, suitable, in the first instance, to the wants of parents and guardians of youth in Birmingham, and the midland counties. In all the arrangements which have been made, those who have had the direction of the affairs of the College have kept their eyes fixed

upon the system which has stood the test of so long experience, and received the sanction of so many great and gifted minds. On this principle they have maintained, together with the kindred institution of King's College, in London, that every system of general education for the youth of a christian community, ought to comprise instruction in the christian religion, as an indispensable part, without which the acquisition of other branches of knowledge, will be conductive neither to the happiness of the individual, nor to the welfare of the State.'

In the year 1858, on the retirement of Dr. Booth, as the Principal of Queen's College, Mr. Sands Cox was unanimously elected to that office, which, however, he resigned in the following year, again resuming the office of Dean of the Faculty to which he was originally appointed under the first charter.

To Mr. Sands Cox is due, also, the credit of originating the Queen's Hospital, Birmingham. The foundation stone of the Hospital was laid in 1840, and in the following year, the wards were opened without a single debt, the whole of the funds having been obtained by Mr. Sands Cox. In 1845, the building was enlarged, and made capable of accommodating one hundred and eighty patients. The whole sum, of almost seventeen hundred pounds, required for the new wards, was raised solely in public contributions of penny postage stamps—an operation that must have called into exercise great industry and perseverance of benevolence. Having filled the office of senior Surgeon to the Hospital for twenty years—the period to which such service is limited by a fundamental law of the Institution, Mr. Cox was elected, in 1863, Consulting Surgeon, and a member of the Committee of Council for life.

At a public meeting held at Queen's College, Birmingham, March 16, 1857, the eminent services rendered by Mr. Sands Cox to that Institution and to his native town, were gratefully acknowledged, and it was unanimously resolved, that some suitable testimonial to his beneficence should be raised by public contributions. In acknowledging the proposal, Mr. Sands Cox suggested that, of the amount subscribed, a part should be devoted to the foundation of Scholarships, and the remainder towards the completion of the College Museums, with a stipulation for a weekly free admission of the industrious classes. In accordance with this suggestion, it was resolved that the committee should make

arrangements for raising the funds required for the proposed objects, which have now been carried into execution.

Mr. Sands Cox has contributed to professional literature several valuable works. He edited, for several years, the annual reports of the Queen's Hospital, which contain much statistical information. He published, in 1845, a translation of 'Maingault's Illustrations of the Different Amputations performed on the Human Body,' to which he supplied some alterations and practical observations; and, in the same year, an important 'Memoir on Amputation of the Thigh at the Hip-joint,' with full details of a successful case. He is the author of a very useful hand-book for the anatomical student, a 'Synopsis of the Bones, Ligaments, Muscles, Blood-vessels, and Nerves of the Human Body,' a report of a 'Case of Aneurism of the Femoral Artery,' treated by compression, and of several other brochures. He also edited the 'Prize Clinical Reports of Surgical Cases,' at the Queen's Hospital.

Mr. Sands Cox took an active part in the formation of the British Medical Association. Many other efforts in the service of his native town our space will not allow us even to mention. Having freely given his own time and exertions to public service, he has been singularly fortunate in inducing others to give. Besides the large sums obtained from Dr. Warneford, (£25,000), he raised the funds for the purchase of a museum of natural history, models of pathological anatomy, philosophical and engineering apparatus, and obtained large donations of geological and mineralogical collections, with other additions to the resources of Queen's College. Such success in levying contributions has been founded on his own well-known liberality. His time and talents, and entire income derived from his professorship and practice, have been devoted for a period of forty years to the welfare of his native town. Ninety-two students of the College have been received by him as articled pupils without any premium, and, consequently, with the saving of a large amount to parents and guardians.

Mr. Sands Cox is Magistrate and Deputy Lieutenant of his County, Fellow of the Royal Society, Fellow of the Royal College of Surgeons, Vice-President of the New Sydenham Society, Fellow of the Chemical Society, Dean of the Faculty, and Professor of Surgery at Queen's College, Consulting Surgeon to the Queen's Hospital, Member of the 'Societé Francaise de Statistique Universelle,' and of the 'Societé de Chirurgie,' Paris.

Photographed by Ernest Edwards 20 Baker Street W

SIR HENRY HOLLAND, Bart., M.D., D.C.L. Oxon.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS;

VICE-PRESIDENT OF THE ROYAL SOCIETY;

PRESIDENT OF THE ROYAL INSTITUTION OF GREAT BRITAIN;

PHYSICIAN IN ORDINARY TO THE QUEEN;

ETC., ETC.

Among works on various branches of physical science, comparatively few have gained, by their excellence of style, breadth of outline, and popular interest, a reputation in general literature. Humboldt's 'Views of Nature,' Mrs. Somerville's 'Connexion of the Physical Sciences,' and a few others, may be placed in this class, where medicine has few works to show that can rival the 'Medical Notes and Reflections' of Sir Henry Holland. Its general interest is obtained without the slightest sacrifice of scientific accuracy. It is a thoughtful work for thoughtful readers and, while it is comparatively well known beyond the circle of those professional readers who, alone, can fully estimate its value, its success must be ascribed, partly to the general interest of several of its topics, but chiefly to the scientific caution and sound judgment evinced, throughout, in the treatment of these and other subjects.

Like all truly scientific writers, Sir Henry Holland embraces in his knowledge an extensive collection of facts, and knows well how to state them in definite terms, and within their proper limitations. This, of itself, forms the true basis of science; but it is only one part of the service rendered by the author to the progress of the science of medicine. From the observation of facts he proceeds, with all the caution of one well acquainted with the complexities and difficulties of medical inductions, to explore the laws to which they may be referred. He, at once, points out to his readers the way by which they may ascend to generalizations, and shows the liabilities to error that may attend them on that way. This characteristic caution is, perhaps, the most obviously remarkable of all the writer's merits, and may be observed wherever he treats of theories. Consequently, we find that, while he admits many of the facts on which writers of less comprehensive views have founded their theories, he prefers to suggest rather than to theorise, and often refers to further investigations as necessary in order to arrive at a final induction.

This caution may be styled a negative merit; but it is not the less important because it may be so described. Every ill-founded theory, and the discussion which it may excite before it can be set aside, may be regarded as a waste of resources and a hindrance in the way of true progress. In the abundance of the materials collected by modern researches in the physical sciences, and in the failure of many attempts to arrange these materials under general laws, there may be found reasons for recommending, especially in the present day, the study of writings which, like those under notice, afford good examples of logical precision. As a concise specimen of Sir Henry Holland's clear discrimination we may quote the following note appended to the second chapter of his 'Medical Notes and Reflections.' With reference to questions as to general types and unity of design in the organizations of various animals, he observes, 'these are questions strictly within the scope of research,' and then proceeds to say:—

'I have never, as already stated, seen cause to think the argument of Natural Theology at all affected by these inquiries; even when pushed to the speculations of a primitive germ, or original unity of type. Its truth indeed is far above the reach of what, after all, are but subordinate researches, even if they could by possibility attain the proofs of what these terms express. The chain is lengthened, and its parts are connected together by new and unexpected links. But still it is a chain of

designed organization throughout; and if we simplify the first of these links, it is but to render more wonderful the number and perfection of the varieties which are evolved in definite forms from this elementary structure. If the parts in man have all their analogies or models in lower animals; or if, according to one view proposed, we regard the several organs of the human embryo as passing through all the gradations of lower types, before reaching their perfect development in man; still the great argument remains the same. The progressive elaboration throughout all its stages is definite and designed;—the points are fixed at which each deviation has its beginning from the more common antecedent forms;—the limit of change is fixed in each particular case. If there be an argument for the unity of creation, more complete and comprehensive than another, it is that which is furnished by the recent progress of comparative anatomy; enabling the observer, by the uniformity of general laws, to predicate from a single minute part of structure all the more important generic characters of the animal to which it belongs.'

Besides its exactness of observation, suggestive treatment of facts and logical power, the work under notice is recommended by the general interest of many of its subjects. Such are those treated of in chapter 5, on the 'Effects of Mental Attention on Bodily Organs;'—6, 'On Points where a Patient may judge for himself;'—15, 'On Dreaming, Insanity, Intoxication, &c.;'—19, 'On the Medical Treatment of Old Age;'—26, 'On Sleep;' and 27, 'On the Influence of Weather in relation to Disease.' Other chapters of less general interest, but full of instances of logical acumen, are found in 12, 'On the Brain as a double Organ;'—28, 'On Time as an Element in Mental Functions;'—29, 'On Phrenology;' and 33, 'On the Hypothesis of Insect Life as a cause of Disease.' To conclude our notice of this important work—it is far too full of suggestion, as well as of direct instruction, to be fairly represented by any brief review.

The clear observation and careful induction that mark the 'Medical Notes and Reflections,' are found in the author's other works. He printed in 1811 a thesis on the diseases of Iceland, a country he had visited in the preceding year. In his early publication, 'Travels in Albania, Thessaly, and Greece,' of which a second edition appeared in 1819, his attention was partly directed to important meteorological observations to which he has referred in his later writings. The 'Chapters on Mental Physiology' treat of subjects especially adapted to exercise the writer's judgment and discrimination, which are found, in union with the best qualities of criticism, in his 'Essays on Scientific and other subjects contributed to the Edinburgh and Quarterly Reviews,'

and collectively published in 1862. These are characteristic of the writer, both with regard to their style and their mode of treating various topics. Their tone of criticism is mild and considerate, and their general tendency is always in favour of the advancement of science and true culture. As stated in the preface, these essays were chiefly composed during rapid autumnal journeys in different parts of Europe, as well as in America, Africa, and Asia.

Photographed by Ernest Edwards 20 Baker Street W

EDWARD WILLIAM MURPHY, M.A., M.D.,

LATE PROFESSOR OF MIDWIFERY IN UNIVERSITY COLLEGE, LONDON, AND OBSTETRIC PHYSICIAN TO THE UNIVERSITY COLLEGE HOSPITAL.

We have few more difficult and important questions than such as have been discussed by two classes of obstetric practitioners; those who would be, as far as possible, followers of and attendants on the process of nature, on the one hand, and the advocates of a more frequent use of mechanical aid, on the other. These schools may be represented by the names of Boer and Osiander, in Germany, and, in England, by Hunter and Smellie. Among those who, in our day, have taken a part in the controversy, the subject of the present memoir deserves especial notice by the sound judgment with which, while allowing the exceptions that must occur, he has maintained the general principles on which the former course of practice is founded.

Edward William Murphy was born in Dublin, in 1802, and received his early education there. At the age of sixteen, he became the medical pupil of Mr. Carmichael, surgeon to the Richmond Hospital, and well known by his writings on syphilis. In 1819, Mr. Murphy entered at Trinity College, Dublin, where he took honours and graduated as A.B. He was admitted, in 1827, a Licentiate of the Royal College of Surgeons in Ireland, and, immediately afterwards, commenced practice. In 1830, he married, and, two years later, was appointed assistant in the Dublin Lying-in-Hospital. He now chiefly devoted his attention to obstetrics; but, in order to complete his medical education, took the degree of M.B., and was admitted a Fellow of the Royal College of Surgeons. In due time, he obtained also the degree of M.D. of the University of Dublin. In 1841, he removed to

London, and in consequence of the sudden decease of Dr. Davis, was elected, in the following year, Professor of Midwifery in the University College. This appointment he resigned in 1865. He had, in 1835, commenced medical authorship by a paper, published in the 'Dublin Medical Journal,' on 'Rupture of the Uterus,' in which he endeavoured to show that organic changes of structure predisposed to this accident, and that it is not always, nor even generally, to be attributed to mere mechanical causes; and in the controversy between Dr. Hamilton and Dr. Collins, on the management of protracted labours, Dr. Murphy had defended the practice of Dr. Collins.

In 1845, Professor Murphy published, first in the 'Lancet' and, afterwards, separately, 'Lectures on Natural and Difficult Parturition,' in which the principles for which he has long and successfully contended were maintained, especially in opposition to what he believed to be unnecessary mechanical interference. With great moderation in his treatment of opposite opinions and practice, but, at the same time, with a constant adherence to the principle of depending, even in many cases of difficult parturition, rather on the powers of nature than on mechanical interference, Dr. Murphy, in these valuable lectures, defended, mainly, though not in all respects, the practice which has numbered as its supporters, Boer of Vienna and Naegele, among the Germans, and such names as William Hunter, Denman, Osborne, and Joseph Clarke, among our own obstetricians. These lectures were followed by others on 'Preternatural and Complex Parturition,' which appeared in the 'Medical Gazette' (1852), and subsequently, as a separate publication. A second edition, published in 1862, with considerable additions, includes the subjects of gestation, parturition, and lactation, which are fully treated.

As early as 1848, Dr. Murphy held very decided views in favour of the use of chloroform in the practice of midwifery, and was the first supporter of Professor Simpson's arguments. In his work on 'Chloroform; its properties and safety in Childbirth,' he gave a series of important rules for the administration of this anæsthetic.

With the view to throw light on the embarrassing questions connected with the use of instruments in midwifery, Professor Murphy, in 1853, brought before the notice of the Medical Society, the 'History of a Few Cases illustrative of the use of the Forceps in Difficult Labour.' The observations on these cases displayed

the same discrimination that had marked the author's previous writings on questions in obstetrics.

In 1856, he read before the Medical Society, a paper on 'Puerperal Fever,' in which he objected to the propriety of considering this disease as an inflammation of one or other of the tissues, and, consequently, of applying to it such terms as 'puerperal peritonitis,' 'uterine phlebitis,' or 'uteritis.' A sequel to this paper, maintaining the same views, and recommending chloroform in the treatment of puerperal fever, appeared in the 'Lancet' for 1857. In the report of a 'Case of Cæsarean Section with Observations,' contributed to the 'Dublin Quarterly Journal of Medicine' (1859), the author shows that the general statistics of the results of the operation are too scanty and indiscriminate to afford sufficient data for sound conclusions on its advisability in other cases. He has, however, derived important conclusions from a comparison of the case under consideration with cases of a strictly similar character.

The above reference to Professor Murphy's works, and to the different questions therein treated, may be sufficient to show the impossibility of fairly describing, in our narrow limits, the value of the author's contributions to this department of medical literature. There is, however, a general design maintained throughout his writings, which may be briefly characterised as fidelity to the principle of non-interference, in all cases where it is admissible, associated with a disposition to regard these cases as far more numerous than they were supposed to be by the advocates of quick delivery by mechanical aid. This main principle is accompanied by a candid and cautious treatment of cases that are truly exceptional, and the discrimination of the two classes and their respective requirements often shows keenness of observation and logical power. The argumentative passages are those to which we are least able to do justice, in our limits. To enter upon discussions, where we have not space to give fully the statements on each side, would be obviously useless. It must suffice, therefore, to observe here, that great fairness and moderation characterise all that Professor Murphy has written.

If we could find a passage separable from its context, and yet fairly characteristic of the author's general purport, it might, perhaps, be the conclusion of an 'Introductory Lecture on the History of Midwifery,' delivered at University College, May 1st,

1864. After noticing the services of the eminent foreign accoucheurs, Saxtorph, Solayrés de Renhac, Baudelocque, and Naegele, the lecturer proceeds:—

'The lesson which these eminent men have taught us is the value of patiently observing natural labours. They pointed out the instruction you derive from them. They showed the greater facility you acquire in at once recognizing a difficulty. The acute sense of touch, which enabled Naegele to mark the progress of the head, at once enabled him to perceive what may retard its advance, and perhaps to remove the impediment before it obstructed the action of the uterus. I only ask you, gentlemen, to follow his example, not to be governed in your views of obstetric practice by what are called authorities, but to judge for yourselves. Nothing is so easy as to follow an authority, once you decide who is to be your guide. I should rather ask you to seek, at the bedside of your patient, a knowledge of the truth. I would ask you to make every case you attend a subject for observation, and briefly to note the facts you have ascertained. You will thus acquire that *tactus eruditus* so essential to successful practice. I am induced to press this point upon your attention, more particularly because, formerly—indeed, I might say until very lately—no interest was taken in natural labours; all attention was given to cases of difficulty or danger. Hence the obstetric student was very anxious to witness operations, to watch the treatment of hæmorrhages, &c.; but the ordinary cases of labour he was given to attend were thought to be a bore. Six cases of labour were considered sufficient by the examining bodies as a test of practical knowledge; but when that number was increased to twelve, and to twenty, the students were startled, and many of them thought this to be too great a demand upon their patience. I have endeavoured to prove, from the history of midwifery, the reverse; and would convince you that it was the want of attention to natural labour which led to so many mistakes, when it became difficult. I am anxious to prove to you, that the most eminent men in the profession, like Mauriceau, like Smellie, like Hunter, like Naegele, noted all their cases; and these cases formed the basis of their future reputation. You can do the same; and if you wish to practise midwifery successfully, I would say, in conclusion, do not trust implicitly to books, which can be read in your studies; neither be governed by authorities, which are often wrong; but let your study be the bedside of your patient, and your book—the book of nature.'

Professor Murphy is Physician Accoucheur to the Northern Dispensary; Honorary Member of the Paris Medical Society; Foreign Member of the Obstetrical Society of Berlin; Corresponding Member of the Society of Natural and Medical Science of Dresden, and Member of the Academia Quirurgica of Madrid. He has been elected Honorary President of the Dublin Obstetrical Society.

Photographed by Ernest Edwards 20 Baker Street W

JOHN ADDINGTON SYMONDS, M.D., F.R.S. Edin.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS,
CONSULTING PHYSICIAN TO THE BRISTOL GENERAL HOSPITAL.

In one of his addresses, Dr. Symonds has spoken of a groundless prejudice, formerly entertained against medical men who devote attention to the study of general literature and the fine arts. His own career tends to render such a notion obsolete; for in his case general culture has, certainly, had no detrimental influence on the caution and accuracy which should characterize medical writings, or on the soundness of judgment so essential to the really successful practice of the profession.

John Addington Symonds, the son of a medical practitioner of Oxford, was born in that city, on the 10th of April, 1807. He received his early education in the grammar school attached to Magdalen College, and, when sixteen years old, commenced the study of medicine. Besides the instruction received from his father, he had the advantage of attending the lectures on anatomy delivered by Dr. Kidd, the Regius Professor of Medicine, and Dr. Daubeny's lectures on chemistry. He attended, also, the practice of the Radcliffe Infirmary, where he acted as dresser under Mr. Hitchings. In 1825, he entered the University of Edinburgh, where he graduated as M.D. in 1828. On his return to his native city, he took an active part in his father's practice, and had the principal charge of the Dispensary and Lying-in-Institution. In 1831, he removed to Bristol, where he was, soon afterwards, elected Physician to the General Hospital. He commenced practice, as he has always since continued, as a Consulting Physician. In 1834, he married the daughter of James Sykes, Esq. In the same year, he was appointed Lecturer on Forensic Medicine at the Bristol Medical School, and, in 1836, exchanged this lec-

tureship for that of the Practice of Medicine, which he retained until 1845. In 1839, he delivered the annual address in medicine at the Annual Meeting of the British Medical Association. He resigned, in 1848, the office of Physician to the Hospital, and was then elected Honorary and Consulting Physician to the same Institution. In 1851, Dr. Symonds removed from Bristol to Clifton. He was elected, in 1853, a Member of the Royal College of Physicians, of which he became a Fellow in 1857. In the following year he delivered the Gulstonian Lectures, taking for his subject 'Headache,' which he treated in an almost exhaustive manner. In 1863, Dr. Symonds served the office of President of the British Medical Association, and, at its annual meeting, held that year in Bristol, delivered an address on the 'Public Estimate of Medicine.'

This address, though confined to narrow limits, is one of the clearest and best replies to the charges preferred by sceptics against medicine. The author, while pointing out the unreasonableness of an indiscriminate scepticism, and asserting the scientific claims of medicine, shows how the character of medicine has suffered from the hasty and changeable theories and practices propounded or advocated by its professors, and from the incautious and foolish expressions made use of by those who are painfully alive to its shortcomings. The adverse criticisms on medicine to which Dr. Symonds replies include two principal charges :—that it is not a true science; and that the practice consists of mere empirical processes. Dr. Symonds admits certain defects and failures to which medicine is liable, both as a science and as an art, but he asks, whether it is reasonable to fasten on medical art a reproach that belongs less or more to all human arts. After observing how great advantages are possessed by those arts which profess to be founded on calculations of the invariable relations of of measure and number, and on rigid observation of invariable antecedents and consequents, he argues *a fortiori,* that if errors are frequently committed in the practice of such arts, much more may failures be expected in the art which has to deal with facts so complex and variable as those which belong to medicine.

Among the more important medical writings of Dr. Symonds may be mentioned, several papers contributed to the 'Transactions of the Provincial Medical Association,' for the years 1833-38, namely :—on the 'Medical Topography of Bristol;' an 'Account

of an Exhumation after Poisoning;' on the 'Cholera in Bristol, in 1832;' and a 'Retrospective Address on Medicine.' To the 'Cyclopædia of Practical Medicine' (1835), Dr. Symonds contributed the article on 'Tetanus,' and to the 'Cyclopædia of Anatomy and Physiology,' the articles on 'Age,' and 'Death.' In 1836, he published a lecture on 'Medical Study,' delivered at the Bristol Medical School. Among several articles contributed (1835-47) to the 'British and Foreign Medical Review,' edited by Drs. Forbes and Conolly, may be noticed a review of 'Carswell's Elementary Forms of Disease,' and two letters on 'Excessive Trust in Nature,' the latter consisting of strictures on the views of Dr. Forbes and Dr. Andrew Combe. For Dr. Tweedie's 'Library of Medicine,' Dr. Symonds wrote the 'Pathological Introduction,' which may be briefly described as an able and closely condensed treatise; and most of the articles on 'Diseases of the Digestive Organs.'

A paper on 'Death by Chloroform,' was read by Dr. Symonds before the Harveian Society in 1856. In this essay, the author brings prominently before the profession a mode of death by chloroform which had been too much overlooked, namely, by early cessation of the heart's action—in the way of syncope. This mode of death had been ignored by men of the highest standing in the profession—who maintained that the signals of impending danger were to be looked for only in the respiration. Dr. Symonds contends that the narcotic may tell fatally on the heart, before the lungs have felt any disturbance of their function; and cautions the administrator to watch the lips, the cheeks, and the pulse,—being prepared, if necessary, to place the patient in the recumbent position, or with the head even below the level of the body, to dash cold water on the face, and, in extreme cases, to apply galvanism. This paper, of great practical value, appeared in the 'Medical Times and Gazette,' in 1856. In 1860, Dr. Symonds published in the 'Medical Times and Gazette,' certain strictures on the stimulant treatment recommended by the late Dr. Todd, in his 'Lectures on Acute Diseases.' More recently, Dr. Symonds read, before the Bath and Bristol branch of the British Medical Association, a paper on the difficult question of 'Criminal Responsibility in relation to Insanity.' This appeared in the 'British Medical Journal' for 1864.

In the eloquent and logical address already noticed, on the 'Public Estimate of Medicine,' Dr. Symonds defends, as the

best recreations of the medical practitioner, the study of the sciences more or less closely related to medicine, and the cultivation of literature. Such counsel is in accordance with the author's own practice, for he has devoted no inconsiderable share of attention to the interests of the Literary and Philosophical Society of Bristol, and of the active part taken by him in its proceedings, we have proofs in several interesting lectures. Among them may be noticed those entitled 'Our Institution and its Studies;' 'Ten Years,'—a retrospect of science and literature; 'Habit, physiologically considered;' a brief 'Memoir of Dr. Prichard;' and two lectures on 'Sleep and Dreams.' The style of these addresses is always facile and pleasing, and often rises to a higher tone, as in the eloquent lecture on 'Waste.' Its theme embraces the destructive processes of nature, the waste of human life, the decline of civilizations, and the fall of empires. Yet, after a *résumé* of all the leading facts suggested by such a topic, the lecturer maintains the doctrine of optimism, that all is for the best, and that, through all the strife for existence, a clear, progressive, and benevolent design may be traced.

In 1857, Dr. Symonds published, under the title of the 'Principles of Beauty,' a contribution to the literature of æsthetics. In this elegantly-written analysis the author traces beauty to its several sources in sensation, intellect, and emotion. He adopts Mr. Hay's doctrine of a correspondence between the harmonic ratios of sound, and the proportions of certain geometrical elements in beautiful figures;—and he explains how this doctrine derives support from the rhythmical phenomena of nervous action.

Photographed by Ernest Edwards, 20, Baker Street, W.

PETER MARK ROGET, M.D., F.R.S.

We have the pleasure of presenting to our readers the accompanying photograph-portrait of a veteran writer, well known in science and literature. Though Dr. Roget may be classed with the medical men who have extended their researches beyond the sciences strictly belonging to their profession, he has not sacrificed concentration to versatility. While other pursuits have occupied his leisure hours, he has ever remained faithful to his favourite study of comparative physiology, on which he has written and lectured extensively.

Peter Mark Roget, son of the Rev. John Roget, the descendant of a Swiss family, was born in London, on the 18th of January, 1779; his mother was the sister of Sir Samuel Romilly. He received his early education in the academy of Mr. Chauvet of Kensington, where he showed a partiality for mathematical studies. Having chosen medicine for his profession, he went to Edinburgh, where he studied classics under Professors Hill and Dalziel, and the physical sciences under Professor Robison. He obtained the degree of Doctor of Medicine before his twentieth year. The title of his thesis was 'De Chemicæ Affinatis Legibus.' After a short excursion, he returned to London, where he was the pupil of Dr. Willan, at the Carey Street Public Dispensary, and attended the practice of the St. George's Hospital, and the lectures of Mr. Abernethy, at St. Bartholomew's Hospital.

In the year 1803, after spending a winter at Geneva, he was arrested as a prisoner, when the war between France and England was so suddenly resumed; but, claiming his rights as the son of a citizen of Geneva, he succeeded, with much difficulty, in obtaining a passport, by the help of which, passing through Germany,

Prussia, and Denmark, he made his way back to England. In 1804, he spent a few months in Edinburgh, and, subsequently, accepted the office of resident medical attendant to the first Marquis of Lansdowne, with whom he remained some time at Harrogate and at Bath.

The decease of the celebrated Dr. Percival, of Manchester, induced Dr. Roget to choose his residence in that city, where he immediately obtained the appointment of Physician to the Infirmary, and, subsequently, in concert with his colleagues, founded the first medical school there, by giving a course of lectures on Anatomy and Physiology. In the following year, he gave a more popular course on the 'Physiology of the Animal Kingdom.' During his four years' residence in Manchester, Dr. Roget was an active member of the Philosophical and Literary Society of that place, and was elected one of its Vice-Presidents.

In 1808, having, on the solicitation of his uncle, Sir Samuel Romilly, removed to London, he was admitted a Licentiate of the College of Physicians, and, in the following year, gave, at the Russel Institution, a popular course of lectures on his favourite subject, animal physiology. Soon afterwards, he was engaged with Dr. Cook, as joint-lecturer on the Practice of Physic, at the Anatomical and Medical School, originally founded by Dr. William Hunter, in Windmill Street. In 1811, Dr. Roget was appointed one of the Secretaries of the Medical and Chirurgical Society of London, and held this office twelve years, during which he edited the 'Medical-Chirurgical Transactions.' In these he published a paper describing a remarkable 'Case of recovery from the effects of Arsenic,' (vol. ii., p. 137), and another on 'Change in the Colour of the Skin, produced by the internal use of the Nitrate of Silver,' (vol. vii., p. 290). In 1829-30, he was elected President of the Society. The invention of a new sliding-rule for performing mechanically the involution and evolution of numbers, gained for Dr. Roget the honour of election as a Fellow of the Royal Society (1815). He was appointed (1817) Consulting Physician to Queen Charlotte's Lying-in Hospital, and, in 1820, held the appointment of Physician to the Spanish Embassy. In 1823, he was commissioned, with Dr. P. M. Latham, to take charge of the medical treatment of the prisoners in the Milbank Penitentiary, and he made there some important observations on the evils attending a dietary consisting, in too great a proportion, of fluids. Meanwhile,

he had delivered, during several years, courses of lectures on Comparative Physiology at the Royal Institution and at the London Institution.

Dr. Roget was united in marriage, in 1824, to Miss Hobson, the daughter of a Liverpool merchant. In the following year, having, for fifteen years, discharged, gratuitously, the duties of physician to the Northern Dispensary, he had the gratification of receiving a handsome testimonial, presented to him by the Duke of Sussex, as patron, and by the governors of the institution.

Among the other services of Dr. Roget, which have greatly contributed to promote the study of comparative physiology, his lectures at the Aldersgate school of medicine (1826), must not be forgotten. In the following year, he was appointed by government, together with the late Mr. Telford and Mr. Brand, on a commission of inquiry into the water-supply of London. In the same year he was elected senior secretary to the Royal Society, which office he retained until 1848. He was elected (1831) a fellow of the Royal College of Physicians, and, soon afterwards, having been appointed to deliver the Gulstonian Lectures, selected, as his subject, 'The Laws of Sensation and Perception.' In 1834, he was nominated, by the founder, to the new chair of Physiology in the Royal Institution, and, for three years, subsequently, delivered the Fullerian lectures.

The year 1833 was one of deep sorrow to Dr. Roget, on account of the loss of his wife, and in the study that had so long been his favourite pursuit, he was glad to find the constant occupation that affords the best solace for grief. An excellent opportunity had presented itself for combining and systematizing, in one extensive treatise, the materials collected by many years of researches in comparative physiology. The Earl of Bridgewater had bequeathed to the Royal Society the sum of £8,000, to be paid to the writers of treatises designed to show 'the Power, Wisdom, and Goodness of God, as manifested in the Creation.' In carrying out the purpose of this bequest, the department of 'Animal and Vegetable Physiology' was given to Dr. Roget, and his treatise, in two volumes octavo, appeared in 1834. It embraces the whole field of comparative physiology, has a clear arrangement, and is equally marked by scientific correctness and religious tendency. Anything like an adequate description of such a work is here impossible. The utmost that can be attempted is a statement of the argument,

which remains one and the same throughout the work, though illustrated by a vast array of facts. Unity of design, or the persistency of a common type throughout the manifold forms of nature is clearly demonstrated. It is next shown, that the changes or modifications made in this common type are, in countless instances, found to be exquisitely adapted to the various destinations and circumstances of living creatures. A vague notion seems to exist to the effect that the admission of a common type must have some effect on the argument in favour of the existence of a designing Creator; but it may easily be shown that the whole theory of an archetype has reference solely to a *modus operandi*. Whatever the mode of operation, while design appears in the result, the argument for the existence of an intelligent operator remains unshaken. In fact, a modification for the adaptation of the archetype to new conditions, is as clear a proof of design as could be afforded by an entirely new structure for each class of living creatures. The difficulties of natural theology arise, as Dr. Roget points out, not on questions of special design and adaptation, of which the instances are abundant, but on those respecting the general purposes served by the unending warfare and slaughter that characterize animal life on our globe. The great subject of the work, the key-note, is the unity of design in nature. He expresses that nature appears to have kept in view a certain definite type or exact standard, to which, amidst innumerable modifications rendered necessary by the varying circumstances and different destinations of each species, she always shows a decided tendency to conform. In support of this view Dr. Roget has spared no labour, in way either of thought or of argument. His reasons are placed in such easy sequence, rising from the simplest to the profoundest conclusions, that the youngest scholar can follow them, and the most learned scholar can hardly pass beyond them. It is in this simplicity and progression in matter and manner of argument that Dr. Roget appears most distinct and powerful as an author. In fact, by following out the method thus briefly described, he has placed himself, as an original contributor to science, in a position even more prominent than have many who have conducted experimental researches of their own, and have trusted to such researches for exclusive fame. Of all the volumes in the famous series of Bridgewater treatises, Dr. Roget's stands first in boldness of conception, simplicity of

plan, and purity of style. Like the nature of which he speaks, it is one continuous thought illustrated in varied style of speech, but never moving from the unity of its design.

Amidst all his professional duties, Dr. Roget had found leisure, since 1805, to compile, from time to time, the materials for the work by which his name will be most extensively known in connection with literature. The result was the publication, in 1852, of his 'Thesaurus of English Words and Phrases, classified and arranged so as to facilitate the expression of ideas and assist in literary composition.' This very useful work has now reached its sixteenth edition, and its merits are too well known to require any lengthy notice here. It consists of a treasury of words and phrases, not arranged in alphabetical order, but grouped with regard to their meanings, and thus furnishing, 'on every topic, a copious store of words, adapted to express all the recognizable shades and modifications of the general idea under which these words are arranged.'—Such a work is an effectual guard against both tautology and want of precision in writing, and its great utility for all literary men, but especially for translators, is obvious. The arrangement is philosophical, yet very clear, and the collection of words appears to be almost exhaustive of the resources of our language.

We must briefly mention here other works by Dr. Roget, of which our limited space forbids any detailed account,—such as the articles, 'Ant,' 'Apiary,' 'Bee,' 'Deaf and Dumb,' 'Phrenology,' and 'Physiology,' and several memoirs of scientific men, in the 'Encyclopædia Britannica.' To the 'Library of Useful Knowledge,' Dr. Roget furnished the several treatises on 'Electricity,' 'Galvanism,' 'Magnetism,' and 'Electro-Magnetism.' The articles on 'Age' and 'Asphyxia' were contributed by Dr. Roget to the 'Cyclopædia of Practical Medicine.' He has also contributed valuable papers to 'Rees' Cyclopædia,' the 'Encyclopædia Metropolitana,' the 'Annual Biography,' the 'Philosophical Magazine,' the 'Parliamentary Review,' the 'Edinburgh Review,' and the 'Quarterly Review.'

The number of the appointments held, at various times, by Dr. Roget, bears a fair proportion to the extent of his scientific and literary services. Besides those already mentioned in this sketch, he has held the offices of Censor of the Royal College of Physicians, of Member of the Senate of the University of London, and

Chairman of the Medical Faculty, and Examiner in Comparative Anatomy and Physiology of the same University. Dr. Roget is a Fellow of the Royal, Geological, Astronomical, Geographical, Zoological, and Entomological Societies; Vice-President of the Society of Arts, and a Member of the Royal Institution, of the Institution of Civil Engineers, and of the Literary and Philosophical Societies of Manchester, Liverpool, Bristol, Haaerlem, Turin, Stockholm, Quebec, and New York.

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SIR JAMES RANALD MARTIN, C.B., F.R.S.,

FELLOW OF THE ROYAL COLLEGE OF SURGEONS.

The sanitary reformation of our civil and military establishments in India must, obviously, be a task of great difficulty and importance. The health of military men and civilians, who are well qualified to hold office under government, has more than a private value. It is the first requisite for our permanent maintenance and good management of those vast territories in India which have, so strangely, been made subject to our rule. An efficient public officer there should know more than a little of the land, the races of people, their languages, manners, and religious prejudices. The acquisition of such knowledge must cost time. It demands, indeed, the continuous work of several years. How unfortunate then must it be, when any military officer or civilian, thus qualified, and consequently of more value, in his respective service, than uncounted untrained men, must leave his post on account of premature failure of health! How much greater might our progress have been in India, if our best men had lived longer, or had stayed there longer! A Turk would submit to the mortality of a tropical climate, as he would submit to fate. According to his creed, if forty-five per cent. of troops perish in a campaign, it was their 'written destiny.' But Sir Ranald Martin, and other medical topographers, have taught another and a more hopeful doctrine. They have led us to believe that, even in Africa, if our settlements, and those of other European powers there, had been more wisely selected, with a view to the health of residents, we should have avoided our failures on the fatal West Coast, and, at this time, far more might have been done for African civilization. The poet's dream of a land that is not only fair, but 'cool,'—

'Though in the depth it lies
Of burning Africa,'—

may never be realized, but we know that, in the same latitudes, and not far from our own unhealthy settlements, there are comparatively healthy localities. Similar contrasts are found in India, and hence the great importance of a study of its medical topography. To this subject Sir Ranald Martin called public attention, at a time when sanitary reformation was regarded with indifference by many persons holding positions of authority in India and elsewhere.

James Ranald Martin was born in the Isle of Skye, and is a descendant of one of the oldest families of the Western Islands. He received his early education in the Royal Academy at Inverness, and, in the same place, was a medical pupil under Dr. Robertson and Mr. Mac Donald. In 1813, he came to London, and pursued his medical studies, at St. George's Hospital, under Sir Everard Home and Mr. Brodie, and at the school in Windmill Street, under Messrs. Wilson and Charles Bell. He passed his examination at the College of Surgeons, in 1816, and, after a visit to friends in Scotland, embarked for India, in the following year. On landing at Calcutta, near the close of the year 1817, he was immediately ordered to enter upon his probationary course of duties at the Presidency General Hospital. In his next employment, as assistant garrison surgeon of Fort William, he had soon to encounter the epidemic cholera of India,—at that time unknown in Europe.

Soon afterwards, Mr. Martin served with the advanced forces sent to Orissa, where some mutiny had occurred, and, at this early part of his career, was able, by pointing out certain errors in the treatment of the troops, to effect a reformation of some matters of routine, and the result was soon found beneficial to the men. The detachment in which Mr. Martin served had, indeed, been so far disabled by sickness, that its relief had been ordered; but, shortly after the improvements of management had been put into practice, so marked was the return of health, that the order for relief was countermanded. Thus early, Mr. Martin had noticed that, in India, as the onset of disease is energetic, so the effects of well-chosen remedies are, often, rapidly successful. Mr. Martin could not remain many months in India without witnessing instances of that want of considerate and intelligent treatment of the natives of which the results are, now, too well known. While serving with his detachment of troops, in Orissa, he ventured, at the mess

table, to rebuke Captain ——— whose custom was to strip and flog the sepoys without a trial. Of course, words of defiance followed the remonstrance; but Mr. Martin firmly maintained his position, and the superior officer ultimately submitted to correction administered by the assistant surgeon. In the following years, 1819-20, he served in the unhealthy province of Gundwana, and had abundant opportunities of studying tropical diseases, especially jungle fever, under which he himself was prostrated. His experience was otherwise embittered by the share he had to bear of that supercilious and exclusive treatment to which army surgeons were then subjected. Meanwhile, he was anxiously occupied in suggesting and carrying out sanitary measures for the welfare of the troops. His own health had suffered so much from his services in Orissa and Gundwana that, in 1822, he was compelled to take leave of absence and embarked for the Isle of France. Having returned from this holiday, he attended on Sir Charles Metcalfe, at Hyderabad. Soon afterwards, Mr. Martin shared in the disasters of the campaigns in Ava, in which it was computed that, while hardly four in a hundred men fell in battle, not less than forty-five perished by disease! Mr. Martin was again prostrated by fever, and returned to India. For his faithful services, during the Burmese war, he had the satisfaction of receiving high testimonials from Sir Archibald Campbell and Sir Willoughby Cotton.

In 1826, Mr. Martin married the daughter of the late Colonel Paton, quartermaster-general of the Bengal army. He then commenced his course of civil medical practice in Calcutta, and, in 1828, rose to the high distinction of being appointed officiating surgeon to the Governor-General. This office was necessarily temporary, or limited to the time of the Governor's residence in Calcutta. The appointments of officiating surgeon to the General Hospital and of surgeon to the garrison of Fort William were, soon afterwards, conferred on Mr. Martin by Lord William Bentinck. He had now some leisure to digest and reconsider the observations he had already made on the medical topography of India. The two most important conclusions to which he had been led were these:—he first insisted on the fact that, in the same latitude, we have in our selection of a locality for troops, a choice between life and death. Not far from the deadly native town in the neighbourhood of the swamp and the jungle, or lying amid the snaky windings of a slow stream breathing out malaria, there

may be found at a higher level a station comparatively salubrious. Or where a change of locality is for a time impracticable, drainage and other measures may reduce the unsanitary conditions to a minimum. When considerations like these affect the disposal of large bodies of troops, their importance is manifest. Amid all the services rendered to science and public hygiene by Sir Ranald Martin, his early contributions to medical topography are the greatest. His observations on the sanitary condition of the Indian army, and his efforts for the improvement of Calcutta, entitled him to higher honours than he received from the East India Company.

In 1830, when appointed to the station of presidency surgeon, and elected surgeon to the Native Hospital of Calcutta, Mr. Martin began to contemplate the noble sanitary reforms which must ever reflect the greatest lustre on his professional career. As the result of his reports on medical topography, a Commission of Inquiry into the sanitary state of Calcutta was instituted, and was followed by legislative measures for the improvement of the public health, and by the establishment of a fever hospital for natives. In his report for 1837, Mr. Martin had recommended the removal of the troops from the low plains to the elevated districts, and, in the following year, he submitted to the Medical Board of Bengal a proposal for an improved form of reports from the military and civil hospitals of the presidency. The venerable Board rejected the suggestions of the author, who, in those days, was probably regarded as 'too young' to advocate even obviously useful reforms. He persevered, however, in his efforts to counteract the several causes of the unsanitary condition of Calcutta, and soon afterwards brought forward a plan for filling up the salt-water lake lying east of the city, and diffusing malaria from its bed, which was left in a great part dry at low water. These and numerous other labours for the sanitary improvement of Calcutta and other parts of India found, at last, due recognition of their merits; but not until the author was again disabled by a severe fever, which compelled him to take leave of India in 1840. He then received from the governors of the Native Hospital, and also from a public meeting, testimonials to his unremitting devotion to the public service.

In the same year Mr. Martin returned to England, and chose his residence in London. As soon as his health was sufficiently restored, he proceeded with the advocacy of the same plans which he had so zealously recommended during his residence in India.

His first object was to improve both the status and the efficiency of the medical department of the Bengal army, and on this subject he presented a memorial to the Directors of the East India Company. The principal reforms suggested in this memorial were a modification of the 'seniority principle' of staff promotion, and a greatly improved scale of pensions after twenty-one years' service. He was himself excluded from the benefits of this improved scale of pensions, though he had served twenty-two years. This harsh injustice was defended on grounds little better than technical. Meanwhile, in 1841-42, Mr. Martin had contributed several articles to the work published by his friend Dr. James Johnson, on 'The Influence of Tropical Climates on European Constitutions'; and had been employed by Sir Charles Metcalfe to prepare a memoir on 'Barrack and Hospital Accommodation.' In the following year he was elected fellow of the College of Surgeons, and was appointed a member of the Health of Towns Commission. In this capacity he drew up the reports on the sanitary condition of Leicester, Nottingham, Derby, Coventry, Norwich, and Portsmouth; and it was altogether through his persevering and personal advocacy, that the clause for the appointment of a Medical Officer of Health was carried. In the following year, at the request of the Duke of Buccleuch and other members of the Health of Towns Commission, a series of reports on the sanitary state of Paris was prepared by Mr. Martin. With the assistance of the late Mr. J. Grant, he edited, in the same year, the important work of Dr. Robert Jackson, on the 'Formation Discipline, and Economy of Armies.' This work by the great military physician had long been out of print. In 1845, Mr. Martin was elected a fellow of the Royal Society. A vacancy occurred in the office of examining medical officer to the East India Company, but the Directors had not the grace to confer the appointment on this meritorious officer, although his application was supported by the best testimonials from numerous friends at home and abroad.

In other recompenses and instances of appreciation of his merits, Mr. Martin found substitutes for the honours that should have been conferred by that Company in whose service he spent his best years. In 1859 he succeeded Dr. Scott as Physician to the India House. In the following year he received the honour of knighthood and was made Companion of the Bath. Sir Ranald

Martin's writings include—besides those to which we have already referred—'Reports on the Sanitary Condition of the Labouring Population' (1842); a 'Summary of Claims of Medical Officers in the Army and Navy to Military Rewards and Distinctions' (1849); and a work on the 'Influence of Tropical Climates in producing the Acute Endemic Diseases of Europeans, including Practical Observations on the Nature and Treatment of their Chronic Sequelæ under the Influence of the Climate of Europe,' (1861).

Mr. Martin, as member of the Royal Commission of 1857, ordered to inquire into the sanitary condition of the British army, rendered two most important services to his profession, and to our fleets and armies all over the world. The first was the revival of his original proposal to the Government, in 1835, for appointing medical officers of health for service in peace and in war in the armies of India. The revived proposal here presented was at once accepted by Lord Herbert and the Royal Commission, and entered into their report to the Queen. The appointment soon became an institution of the British army; and it is hoped that the important service rendered by the medical officer of health, in our last war in China, may never be forgotten. The original proposal of this great question will be found in the 'Lancet' of 14th February, 1857, p. 172. The second service rendered by Mr. Martin, had reference to the future good government and discipline of the army medical department at home, by giving to the Director-General the advantage of a council, composed of medical officers of sanitary and statistical experiences. This plan was likewise carried at once into effect by Lord Herbert, as minister of war, and it is the system on which the medical department of the army is now ruled and directed. The original suggestion was published in the 'Lancet' of 20th March, 1858, pp. 293-4. The note urging the appointment of medical officers of health for towns and cities in England and Wales, will be found in the 'Lancet' of 31st January, 1857, p. 121.

Sir R. Martin has recently had the rare honour of receiving three steps of army rank in one gazette. On the 28th October, 1864, he was raised to the highest grade, that of Inspector-General of hospitals, corresponding with that of Brigadier-General; and some time previously, he was appointed member of the permanent sanitary commission, War Office, as medical representative of the army in India.

Photographed by Ernest Edwards 20 Baker Street W

THOMAS PRIDGIN TEALE, F.R.S.,

CONSULTING SURGEON TO THE LEEDS GENERAL INFIRMARY.

With the following brief memoir, we have the pleasure of presenting to our subscribers the portrait of an eminent provincial surgeon, whose name has long been most honourably associated with British surgery.

Thomas Pridgin Teale, the eldest son of Thomas Teale, Esq., a surgeon in extensive practice at Leeds, was born, in that town, on the first day of the present century. He received his early education at the grammar school at Heath, near Halifax, and continued his studies at the Leeds grammar school until his eighteenth year, when he began his medical studies at the Leeds General Infirmary, and spent the session of 1819-20 in the University of Edinburgh. During the three following winters, Mr. Teale attended the practice of Guy's and St. Thomas's hospitals, where he was a pupil of Sir Astley Cooper, Mr. Green, and other distinguished teachers. These studies were followed by a residence in Paris, where he had the advantage of the practical instructions of Dupuytren and Lisfranc.

At a comparatively early age, Mr. Teale had given proofs of that keen interest in operative surgery which is the first condition of success. He was elected a member of the Royal College of Surgeons in 1823, and, about the same time, when only twenty-two years old, was noticed as the first provincial surgeon in England who had performed the operation of tying the subclavian artery for axillary aneurism. The promise of such a beginning has been well sustained throughout Mr. Teale's subsequent practice.

Having settled as a practitioner in his native town, he married, in 1827, the eldest daughter of the Rev. Charles Isherwood, M.A., of Brotherton, in Yorkshire. In 1831, he took, in conjunction

with several friends, an active part in the foundation of the Leeds school of medicine, and at its opening, in the autumn of the same year, delivered the introductory lecture. This school has now, during thirty-four years, steadily maintained its high character for efficiency, and among the several causes that have combined to produce such a result, must be reckoned the services of Mr. Teale, whilst he was a lecturer on anatomy and physiology. The business of the session (October, 1865), was inaugurated by Mr. Paget, of St. Bartholomew's hospital, in a newly erected building of chastely-ornamental architecture, and furnished with ample appliances for medical teaching.

Mr. Teale belongs to the numerous class of medical men who, while faithfully devoted to their profession, have found relief from study in the variety afforded by other scientific pursuits. He has long been well known, in and far beyond his native town, as one of the chief contributors to the more than ordinary success of the 'Leeds Philosophical and Literary Society,' in which he has held, for upwards of thirty years, the office of honorary curator of the zoological department. He was elected President in 1860 and 1861. Among his numerous papers read before this society may be found some of an original character and special interest. In the transactions for 1837, we may notice an account of a beautiful zoophyte—the Alcyonella—which was discovered in 1835 in ponds near Leeds, and had not been previously recognized as a British animal. The same volume contains also Mr. Teale's anatomical description, with illustrative plates, of Actinia. These have been largely made use of in systematic works on comparative anatomy since published both at home and abroad.

In 1853, Mr. Teale read before the above-named society a paper on a geological deposit in the valley of the Aire, near Leeds, in which bones of the hippopotamus major and the mammoth had then recently been found. The object of the paper was to show that this deposit was newer than the northern drift which it overlaid, and, consequently, that these great northern pachyderms had not become extinct until post glacial times. This view, now generally regarded as confirmed by numerous later and independent observations, was, at the date of the reading of the paper, regarded as a geological heresy. In the same paper the opinion was advanced, that, hereafter, these extinct pachyderms might be proved to have been coeval with man. A description of the superficial

deposits in the valley of the Aire was read before the British Association at Leeds, in 1858, and published in the report for that year.

In 1843, Mr. Teale was elected a fellow of the Royal College of Surgeons. He had the honour of being appointed, by the Queen, a member of the General Medical Council, at its institution in 1858. In 1862, he was elected a fellow of the Royal Society. Having held, during a period of thirty-one years, the office of surgeon to the Leeds General Infirmary, he resigned it in 1864, when he was appointed consulting surgeon.

Mr. Teale is the author of several works of great practical value. His earliest production is a small volume 'On Neuralgic Diseases dependent upon Irritation of the Spinal Marrow, and Ganglia of the Sympathetic Nerve.' In the course of his practice, the writer had been convinced that the difficulty and embarrassment attendant on the diagnosis and treatment of the several neuralgic affections, arose from mistaken views of their pathology. They had too often been regarded as actual diseases of those nervous filaments which are the immediate seat of the neuralgia, instead of being considered as symptomatic of disease in the larger nervous masses from which those filaments are derived. Hence the treatment was, too frequently, local and superficial. By this publication Mr. Teale contributed to more scientific views of neuralgic diseases and to a successful mode of treatment, based upon a large induction from well-recorded cases.

In 1846, Mr. Teale published a 'Practical Treatise on Abdominal Hernia, with numerous illustrations.' This is a complete and valuable text-book on the subject, and gives the results of extensive experience. With regard to the taxis, Mr. Teale states that, in several cases, he has succeeded in reducing herniæ by placing the aponeurosis in a state of tension, after he had failed in his attempts whilst the muscles were relaxed. He gives a full account of M. Gerdy's operation for obliterating the hernial aperture by the cutaneous plug—a radical method of cure which, with some modifications, has since been practised by Wutzer and others. Mr. Teale is favourable to the plan of reducing strangulated hernia, when practicable, without opening the sac.

In 1855, Mr. Teale contributed to the Medical and Chirurgical Society a paper on a plastic operation for the restoration of the lower lip, which was followed, in 1857, by the contribution to the

'Medical Times and Gazette' of a series of papers and illustrative cases on plastic operations for the restoration of the lower lip, and for the relief of several deformities of the face and neck. By one of the operations described in these papers, the terrible disfigurement from eversion and drawing down of the lower lip towards the sternum, in consequence of severe burns, is removed. The features are brought nearly to their natural appearance, and the power of retaining the saliva is restored.

Mr. Teale's latest work, entitled 'Amputation by a Long and a Short Rectangular Flap,' has added greatly to his already high reputation as a surgeon. Dissatisfied with the results of the double flap operation by transfixion, the author returned to the old circular method, which he considered preferable. But the imperfect condition of stumps resulting from both these methods, and the high rate of mortality, induced him to devise the plan of operating by a long and a short rectangular flap, which has already been very favourably received by the profession. Its advantages are, that a long flap, formed of parts generally devoid of large blood-vessels and nerves, is made to fold over the ends of the bones, whilst the larger blood-vessels and nerves are contained in the shorter flap; a long flap does not undergo retraction during the healing process, a stump is obtained which will bear pressure on the end, and the mortality of the operation is diminished.

Besides the works already mentioned, Mr. Teale has written several papers which would amply repay notice, if our limits permitted any further analyses. He has contributed to the Medical Times and Gazette, 'On the removal of a large fibrous Tumour from the Uterus';—'On the Lines of Incision for Partial Amputation of the Foot';—'A Case of Ovariotomy';—'Aneurism treated by Pressure';—'On the Operations for Stone in the Bladder';—and on 'The Statistics of Amputation.' We have also to mention the article 'Fistula Intestinal,' contributed to the 'Cyclopædia of Practical Surgery'; and the 'Retrospective Address in Surgery,' delivered before the Provincial Medical Association and published in their 'Transactions.'

Photographed by Ernest Edwards, 20, Baker Street, W.

FRANS CORNELIUS DONDERS.

Frans Cornelius Donders was born in 1818, at Tilburg, in North Brabant, in the kingdom of the Netherlands. After the ordinary elementary and school education, he entered, in 1835, as a student in the University of Utrecht, becoming at the same time a pupil in the Military Hospital. In 1840, he was appointed to a surgeoncy in the army, and was admitted to the degree of Doctor in Medicine in the University of Leyden upon a 'Dissertatio sistens observationes anatomico-pathologicas de centro nervoso,' containing a report of investigations upon the cerebro-spinal fluid, proving that both plastic and serous exudations on the brain and spinal cord are situated not in the sac of the arachnoid membrane, but beneath the arachnoidea visceralis; and in which, in opposition to Lieberkühn, it is shown that the vessels of the grey substance of the brain pass directly into those of the white. Thus early did he evince a talent for minute and exact anatomical observation.

Having served a year at Flushing, and a year at the Hague as surgeon to the garrison, Donders was, in 1842, appointed lecturer on anatomy and physiology in the School of Military Medicine at Utrecht. The duties of this chair he continued to discharge until 1848. His appointment occurred at an important period for both anatomy and physiology. After the impulse given by Schwann in 1839, the anatomy of the tissues was actively pursued, and Mulder's discovery of the identity of vegetable and animal albuminous matters had inaugurated a new era in physiological chemistry. And just then, Mulder himself had entered upon the professorship of chemistry in the University of Utrecht, and was exerting on all around him, by his lectures and personal example, an animating influence. Thus he incited Donders, too, to join him in 'A Microscopical and Micro-chemical Investigation of the

Animal Tissues,' which was published by Donders in the 'Holländische Beiträge zu den anatomischen und physiologischen Wissenschaften,' 1846; the principal results having been previously given by Mulder in his 'Proeve eener physiologische Scheikunde,' (1845). This first systematic application of microchemistry to animal tissues, not only led to increased knowledge of the chemical composition and of the reactions of the fundamental forms, but also brought to light many morphological facts, such as the composition of horny tissues (including feathers, whalebone, and tortoise-shell) from cells,—which under the action of alkalies, appeared in an ellipsoidal form, the demonstration of nuclei in nail-cells, bone-cells, etc., the isolability of these last, the presence of elastic laminæ in the middle coat of the arteries, the maintenance of the structure of connective tissue even when rendered gelatinous by acids and alkalies, the complete analogy of the so-called nuclear fibres of the connective tissue with elastic fibres, &c.

Meanwhile Donders gave, in the winter of 1844, a lecture upon 'Animal Heat,' (Utrecht, Van der Post, February, 1845), in which, first, it was shown that the skin, by its variable temperature, is the regulator of animal heat, and secondly, the first application was made of the law of conservation of force to physiology. Donders here points out that the energy of light is employed in forming the organic matter in vegetables, and that, by the chemical energy of the organic matter consumed in animal life and of the oxygen fixed, not only the heat, but likewise the mechanical work proceeding from the body, is to be explained.

In 1845, Donders became editor of the 'Nederlandsch Lancet,' of which he, with several of his friends, published ten annual volumes, as well as (in conjunction with Van Deen and Moleschott) of the 'Holländische Beiträge zu den Anatomischen und Physiologischen Wissenschaften'; which was brought to a close by the revolutionary troubles of 1848. The principal essays produced in this period were:—1, 'A Contribution to the theory of the Movements of the Eye,' (Holländische Beiträge, Bd. I.), in which, starting from the principle that the movements must first be investigated, in order thence to deduce the action of the muscles, not *vice-versâ*, the position of the vertical meridian in each direction of the axis of vision, was sought from the position of the spectral impressions left by images on the retina; the result

being that the direction of the visual axis, in whatever way arising, absolutely determines the position of the eye; while at the same time the theory of Hueck—axial turning of the eye in lateral inclination of the head—was finally refuted. 2, 'The Entoptical Visual Phenomena, with Application to the Diagnosis of Defects of the Eye,' (Nederlandsch Lancet, 1846,) in which the position in depth of the corpuscles, whereon these phenomena depend, was investigated in a simple manner, and these corpuscles were also demonstrated in part microscopically in the refracting media of the eye. 3, 'The Epidermatoraphie,' (Ibid), the toughness of the cuticle in different parts of the body being accurately determined, and shown to be applicable in suturing certain wounds. 4, 'The Structure of the Arteries in Health and Disease,' (in conjunction with J. H. Jansen), in which the structure of the arteries was described from Donders' own researches, the peculiarity of the abdominal arteries (the deficiency of the elastic laminæ in the middle coat) was shown, and moreover the important process of the formation of aneurism was explained by detailed microscopic and micro-chemical investigations, (Ned. Lancet, 1847). 5, 'The Action of Prismatic Spectacles,' the value of which has subsequently been fully demonstrated. 6, 'The Connexion between Convergence of the Visual Axes and Accommodation,' (Ned. Lancet, 1847). 7, 'The Regeneration of the Cornea,' (Holl. Beiträge, Bd. I.), experimentally shown to consist in the formation of new layers of lamellar tissue, under the previously regenerated epithelium, parallel to an oblique surface obtained by peeling. 8,—in conjunction with Moleschott—*a*, 'On the Chemical Reaction of the Blood-Corpuscles,' and *b*, 'On their Development in Frogs,' (Ned. Lancet, 1848).

In 1848, Donders entered upon a new career; he was appointed professor in the Medical Faculty in the University of Utrecht. His inaugural address was entitled, 'The Harmony of Animal Life a Manifestation of Laws,' (Utrecht, Van der Post, 1848). This discourse was directed against the teleological method or doctrine of final causes, which at that time was very much in vogue. Donders shows that the harmony universally pervading living nature, which is usually explained by the principle of design, (conformity to an end,) is a necessary result of the conditions under which all beings have been developed. By reference to these conditions he sees in this harmony the operation of three

laws,—that of habit, that of practice, and that of hereditariness. In virtue of the law of habit, organic beings adapt themselves to the circumstances in which they are placed, and they must therefore necessarily correspond to these circumstances or perish. In accordance with the law of practice, organs are modified by the use which is made of them, and they must therefore necessarily be fitted for that use. In virtue of the law of inheritance, that which is effected by habit and practice in one generation is transmitted to the next. Many illustrations of each of these laws are adduced. Thus, under modified circumstances, modifications of structure arise which we call varieties, as in former ages the still more pliable forms, under greater difference of circumstances, were able to branch into different species. But what is not harmonically modified, or is unharmonically produced, succumbs of itself, and hence the existing harmony necessarily results. The investigator of nature, as is here further shown, must consider plants and animals as developed from the existing, not as called into being by separate acts of creation. This latter idea would exclude all further investigation as to their origin. The former, on the contrary, leads us to enquire after the conditions of origin and modifications, and tends in this way also to an explanation of the harmonic relation of organized objects, and of the component parts of each object, without ever having recourse to speculations as to the design, to guess at which belongs not to the task of natural science. Thus, at an early period, had Donders embraced and elaborated for himself in a philosophical shape, views of the origin of the organic forms of our planet, which had been more or less dimly recognized by a few naturalists since the time of Lamarck, and which the genius of Darwin has lately illustrated and strengthened with wider arguments and more numerous proofs.

Donders was appointed supernumerary member of the Medical Faculty, without the existence of a vacancy, and without instruction in any definite department being assigned to him. He was thus obliged to select his own subjects beyond the circle of those prescribed by law. He forthwith took upon himself the post-mortem examinations in the hospital, and in September, 1848, commenced four courses of lectures :—1, On forensic medicine and medical police; 2, on anthropology, especially for students in theology and law; 3, on ophthalmology; and 4, in general biology;

under which last term histology, in its entire range, and the theory of the metamorphoses of matter were comprised. At the same time, he opened rooms in the old chemical laboratory, now abandoned, for the purposes of microscopical and physiological investigations, and here collected, with his students, the materials for a number of dissertations, which, together with other investigations, mostly by Donders himself, were published in eight yearly parts, under the title of 'Investigations carried on in the Physiological Laboratory of the University of Utrecht.' Among the first of these we may enumerate Alderts Mensonides 'De Absorptione Molecularum Solidarum,' (1848), in which the transference of the ova of entozoa from the cavity into the villi of the intestinal canal, and further through the lymphatics into the lymphatic glands, was demonstrated; and it was proved that, under certain circumstances, solid molecules, particularly carbonaceous particles and starch globules, penetrate from the intestinal canal into the blood of frogs. 2, Lammerts Van Bueren, 'On the Development and Morphic Constituents of the Milk, (1849), containing the discovery that the secretion of milk depends on the fatty metamorphoses of the epithelial cells of the gland vesicles. 3, W. Berlin, 'Researches on the Circulation of the Blood in the Brain,' (1850), containing the experimental proof that while in rapid loss of blood, the blood in the cerebral cavity diminishes little; in slow loss of blood the brain may, in the course of a few hours, become exsanguine, with increased production of cerebro-spinal fluid. 4, Wolterson, 'Researches on the Influence of Abstractions of Blood in the Healthy Body,' (1850). Donders himself published in this period:—1, 'The Application of the Microscope in the Medico-legal Examination of Articles of Food,' (Ned. Lancet, 1849). 2, 'The Nutritive Power of the Component Parts of the Various Grains of the Corn-tribe,' with plates, (Ned. Lancet, 1849), containing the discovery of the layer of cells with albumen and fat, situated under the husk, called by Donders the proteinchymous layer, and usually remaining connected with the bran, on the nutritive powers of which Donders subsequently communicated his investigations.

Passing over many minor contributions which it would be tedious to enumerate, we have now particularly to allude to two works of large compass, namely:—1, 'General Physiology of Man,' published in connexion with Dr. Bauduin, (Utrecht, Van der Post, 1850); and 2, 'Investigations on the Mechanism of Respiration

and of the Circulation,' published in a series of contributions in the Nederlandsch Lancet, 1850-51, and in great part also translated in Henle and Pfeufer's Zeitschrift für rationelle Medizin for the same years. We here find that Donders succeeded, by removing in rabbits a round piece of the skull and of the dura mater, and in a peculiar manner closing the opening with a piece of glass, in demonstrating, with the aid of a lens and even with the microscope, the complete absence of movement of the brain in the closed skull; he could also observe perfectly the changes in the rate of the circulation, and in the quantity of blood in the vessels of the pia mater under the several conditions of asphyxia, abstraction of blood, &c., the skull being all the while closed and inextensible: that he determined the resistance of the lungs in different degrees of distention with the manometer, as well as the negative pressure in the pleural cavity, and the influence thereof on the action of the heart; explained the movement of the blood and chyle; and for the first time also investigated through the translucent costal pleura, after the removal of the intercostal muscles, the sliding movements of the lungs in respiration in living rabbits, and also in human bodies with artificially imitated respiration. In 1850 also (Ned. Lancet), Donders stated that it would be possible, with the aid of a glass, to see the changes of the crystalline lens in accommodation, which statement in the following year, led his fellow-countryman, Cramer, to the demonstration of the cause of accommodation. In the Ned. Lancet we find, moreover, numerous ophthalmological miscellanies, viz.:—'On the Causes of Squint,' 'On Paralysis of the Oculomotor Nerve,' 'On Apoplexy of the Choroid,' 'Micropia,' 'Coloured Vision,' &c.

Thus far the ophthalmological studies of Donders lay without the sphere of practice. Even when the chair of the Ophthalmic Clinique fell vacant he did not desire it. His ophthalmological contributions however, gradually induced his brother practitioners, in cases of doubtful diagnosis, to bring their patients to him; and, soon, those labouring under affections of the eye flocked to him spontaneously. Donders at first discouraged this; but it was represented to him that in the Netherlands there was great need of an oculist, and that he would be of more use by perfecting himself as such, than by devoting himself exclusively to physiology; the more so as the instruction in physiology was, for the most part, in the hands of his colleague Schroeder Van der Kolk. Led by these

considerations, Donders came to the determination to devote himself to practical ophthalmology. In order to qualify himself for this pursuit, he repaired first to London, in August, 1851, where he met with Albrecht von Graefe. With much gratitude Donders speaks in his 'Notes on London and Paris,' (Ned. Lancet, 1852), of what he learned in the English institutions, especially from Mr. Bowman, with great thankfulness for the reception he met there, and with enthusiasm for his young friend Von Graefe, whose brilliant career he already anticipated. The meeting of Donders and Von Graefe in London, where they became acquainted with each other and soon formed a close friendship, was probably not without influence on the development of ophthalmology in the years immediately following.

With the commencement of his more practical career, Donders did not give up his physiological studies. In the years 1851-53, he even published so much in that department, that it may be inferred that most of it was previously prepared. We refer:—1, to the 'Special Physiology,' vol. 1, produced in conjunction with Dr. Bauduin, Utrecht, 1853, translated by Professor Theile into German, (Leipsic, 1856), and for a second edition fully revised by Donders, (Leipsic, 1859), thence further translated into Russian and introduced into the Russian Universities. Moreover, 2, a work entitled 'The Principles of Nutrition, the Foundation of a Rational Theory of Food,' (Tiel, 1852), also translated into German by Dr. Bergrath. 3, General histological considerations, under the title of 'The Form, the Composition, and the Function of the Elementary Parts of Structure, in Connexion with their Origin,' 1852, (given in abstract in Seebold and Kölliker's 'Zeitschrift für Wissenschaftliche Zoologie'), in which for the first time the contractility of the contents of cells was proved, while the cell-membrane was shown to be less essential, and to have influence only in virtue of its elastic tension on the pressure of the contents and on the osmose; and wherein also the discovery of the development of connective tissue is to be found, made, independently of each other, by Donders and Virchow. 4, 'Investigations Relative to the Structure of the Human Heart,' with plates, (Ned. Lancet, 1852), in which the connexion of the valvular membranes and of the arterial walls to the orifices of the heart, and the origin of the muscular fibres is more accurately investigated. 5, 'Contributions to our Knowledge of the Structure and Functions of

the Organs of Digestion, and of the Minute Structure and Functions of the Small Intestines,' (Ned. Lancet, 1853). 6, 'On the Structure of the Lymphatic Glands and the Movements of the Lymph,' (injection of the lymphatic glands, before the coagulation of the lymph, through the lymphatic vessels with coloured gelatine), and discovery of the adenoid tissue, as it was afterwards called by His. 7, 'On the Purgative Action of the Neutral Salts,' (Ned. Lancet, 1854), showing that they act by osmose; when injected into the blood they cause constipation. 8, 'Pressure of the Blood in the Different Arteries of the same Animal,' (Ned. Lancet, 1854, and Mueller's Archiv., 1854). 9, 'The Influence of the Heart's Action on the Pressure of the Blood,' (Ned. Lancet, 1854, and Mueller's Archiv., 1854). 10, 'Calculation of the Resistance of Fluids in Tubes, with fresh Determinations,' (Archiv. f.d. Holländischen Beiträge zür Natur und Heilkunde, edited by F. C. Donders and W. Berlin, 1855). 11, 'On the so-called Salivary Globules,' (discovery of the motor-phenomena of their granules). And 12, 'The Absorption of Fat in the Intestinal Canal,' (both in Moleschott's Untersuchungen zur Naturlehre, 1856). 13, 'On the Phenomena of Imbibition and Osmose,'—great influence of the presence of minute quantities of salt, inverse action of successive proportions of acids in imbibition, structure of the membrane of egg shells, separation of sugar and of salts from the white of eggs—an example of a method subsequently so extensively applied by Graham under the name of dialysis,—(in Verslagen en Mededeelingen van de Koninklyke Academie van Wetenschappen, Amsterdam, 1856, d. iv., p. 108). 14, 'On the Nature of the Vowels,' (Hollandische Beiträge, 1857), a letter addressed to Bruecke, in which the discovery is communicated, that in each vowel the mouth is tuned to a definite pitch, indifferently in men, women, and children, and differing only by difference of dialect,—as was subsequently confirmed by Helmholtz. In 1856, appeared, moreover, under his direction, the dissertations:—Rinse Cnoop Coopman's 'Contributions to the Knowledge of the Digestion of Vegetable Albuminous Bodies,' of which an abstract, by Dr. Moore, appeared in the British and Foreign Medico-Chirurgical Review, Vol. xx., p. 318; and W. M. Gumming, 'Investigations on Blood-movement and Stasis,' comprising, among other matters, Donders' simple physical explanation (unequal rapidity of the concentric layers of fluid) of the presence of the colourless blood-corpuscles

towards the vascular walls; further, W. M. Gumming, 'On the Origin of Mouldiness in Eggs,' (1856,) on the occasion of the discovery of Donders, that fungi enter the egg from without, through the egg-shells, and there become developed into more complex forms.

For the completion of the great manual of physiology, however, of which the special physiology was intended to form a part, Donders had not time. Neither did he give the continuation of his general histological considerations. The cause of this lay, originally, in his appointment to the rectorship of the University; on his retirement from which, in 1853, he delivered a formal address in the Latin language—'De justâ necessitudine scientiam inter et artem medicam, de utriusque juribus et mutuis officiis,' (Ann. Acad., 1853). Subsequently the cause was certainly to be found in his ophthalmic practice, which, from 1852, rapidly increased. By this the direction of Donders' studies was much determined, as will appear from the numerous essays upon ophthalmological subjects published by him since 1853. Among these we may reckon, 1, 'Action of the Muscles of the Eye,' (Ned. Lancet, 1853). 2, 'On the Relation of the Ultra-violet Rays to the Fluids of the Eye,' (Ned. Lancet and Mueller's Archiv. 1853), in which, in opposition to Bruecke, it is shown that these rays are comparatively little absorbed by the fluids of the eye, and that this absorption, consequently, is not the cause of their almost total invisibility. 3, 'Miscellanea.' 4, 'The Power of Accommodation Physiologically explained,' (Ned. Lancet, 1854). 5, 'Clinical Hints respecting Diseases of the Eye,' (a series of articles in the Geneeskundige Courant, 1854). 6, 'On the Musculus Cramptonianus,' (Society of Utrecht, 1854). 7, 'The Visible Phenomena of the Ciculation of the Blood in the Eye, comprising the analysis of the relations of intra-ocular pressure,' (Archiv. f. Ophthalmologie, 1855). 8, 'Metamorphosis of the Black Pigment of the Chorioidea,' (Ibid, 1855). 9, 'New Formation of Hyaloid Membranes in the Eye,' (Ibid, 1856). 10, 'Formation of Black Pigment in the Retina,' (Ibid, 1856), discovery of this morbid form. 11, 'Imbibition-phenomena of the Cornea and Sclerotic,' (Ibid, 1857). 12, 'Investigations on the Development and the Change of the Cilia, (in one hundred days all were changed), (Ibid, 1858). In addition, the following dissertations were produced by students under Donders' direction:—A. C. Van Trigt,

'De Speculo Oculi,' 1853, (translated into German by Dr. Schauenberg), one of the first essays on the ophthalmoscope, rich in original observations on the physiology and pathology of the eye; De Ruiter, 'De vi Atropæ Belladonnæ in iridem,' 1854, containing the description of the nerve-loops and of their ramifications, observed in the iris of white rabbits, and the discovery of the passage of atropia into the aqueous humour; Doncan, 'The Structure of the Vitreous Body,' 1854; Van Wijngaarden, 'On Stenopaeic Spectacles,' 1854, also in German in the Archiv. f. Ophthalmologie), containing the theory of Donders on the disturbance of vision by diffused light; Van der Beke Callenfels, 'Investigations on the Influence of the Vascular Nerves on the Circulation and on the Temperature of the Body,' 1855, with experimental demonstration of the vaso-motor nerves of the eye and of the pia mater; C. G. von Reeken, 'Anatomical Investigation of the Apparatus for Accommodation of the Eye,' 1856, with plates, giving the first representation of the circular part of the ciliary muscle; and J. A. Moll, 'Contributions to the Anatomy and Physiology of the Eyelids, with plates, 1857.

The year 1858 was remarkable in two points of view. In the first place, the popularity of Donders as an oculist had now attained such a height, that he ventured to make a call on the benevolence of his fellow-countrymen for the erection of a Dutch Central Hospital for diseases of the eye at Utrecht, with such a result, that so early as February, 1859, this hospital was opened with forty beds. It is the first example in the Netherlands of a special hospital, erected and maintained by voluntary contributions. In all its parts Donders has adopted the English system. With this hospital a special school for diseases of the eye was first established at Utrecht. From its institution it progressively flourished, and has now become one of the most celebrated in Europe. In the second place, there appeared in the course of this year, a treatise 'On the Deviations in the Limits of Accommodation and on the Choice and Use of Spectacles,' (Nederl. Tijdschrift voor Geneneeskunde, and Archiv. f. Ophthalmologie, 1858); and the dissertation of Mac Gillavry, produced under the direction of Donders, 'Investigations on the Breadth of Accommodation.' These were the first publications on the subjects of the anomalies of refraction and accommodation, which, up to the year 1864, were annually followed by others. We may now pass by in silence the long list

of essays and dissertations, because the leading points of all have been united in the large and important work, translated from the MS. by Dr. Moore, and published by the New Sydenham Society, 1864; 'On the Anomalies of Accommodation and Refraction of the Eye,' (London). Most of the essays on which it was founded were published in the appendices to the report of the Netherlands Hospital for Diseases of the Eye, of which one part has appeared annually since the establishment of the hospital. But in the same reports are to be found yet other papers by Donders and his pupils; among these are the dissertations of Gutteling, 'On the Treatment of Entropium,' 1860; of H. G. Maes, 'On Torpor of the Retina,' 1861; of A. T. P. de Wilde, 'Cases of Iritis and Irido-chorioiditis,' 1861; of T. H. A. Haffman's 'Contributions to the Knowledge of Glaucoma,' 1861; of Van Woerden, 'Contributions to the Knowledge of the Visible Vessels of the Eye, in Health and in Disease,' 1864; T. W. Verschoor, 'On Optometers and Optometry,' 1865; P. A. Van der Laan, 'On the Disturbance of Vision in Albuminuria,' 1865; T. T. Maats, 'The Sympathetic Affections of the Eye,' 1865.

The death of his distinguished colleague, Schroeder Van der Kolk, in the spring of 1862, had not been without influence on the life of Donders. In consequence of this event, Donders found himself charged with the instruction in the whole range of physiology and microscopic anatomy; this led him to connect more closely with himself in the department of ophthalmology, his friend and former pupil Dr. Snellen, well known for his dissertation which appeared in 1857—'The Influence of the Nerves on Inflammation experimentally investigated;' in which it was proved, that division of the nervus trigeminus produces inflammation of the eye, only because the eye, on account of its insensibility, is each time injured. From its opening he had been already connected as second surgeon with the Netherlands Hospital for Diseases of the Eye; now he became surgeon to it, and discharged most of its duties, while Donders remained director and consulting surgeon, and continued his lectures. In like manner, Donders joined Snellen with himself in private practice, which they followed together, so that Donders obtained more time for other objects. These were now principally teaching and working at physiology—with how much devotion and success the following recent papers afford striking testimony:—1, 'On the Timbre of the Vowels,'

(Results in Poggendorf's Annalen, 1863) ; 2, Muscular Work and Development of Heat, in Relation to the Necessary Elements of Food,' (in Nederlandsch Archief voor Geneesen Natuurkunde, 1864, a new journal established by Donders and Koster,—and translated in the Dublin Quarterly Journal of Medical Sciences) ; 3, 'Thoracic and Abdominal Respiration,' (Ibid, 1864); 4, 'Method of Analysing Sounds,' (Ibid, 1864) ; 5, 'On the Tongue-instruments in the Organs of Voice and Speech,' (Ibid, 1865) ; 6, 'On Contraction of the Pupil,' (proof that in accommodation it occurs after the latter, and in reflection on one eye arises quite equally and isochronously on both sides). Moreover, the dissertations of Van Mansvelt, 'On the Elasticity of the Muscles,' 1863, in which, after Donders, the law is expressed, that the longer the synergetic muscular fibres are, the farther are they inserted from the axis of rotation of the joints, and moreover, according to his method, the co-efficient of elasticity of the muscles, in different degrees of shortening, is determined during life; and of De Jaager, 'The Physiological Time in Psychical Processes,' 1865, in which Donders takes the first step in a new field,—he determines the rapidity of perceptions, thought, and of the will,—and announces his intention of working out this subject in detail. Meanwhile he has the satisfaction that a new physiological laboratory is being built, according to his plans, by the co-operation of the state and of the city in the University of Utrecht. He was also, in 1864, chosen President of the Royal Academy of Sciences, for the Netherlands, meeting in Amsterdam, an office marking the high estimation in which he is held by the most distinguished men of science in his own country.

Photographed by Ernest Edwards 20 Baker Street W

WILLIAM BOWMAN, F.R.S.

THIS gentleman is the third* son of the late John Eddowes Bowman, F.L.S., F.G.S., a banker in North Wales, who, possessing a moderate fortune, retired from his profession in early middle life, in order to devote himself more uninterruptedly to those botanical and geological pursuits which had always formed the occupation of his leisure hours and vacation rambles. He corresponded with Robert Brown, Sir William J. Hooker, Dr. Lindley, and other leading botanists of the day, and had gradually collected an herbarium of our British plants second to none in completeness, succeeding even in the difficult task of adding to the existing list of species more than one previously undescribed. We find, from an obituary notice of Mr. Bowman, in 1842, by the late Dr. Stanley, Bishop of Norwich, then President of the Linnæan Society, that two papers of his are to be found in the 'Linnæan Transactions,' one of which is described as 'a valuable contribution to our knowledge of a very obscure branch of vegetable physiology, the connection of root-parasites with the plants on which they grow.' The Bishop then enumerates a number of contributions on geological subjects made to the Geological Society, to the British Association for the Advancement of Science, and to the Philosophical and Geological Societies of Manchester (of these the principal relate to the Silurian rocks of

* His second son, Henry Bowman, is the author of some architectural works. His fourth son, also John Eddowes Bowman, became at an early age the first Professor of Practical Chemistry in King's College, London, and was the author of two works, 'Medical Chemistry,' and 'Practical Chemistry,' both of which have reached several editions, and are still used as text books.

North Wales, and to the origin of coal), as well as others published in Loudon's Magazine of Natural History, and in the Philosophical Magazine. The last of these, viz., in Oct. 1841, 'On the question whether there are any evidences of the former existence of glaciers in North Wales,' was on a subject that keenly excited Mr. Bowman's interest in connection with the then recent researches of M. Agassiz, Dr. Buckland, and Mr. (now Sir Charles) Lyell, and he was pursuing his investigations on the spot with his accustomed ardour, in the autumn of the same year, when a sudden cold terminated his life at the age of 56. Sir Roderick I. Murchison (address to the Geological Society, Feb. 18, 1842), after specifying his works and acknowledging the communication to himself of 'a good deal of valuable original matter connected with the older carboniferous tracts of Denbighshire and the adjacent older rocks, shortly before the 'Silurian System' appeared,' says—'In estimating his character, I should say that Mr. Bowman took a high place in that class of authors who silently but steadily advance science by short and clear monographs on subjects with which they are familiar.' He was a man of uncommon industry, and who had a great zeal and love for knowledge, and his influence on his son's career will be traceable in the following pages.

William Bowman was born at Nantwich, in Cheshire, on the 20th of July, 1816. He received his early education at Hazelwood, near Birmingham, a school of nearly two hundred boys, where the father of Sir Rowland Hill, the reformer of the post office, led the way in an attempt, that attracted much attention in that day, to introduce improved methods of public instruction, and where the elements of science were taught by a resident professor.* Corporal punishment was entirely dispensed with in this school, a rather elaborate scheme of rewards and punishments being substituted for it. A school magazine, too, was printed in the establishment by the boys themselves, who also took a large and systematic share in their own self-government.

Having gained several distinctions in this little world, he rose in due course to be head boy, but now met with a severe accident to his hand, for which he was attended by Mr. Hodgson, F.R.S., the well-known author of the work on 'Diseases of the Arteries' (and recently President of the Royal College of Surgeons). From

* E. W. Brayley, Esq., now F.R.S., of the London Institution.

this time he resolved to embrace surgery as his profession, and on obtaining a prize for drawing, chose as the subject of it 'Simpson's Anatomy for Artists,' a book full of well executed lithographic illustrations of the bones and muscles of the human figure, of many of which he immediately made careful copies. By the advice and interest of his friend and counsellor, Mr. Hodgson, he was now named resident pupil to the General Hospital at Birmingham; but as no vacaney was to occur for six months, the interval was spent at his father's house, The Court, near Wrexham, where he occupied himself with anatomical and other drawing, as well as with botanical and kindred pursuits under his father's direction. He was also kindly permitted by Mr. Griffith, then and still a surgeon of local eminence, to obtain an insight into the nature of his future calling under his guidance; which he did by seeing, among other things, a good deal of a disease at that time first ravaging this country, and carrying off many victims in the neighbourhood,—the Asiatic cholera, or 'cholera morbus,' as it was commonly and rather portentously styled.

On entering the Birmingham Hospital, where he remained five years, he became intimate with Dr. William Allen Miller, now Treasurer of the Royal Society and Professor of Chemistry in King's College, London, (then a fellow student), as well as with Dr. Blakiston, F.R.S., and other friends. In this great institution he had the fullest opportunities under Mr. Hodgson, Dr. Booth, and the other members of the staff, of growing familiar with bodily diseases and injuries in all their manifold forms. He seldom left its walls except during the holidays, which were usually spent at home, from whence many excursions were made with his father among the Welch mountains, to the bone caves of Cefn, near Denbigh, to Derbyshire, and to the Isle of Man,—and where the love of nature and of natural science was thus early fostered. In the hospital he preserved notes of every case of interest, both medical and surgical, conducted the post-mortem examinations, dissected, made numerous drawings of diseased appearances,* performed experiments on animals, wrote essays for the Students' Society, and worked on the anatomy of the tissues with a microscope given him by his father, at a time when that instrument was little used, and when it was just beginning to acquire increased

* Some of these illustrated Mr. Ryland's work on 'Diseases of the Larynx and Trachea,' Lond. 1837.

value by the recent improvements in its construction. He also attended certain lectures at the Medical School of the town.

Early in 1837, he paid a short visit to the Surgical Schools of Dublin, with letters of introduction to Sir Philip Crampton, Colles, Cusack, Adams, Porter, and others. On entering King's College, London, as a student, in the same year, he immediately found a friend and congenial companion in Dr. Todd, who had just been appointed Professor of Physiology and of General and Morbid Anatomy in the College, and was delivering his first course. Mr. Bowman soon began to aid him, as Prosector, in the preparation of his lectures; and shortly afterwards associated, as a colleague in the dissecting rooms, with Francis Thomas McDougall (who has since taken holy orders and become Lord Bishop of Labuan), and with John Simon (now F.R.S., medical officer to Her Majesty's Privy Council, and surgeon to St. Thomas' Hospital), who both, about that time, held office as demonstrators of anatomy. He also acted for a few years as Curator of the Anatomical Museum, and worked and dissected there, as well as took private pupils in anatomy, physiology, and surgery.

His previous tastes, no less than the opportunities and encouragement he met with in the physiological laboratory of his friend, now prompted him to original research, particularly with the aid of the microscope, and with such results, that in 1840 he produced a paper 'On the Minute Structure and Movements of Voluntary Muscle,' followed, in 1841, by another 'On the Contraction of Voluntary Muscle in the Living Body,' both of which were presented to the Royal Society, and printed in the Philosophical Transactions.

In 1838, he had visited Holland, Heidelberg, Munich, Vienna, Dresden, and Berlin, in company with his friends Francis Galton (since distinguished as an African traveller) and Dr. James Russell, and he now, in the summer of 1841, spent three months in Paris, with the object of familiarizing himself with the practice of the French hospitals, of operating on the dead subject, and of becoming personally acquainted with the chief men of science in that capital. He saw much of Dumas, Breschet, Roux, Poiseuille, and others, and had the satisfaction of exhibiting to many distinguished persons (among the rest to Alexander von Humboldt), the proofs of his conclusions respecting muscular structure and movements, described in his recent papers.

In the succeeding year, a third memoir was communicated to the Royal Society 'On the Structure and Use of the Malpighian Bodies of the Kidney,' and was crowned by the award of the Royal Medal in Physiology.

The three papers now mentioned were rich in new facts and views, and being copiously illustrated by the author's pencil, and written in a clear descriptive style, they attracted considerable attention, not only in this country, but wherever anatomical science was cultivated; and we believe we may say, after all that has been since published on the subjects to which they relate, that their main conclusions are still generally accepted as true. They have all been continually referred to by more recent authors. The latter, in particular, was commended at the time by a distinguished critic as a model for researches of that kind; and it did very much to render possible, and to promote, the great advances soon afterwards made in the pathology and diagnosis of renal diseases, by the clear light it threw on the structure of the gland and the mechanism of its secretion. It was owing to the talent thus evinced, that in 1841, at the early age of twenty-four, Mr. Bowman was elected a Fellow of the Royal Society, and two years afterwards was placed on the council.*

In 1843, he contributed the article 'Surgery' to the 'Cyclopædia Metropolitana,' then being re-edited. In the following years, he wrote four articles in the 'Cyclopædia of Anatomy and Physiology,' viz., 'Mucous Membrane,' 'Muscle,' 'Muscular Motion, 'Pacinian Bodies.' All of these contained original matter, and the first, in particular, presented in a condensed form the results of a wide examination of the several elementary tissues entering into the composition of the skin, mucous membranes, and of all the true glands, the structures and functions of which he endeavoured to bring into one view, and to combine under a common expression, in a way that had not previously been attempted.

He now embarked with Dr. Todd in a work of larger pretensions, 'The Physiological Anatomy and Physiology of Man,' which aimed at giving as complete a view of human anatomy and physiology as the state of science permitted, in a form adapted to the use of students and practitioners in medicine. The expressed desire of the authors was to treat each part of this wide subject in

* On which he has twice since been called to serve, viz., in 1850-2, and in the present year.

a full and exact manner, verifying every point as far as possible by their own independent observations, so as to make the descriptions direct transcripts from nature. It appeared in five sections, was enriched by numerous illustrations from Mr. Bowman's drawings, and soon attained great reputation as an original work both at home and abroad. But unlooked for delays attended its publication. These were attributable in part to the rapid transformation which physiological science was undergoing at that epoch, under the application of the microscope to anatomical research, in the hands of an annually increasing number of able observers. Another and greater cause of delay, however, as time wore on, was found in the augmenting professional engagements of both the authors, and the undertaking was only brought to a close in 1856, Dr. Beale, the present professor of physiology in King's College, having aided in the completion of the concluding chapters. Dr. Todd had then become a highly popular clinical teacher in the hospital, and each year was being more and more engrossed by the calls of one of the largest consulting practices in London. His laborious life was also bearing other fruits, both literary and social. He had taken a very active part in founding and conducting through its early struggles the new King's College Hospital, now one of the ornaments of the metropolis, and containing a statue of him, erected on its grand staircase, in grateful commemoration of his services. He was also still engaged in completing the 'Cyclopædia of Anatomy and Physiology,' known under his name, and already alluded to,—one of the most comprehensive anatomical works of this or any country, to which many of the most eminent authorities contributed articles, and in the production of which he himself largely shared. In addition, we owe to him practical works of value on rheumatism, on nervous diseases, and on clinical medicine.

For Mr. Bowman, too, on his part, a career was being gradually shaped out, differing in some respects from that he had originally proposed to himself in embracing the surgical profession, but drawing him on fortunately more and more in a direction in which he had become peculiarly fitted to excel—that, viz., of ophthalmic practice. It is only to be regretted that it left him progressively less and less leisure for those anatomical and physiological pursuits in which still greater distinctions appeared to await him.

In 1846, being then demonstrator of anatomy in King's College, and assistant surgeon to King's College Hospital, he had

received the appointment of assistant surgeon to the Royal London Ophthalmic Hospital, Moorfields, followed, in 1854, by that of surgeon to the same hospital. He had, at a period considerably anterior, in the course of his anatomical labours, and without any view to ophthalmic practice, made researches into the minute anatomy of the several organs of the special senses,—touch, taste, smell, hearing, and vision,—and in 1847, he delivered at Moorfields, at the request of the venerable Dr. Farre, a course of lectures 'On the parts concerned in the Operations on the Eye,' which were published, first in the 'Medical Gazette,' and afterwards, with an appendix of cases, in a separate form. In this publication many new facts of more or less importance were first announced, in relation to the structure of almost all the parts of the eye, but especially of the cornea, iris, ciliary muscle, (discovered about this time, independently, by himself and Bruecke), the lens and its suspensory ligament, the vitreous body and retina. He also wrote about the same time, in the 'Dublin Quarterly Journal of Medical Science,' a paper 'On the Structure of the Vitreous Body,' illustrated by an account of the remarkable phenomena presented under the imbibition and precipitation of solutions of salts of lead. Practical observations and suggestions had also been made by him on artificial pupil, and on a new method of treating epiphora, in the 'Medical Times and Gazette,' and in the 'Medico-Chirurgical Transactions.'

It was only natural that the reputation of a special kind thus acquired should lead to Mr. Bowman's being consulted by members of his own profession in cases of ophthalmic disease, although his own inclination had hitherto led him rather towards general surgery, and though he still held office as surgeon to King's College Hospital. But the sphere of practice open to him in the latter institution was comparatively small, that at Moorfields very large. Moreover Tyrrell, and soon afterwards Dalrymple, who had enjoyed the largest ophthalmic practices in the Metropolis, had been, one after another, prematurely snatched away, and on the death of the latter in 1852, a great field was left open to all comers.

Mr. Bowman was now pressed by some of his friends to renounce all other professional work, and to restrict himself to the ophthalmic branch. Such is the tendency of a special reputation, that there seemed a high probability of his being ultimately drawn

into this course by force of circumstances. Moreover this branch of practice, of which he had become exceedingly fond, was beginning to present scientific attractions that it had never possessed before. He had himself contributed to a better anatomical knowledge of many of the structures of the eye; and the ophthalmoscope, invented by Helmholtz in 1851, was already in his hands, having been sent over to him by Von Graefe, who, with Donders, had passed some time in London at the period of the Great Exhibition. By the aid of this instrument a revolution was impending in ophthalmic practice, the most exquisite and complex of organs lying now for the first time open to view in its deepest recesses, both in health and disease, and promising to yield a rich harvest of results, of the utmost value even to medicine at large. Nevertheless he did not hesitate to decline this advice; deeming it more consistent with his general aims to take no voluntary step in his own case to sanction the severance of this branch from general surgery, and leaving the future to determine for itself how far he might be able to combine both. The large accession of private engagements, however, which the following years rapidly brought, proved more than sufficient for his physical powers, so that he was at length compelled to contract his other pursuits. What these were, may now be briefly explained.

In 1848, he had been appointed professor of physiology and of general and morbid anatomy in King's College, conjointly with Dr. Todd, and when that eminent man withdrew from the college in 1853, Mr. Bowman placed his own resignation at the disposal of the council, as he felt that he could not then undertake to devote to these subjects the additional time and thought which the duties of the entire chair would demand. But at the request of the council he consented to remain in office for three years longer, and Dr. Beale was named by them as his colleague in the chair. In 1855, however, he found himself obliged by excess of occupation, finally to relinquish his professorial office, leaving it to be entirely discharged by Dr. Beale.

But Mr. Bowman's connexion with the Institution, to which he had always felt himself so much indebted, and where he had made so many friends, was not entirely severed until 1862, when, to his great regret, for the reason above given, he was constrained to abandon his position of surgeon to King's College Hospital, and of a teacher of clinical surgery there. His services to the

hospital from its foundation, a period of twenty-two years, were now warmly acknowledged by the two governing bodies, (the council of the college and the committee of management of the hospital) as well as by the professorial body. He had had as colleagues on the surgical side (besides Mr. Simon, who had withdrawn to St. Thomas's in 1847) Messrs. Fergusson and Partridge, professors respectively of Surgery and Anatomy in the College, Mr. Henry Lee, and Mr. John Wood.

In 1850, at the opening of the 'Institution for Gentlewomen during Illness,' now in Harley Street, Mr. Bowman had been named surgeon to it. This office he held alone until 1863, when, on becoming consulting surgeon, he was succeeded by Messrs. De Morgan and G. Lawson. Miss Nightingale was at the head of this establishment at the commencement of the Crimean war, and Mr. Bowman had the satisfaction of aiding her in the engagement of the nurses who accompanied her to the East. He also undertook with Mr. Arnott, at the request of the late Lord Herbert, Minister at War, the selection of the medical staff for the civil hospital, established at that time at Smyrna. On Miss Nightingale's return from Sebastopol, she requested Mr. Bowman to act as one of her committee for the administration of the fund which had been raised in the mean-time by the nation in honour of her services, and which is now employed, under her superintendence, in promoting the education of a higher class of nurses under suitable regulations at St. Thomas's and King's College Hospitals.

The elevation of the character and position of this useful order of persons, so essential to the effective ministrations of medical men, is an object which has interested Mr. Bowman from an early period. In the year 1848, a public meeting was held under the presidency of the late Duke of Cambridge, resulting in the establishment of the 'St. John's House Sisterhood, for training Nurses for Hospitals, Families, and the Poor.' Mr. Bowman has been an active member of its council throughout, and he is also one of its trustees. Much of its important work is conducted in King's College Hospital, and the Galignani English Hospital at Paris is nursed by it. It also supplies a large number of trained nurses for the sick in various conditions of life. Some of these were among the first band that proceeded to the hospitals in the East, with Miss Nightingale, on the occasion already referred to.

As might be expected from the nature of his engagements, Mr. Bowman's more recent professional writings have been chiefly on practical subjects connected with ophthalmology. Several are to be found in the 'Medical and Chirurgical Transactions,' and in the 'Ophthalmic Hospital Reports,' the latter a journal conducted by the staff of the Moorfields Hospital. He has written important papers on the treatment of lachrymal obstructions, ('Med. Chir. Trans.,' 1851, p. 337, 'Ophth. Hosp. Reports,' 1857, p. 11), with the effect of changing, to a great extent, the principles formerly in vogue. A simple curative treatment is made applicable at an early stage of these tedious maladies, and the painful, unsightly, and ineffectual method of wearing styles inserted through the skin, is altogether superseded. His plan of operating with two needles at once, in various cases of capsular cataract and artificial pupil, has been found to be a valuable addition to the modes of proceeding previously in use ('Med. Chir. Trans.,' 1853, p. 315). He has advocated operative measures for many cases of 'conical cornea,' whereby the sight is improved, and the progress of the disease seems to be stayed, ('Ophth. Hosp. Reports,' 1859, p. 154). He has also introduced a method of dealing with certain cases of detached retina, whereby sight is not unfrequently preserved, at least for a time, ('Ophth. Hosp. Reports,' 1863).

In no department of ophthalmic medicine has more change occurred within a few years than in our knowledge of glaucomatous diseases, so much elucidated by the ophthalmoscope, and by the study of the subject of eye-tension. A great impulse was given by Von Graefe's memoir on glaucoma in 1857, and by his proposal to treat it by iridectomy. Of this method Mr. Bowman has been a firm and consistent advocate from the first, being convinced of the soundness of the views on which it was based. He came forward to defend it in 1860, when it was attacked by a Dublin reviewer, ('Med. Times and Gazette,' Aug. 25, 1860), and afterwards read a paper, urging its adoption, before the British Medical Association, when that body met in London in 1862. Subsequently, he again advocated it in various letters in the 'British Medical Journal,' 1863, when strong opinions, adverse to the practice, had been expressed by Mr. Syme and others. The controversy on this occasion was animated, but always conducted, on Mr. Bowman's part, with temper and courtesy towards the opposite side. He took much pains to meet objections by

categorical replies, and to offer explanations where they seemed to be needed. We believe the discussion was of great use in calling attention to the importance of the subject, and that the value of the new treatment has been much better appreciated in England since that time.

Mr. Bowman's last contribution to the literature of his profession, is a valuable paper on the plan of removing cataract by means of a traction instrument, with iridectomy, ('Ophth. Hosp. Reports,' 1865). He gives the results of a large experience of it during the last three years, with a full description of his own mode of operating, and advocates it as being, on the whole, safer and more satisfactory in a number of instances than the method by large flap; which however will still, he thinks, have superior advantages under certain circumstances.

Mr. Bowman, as an operator in the public theatre of the Moorfields Hospital, has always been in the habit of explaining to the class, at the moment, the exact views with which the operation about to be commenced, or just completed, has been undertaken; and he has never been very careful to define in published papers such modifications of existing practice, as may have suggested themselves to his mind from time to time, and some of which may now have silently passed into ordinary use. It is, however, well known, that he has contributed much to the treatment of the cataract of young persons, by a modified extraction, and that of late he has employed the principle of suction, and has contrived suction-syringes for certain forms of soft cataract, and employed them on rather a large scale; this principle, after falling into abeyance, having been revived by his friend, Mr. Teale, Junr., of Leeds. By thus allowing his opinions to become mature before committing them to print, his contributions have naturally the higher value.

In conclusion, we have only to mention that Mr. Bowman has received many marks of recognition from foreign scientific bodies. He is a corresponding member of the Royal Academy of Sciences of Turin; of the Royal Academy of Medicine of Sweden; of the Philomathic and Biological and Chirurgical Societies of Paris; as well as of the Medical Societies of Geneva, Dresden, Athens, and Pesth. He has also been elected an honorary member of the Royal Medical Society of Edinburgh, and of the Philosophical Society of Cambridge.

Photographed by Ernest Edwards, 20 Baker Street W

THOMAS HERBERT BARKER, M.D., F.R.S.E.

When these memoirs of the good men and true of physic saw the light, it was least of all expected that the strong hand that wrote them, and the stronger intellect that guided the hand, should be the first to succumb and find the lasting rest. Yet it is so. Perchance, had all come to pass as was anticipated, the life now to be written had been written last, or not at all; for his was a life that he wished not to be written until death had sealed it. The wish outlives the anticipation, and the biographer so ready to award the share of honour due to other men, now demands the same favour for himself, rightfully, silently, peacefully.

To write of Thomas Herbert Barker of Bedford in this sense, of Thomas Herbert Barker past and gone, is next to impossible. The mind as yet does not realize the fact that so much of life compressed into one body, can have become extinguished suddenly, and to us for ever. The hand waiting on the mind in its turn lags behind, as though there were nothing to write, or much very much to write, but out of season. What has to be said shall therefore be short, and it must be sorrowful, though not without hope; it shall be such as he himself would have written were he the scribe and we the dead.

Thomas Herbert Barker was born at Dunstable, in the year 1814, on the 31st day of October. To the age of ten he attended a day school. He was then placed under the care of the Rev. Joseph Bosworth, of Little Horwood, Bucks., a minister who afterwards accepted a foreign bishopric, and a competent scholar and teacher.

At the age of fourteen Barker was apprenticed to Mr. Harris, a surgeon practising in Birmingham, with whom he stayed four years. He afterwards pursued his studies in Birmingham for one

year, taking out his lectures at the Snow Hill School of Medicine and his practice at the General Hospital. At the age of twenty years he went to University College, London, and for twelve months was house surgeon to the University College Hospital. During the period of his London life he stayed for some months with Dr. Copland, and wrote out from the learned doctor's notes, or from dictation, many a page of the now famous and world-spread Dictionary. He has told us, more than once, that these lessons in literature gave him his taste and relish for the prosecution of scientific medicine; they opened to him how much there was to be done, how much had been accumulated, and how little was known.

Dr. Barker qualified for the practice of his profession in the year 1837, by passing at the Apothecaries' Hall. In 1842, he passed the College of Surgeons as a member; in 1845, he passed for the M.B. of the University of London, and, in 1847, for the M.D. of the same University; in 1851, he took up the F.R.C.S. by examination. In so far as degrees were concerned, he thus obtained all that were in the reach of the man who is in general practice, the most difficult and the highest.

Soon after becoming qualified he settled in Bedford. He did not purchase practice, and his introductions were few; but he had that within him that conquered show; he soon began to live, and in this sphere, a sphere far too limited for his work and power, he continued until his death.

With a constantly increasing practice, Dr. Barker carried on in Bedford the most varied pursuits. He was a practitioner of medicine, an author, a sanitarian, a physicist, an antiquary, and a biographer.

Taking him all in all as a practitioner, he had no master in his day. There might be surgeons who on particular points of operations were superior, and physicians who in special points of practice were superior; but accepting him as physician and as surgeon, he combined the arts in a degree truly surprising. His medical knowledge in diagnosis was of the positive kind, and his views on treatment clear, common-sense, advanced. His surgical knowledge was equally sound, and when the surgeon's knife was in his hand, he was as collected and as calm, if not as brilliant, as his master, Liston. In obstetric practice he was prepared for every operation and every emergency. There were indeed few points of difficulty, if any, in midwifery which he had not practically studied.

As an author, Dr. Barker was not refinedly cultivated; he was too impatient at the desk to learn refinement; his anxiety was to be up and doing, and down and doing were words he did not in his own experience comprehend. Added to that, he really was deficient in art as a writer, and, knowing the fact, was careless in cultivating the art. As a consequence, he made writing his servant exclusively, and so long as that servant carried his messages to the world correctly and quickly, he cared little about the appearances of the messenger. This accounts to some extent for the enormous amount of even literary work which he got through; had he hesitated to re-write and touch up and trim fine passages, and point and screw, he would not have finished the first chapter of his message; perhaps he might never have commenced even that chapter.

But his writings had and have about them a practical value. The subjects are obviously spontaneous, and the style also. The style is never obscured by hard terms, never scientific for the mere sake of being so, and never so popular as to be out of the pale of strict science.

Omitting his minor essays, his numerous published letters, and his reports of private cases, we may refer to his paper on 'Entozoa,' his essay on 'Malaria,' and his last essay on 'Disinfection and Deodorization,' published in the 'British Medical Journal,' on the first day of the present year (1866), as his masterpieces. These essays all obtained prizes: the first had awarded to it the silver medal of the Medical Society of London; the second, the Fothergillian gold medal of the Medical Society of London; and the last, the Hastings gold medal of the British Medical Association. The grand characteristics of each of these works is *industry*. They are clear expositions of all and everything upon which they treat; they exhibit learning, judgment, and knowledge, but far above all, industry. If this industry, so pointed, so forcible, had been tipped never so faintly with genius, the works would have ranked amongst the first of the age.

Apart from the direct position of the practitioner, Dr. Barker stood prominent as a practical sanitarian. His first labours in sanitary service had reference to his own locality. His reports on the mortality of Bedford and of thirty-nine rural parishes; and his papers 'On Foul Air and Fever as exemplified in the sanitary condition of Bedford;' were essays as clear and precise as they were

outspoken and honest. They had one misfortune only, that of being lessons in advance of their time, and they called down, as all such useful and novel labours must, severe local criticism, which was to him—for he was excessively susceptible under unfair criticism—a source of much anxiety and pain. They raised his impulses perhaps unduly at times, but withal he was in every sense to be excused, for, labouring for the common good, he was assailed as fiercely as though he were bringing down on his townsmen a common calamity. In the end his arguments prevailed of course, and at this time Bedford is a healthier town than it was before he commenced his unsparing and vigourous work: but it had been one of the most healthy of towns by this time, had his views and teachings been received with proper attention and studied with an unbiassed determination to learn from them the important truths they conveyed.

As a sanitarian Dr. Barker saw also the importance of combining social with sanitary improvements, and one of his suggestions in this direction is singularly happy. He proposed, towards the close of the year 1864, the erection of town and village kitchens, where the food of the poor might be cooked at little expense, and in a way that should render it most wholesome and most nutritive. To be able to carry out this plan, he calculated with extreme care every possible source of expense, and he had it in his mind to put the principle practically to the test. His paper on this subject will be found in the 'Social Science Review' for December, 1864.

In the study of physical science there was never a more ardent student: every new discovery was to him a source of joy and pride. He was a fair chemist. He was an astronomer of some practical skill; he could resolve the nebulæ, describe the geography of the moon, or speculate on the nature of the rings of Saturn or belts of Jupiter, with as much familiarity as he could discuss a point of practice; and he could take a transit with as much readiness as he could remove a limb or apply the stethoscope. 'It's just as easy as driving the gig,' he said once to us, speaking of practical astronomy, on coming from Mr. Whitbread's observatory, 'if you only make up your mind to do it.'

He was also a good, diligent, and practical microscopist; but his 'hobby' was the 'hobby meteorological.' He had a taste for meteorology from his earliest days, and he retained and quickened it to the last. He transformed his garden into an observatory,

primed it with the best instruments, and took his observations with the punctuality of the sun. At his instance, a registration of disease in relation to meteorological phenomena, was commenced many years ago in the 'British Medical Journal,' was continued for a considerable period, and ought never to have been abandoned. For services rendered to meteorological science, and for successfully defending their privileges when the published records they furnished to the Government were denied them, a large body of meteorologists presented Dr. Barker with a testimonial in the form of a chronometer, in 1858.

The study of antiquities and of history was pursued by Dr. Barker rather as an amusement than as a labour. In these departments he had no ambition to excel, but when he touched he could not help seizing, and many a Dry-as-dust who knew no more than our busy friend, has become celebrated simply because on other matters he knew nothing at all.

Finally it was an object of Dr. Barker's life to become the medical biographer of his day and generation. He wished, he told us, 'to throw into the future a faithful representation of medicine as he saw it.' This was the origin, this the intention, of these biographical memoirs; and whoever may have read them with care, must feel that they offered as they came from their master's hand evidence of singular talent and aptitude for the special work. The analyses have been so just, the estimates so fair, the award of honour so delicate, that even those who have been most opposed to the system of contemporary biography, have been unable to expose even a fault in the details.

In addition to his medical qualifications, Dr. Barker was a Fellow of the Royal Society of Edinburgh; ex-president of the South Midland Branch of the British Medical Association; president of the Bedford Literary Institute; corresponding member of the Natural History Society of Neuchatel; a Fellow of the Medical Society, the Royal Medico-Chururgical, the Obstetrical, the Epidemiological, the Pathological, and the Microscopical Societies of London; and a member of the British Meteorological Society. He was one of the most active members of the British Medical Association.

Dr. Barker was twice married, and has left together with Mrs. Barker, six children, five by the former and one by the second marriage. Of his appearance we give with this memoir a picture we

cannot, in words, approach. It is a living picture taken at a happy moment when his mind was clouded with little care. He was of fair stature, light rather of figure, very active in all his movements, and restless almost to a fault; in fact to be unoccupied was to him real pain. As a speaker he was deficient, both in force and fluency, and although at one time he tried by practice to obtain the art of speaking with effect, he was obliged 'to give it up as a bad job.' Hence in his addresses he always read closely from the paper, and that never to his own liking; he read with emphasis without flexibility, and the result was a hardness which his ear detected and disliked. At the same time, some of his addresses run easily, and in parts can be made to discourse eloquently. By nature he was impulsive as energetic, and this not being understood except by those who knew him, led him often into what seemed errors of judgment and oppositions to his own interests. On recognition of the former he felt much; on recognition of the latter he felt little; in truth in any cause in which he was embarked, his own personal interests were the last to be considered. To all his brethren, them and theirs, he was most generous; and his correspondence on subjects and objects of charity was overwhelming.

In religion he kept to the old faith, but he was no dogmatist, and was charitable to those who disagreed with him, listening with attention and retaining his own heart. In politics he was liberal, advanced, on some points warm. Against slavery and capital murder he was specially determined, and it was always a matter of satisfaction to him that mainly through his own exertions, the state murderer was once prevented, from spreading the contagion of the worst of crimes—be it private or capital, personal or national—in the town of Bedford.

A mind so vigorous as that of Dr. Barker cannot exist without trespassing on the body: why should it? The artist who would live must never rust, and it is infinitely better for the world that an active man should waste under labour, rather than chafe under bondage. So he, a man who could not and would not be bound, felt about mid-age that his organic power was enfeebled. He suffered some years ago from irregular action of the heart, took opinion upon the subject from Dr. Williams and ourselves, and exchanged some portion of mental for an equivalent of physical exertion. He made journeys to Switzerland, first to take his

children to school, and then for the sake of the travel; and gaining taste for Alpine journeyings, he became an enthusiast on this point, and proved his strength by mountain tests of no mean qualities. Last year, unfortunately, he gave up his holiday for scientific work. In the early part of October he became ill; he suffered from pain in the limbs, headache, and extreme mental depression. As the days passed on, it gradually broke upon him that he was attacked with typhoid fever, and the fact, although it almost annihilated his hopes of recovery, in no way affected his courage. He was now attended with the most sedulous and skilful care by his partner, Mr. Goldsmith, with Dr. Wharton, and Mr. Couchman. The symptoms becoming more serious, Dr. Murchison was summoned from town, and continued to give his able attendance until the end. The period of the crisis of the disease nominally passed away, but exhaustion followed, and the patient gradually sank. He died at four in the afternoon on Tuesday the 24th day of October, 1865, at the age of fifty-one years. During the lucid intervals of his last days his mind still wandered amongst those studies that had all through life been so dear to him.

In the death of Dr. Barker the general practitioners of medicine in England have lost one of their representative men, perhaps, as a man of general science as well as a practitioner of medicine, *the* representative man of their body. In his death science altogether has sustained a loss it is hard to estimate, for he was still young in thought and action, and old only in experience and knowledge. But, through our sorrow there shines forth the hope that his example will not be lost. Dead he is in his mortality, but his spirit still lives with us; teaching to the humblest working student, to the proudest scholar, the lessons that labour hallows small and great, and that nothing is hallowed that is not laboured. Let our tears dry. *Mori est felicis antequam mortem invocet. Vale.*

B. W. R.

Photographed by Ernest Edwards, 20, Baker Street, W.

ALEXANDER TWEEDIE, M.D., F.R.S.

The subject of the present memoir was born in Edinburgh, in 1794. He was educated at the High School of that city, and commenced the study of medicine in 1809, as a pupil of the late Mr. Wishart, one of the surgeons of the Royal Infirmary. It was his good fortune to enter as a student at the University of Edinburgh at a time when its staff of teachers included the names of Gregory, Monro, Hope, Home, Rutherford, Duncan, Hamilton, Barclay, Gordon, and Thomson, under whom his medical education was conducted. While he was pursuing his studies in the University, he held for some time the office of House Physician at the Royal Infirmary, and subsequently, being desirous of acquiring a practical knowledge of surgery, he obtained the appointment of House Surgeon, where he was, for nearly two years, the colleague of the late Robert Liston. He took the degree of M.D. in 1815, and in 1817, after undergoing the usual examinations, became a Fellow of the Royal College of Surgeons of Edinburgh. In 1819, he married, and, in the following year, removed to London, where he took a residence in Ely Place, and commenced practice as a physician.

Two years later, Dr. Tweedie was admitted a Licentiate of the Royal College of Physicians of London. In 1824, he was appointed assistant Physician to the London Fever Hospital, and, on the resignation of Dr. Armstrong, was elected Physician. In the same year, Dr. Southwood Smith became his colleague, and they continued to be the attending physicians for nearly forty years. In 1862, Dr. Tweedie resigned the appointment he had so long held, and was elected Consulting Physician and Vice-president of the Hospital.

In 1826, the Aldersgate Street School of Medicine was inaugurated, and, starting with an able staff of teachers, soon attained a flourishing condition. In this school Dr. Tweedie took the department of 'Materia Medica,' and was joint-lecturer with Dr. Clutterbuck on 'Medicine.'

His first appearance as an author was in 1829, when, at the suggestion of the late Professor Alison of Edinburgh (who wished to institute a comparison between the types of fever as observed in London and in Edinburgh), Dr. Tweedie published a small volume under the title of 'Clinical Illustrations of Fever.' It may be observed that, at the date of this publication, the modern distinction between typhus and enteric (or typhoid) fever was not acknowledged.

His next literary undertaking was one demanding no inconsiderable labour and responsibility. The important discovery of the more exact method of ascertaining diseases of the chest by percussion and auscultation, gave a new impulse to practical medicine. The changes induced in organs by disease were more diligently investigated, systematic lectures on morbid anatomy were delivered at the larger medical schools, and clinical teaching began to attract more attention than formerly, while the important discovery by our countryman Bright, of the connexion between certain changes of the kidney with dropsy, led to the more minute investigation of renal disorders. Practical medicine had thus become almost a new science, but with the exception of a few valuable monographs on particular subjects, there was no modern work to which the student and even practitioners could refer for information on the more recent discoveries. To supply this evident want, Dr. Tweedie designed the 'Cyclopædia of Practical Medicine,' and had little difficulty in finding an enterprising publisher to bring out the work.

The plan comprised a series of articles, written by physicians of established reputation. The late Sir John Forbes (then Dr. Forbes, of Chichester), who had been engaged to contribute certain articles, became associated as joint editor with Dr. Tweedie in this large undertaking, and subsequently Dr. Conolly, besides furnishing several articles, gave his assistance as a third editor. The work was favoured with the contributions of not less than sixty-seven physicians, including the names of Alison, Apjohn, Bardsley, Barlow, Beatty, Bostock, Carswell, Cheyne, Christison,

Clark, Clutterbuck, Corrigan, Crampton, Adair Crawford, Elliotson, Gregory, Charles Hastings, Marshall Hall, Hope, Joy, Law, Robert Lee, Locock, Montgomery, Prichard, Paris, Jones Quain, Robertson, Roget, Stokes, Symonds, A. T. Thomson, Thomas Thomson, T. J. Todd, R. B. Todd, Townsend, Watson, and Williams. Dr. Tweedie contributed the articles 'Abscess,' 'Colic,' 'Convalescence,' 'Erysipelas,' 'Exanthemata,' 'Continued Fever,' 'Inflammation' (jointly with Dr. A. Crawford), 'Miliaria,' 'Roseola,' 'Scarlatina,' and 'Diseases of the Throat.' The 'Cyclopædia' had at once an extensive circulation, and the whole of a large edition was soon disposed of. It embodied the results of the experience of the most eminent practitioners of the age, and while it may not have the advantage of such a unity of treatment as belongs to Dr. Copland's 'Dictionary,' it has merits of another kind. But a comparison between the respective advantages of the two works, would be opening a question unsuited for discussion in this place.

To provide for students a work less expensive than the 'Cyclopædia,' Dr. Tweedie, afterwards, devised the 'Library of Medicine,' of which he was the sole editor. The volumes on 'Practical Medicine' were first published, and were intended as a guide to the more advanced student and young practitioner. It embraced all the more recent discoveries in the several departments of practical medicine, while to insure, as much as possible, uniformity of views and a general completeness throughout the work, a particular section or department was assigned to each contributor. We accordingly find the various subjects distributed among sixteen writers, viz., — Drs. Alison, Hughes Bennett, Budd, Burrows, Christison, Robert Ferguson, Gregory, Hope, Joy, Locock, Prichard, Rowland, Schedel (of Paris), Symonds, and Shaptér. This series was followed by a volume on 'Midwifery,' (by Dr. Rigby); and, after a short interval, a translation of 'Cruvelhier's Anatomy,' well executed, and furnished with copious illustrations, appeared. This work soon acquired a considerable and deserved reputation.

Dr. Tweedie was appointed, in 1835, Physician to the Foundling Hospital. In 1838, he was elected a Fellow of the Royal Society, and in the following year, a Fellow of the Royal College of Physicians. Though engaged, as we have seen, in extensive medico-literary undertakings, he had been long extensively and successfully employed in private practice. In 1848, on the

retirement of his friend, the late Dr. Chambers, he succeeded that eminent physician in his residence in Brook Street, Grosvenor Square, where he resided until 1863, when he removed to Pall Mall.

In 1839, Dr. Tweedie was elected examiner in medicine in the University of London, the duties of which important appointment he discharged for twenty-three years. He retired from the office in 1863. During twenty years of that period he was associated, as examiner in medicine, with Dr. Billing, and, subsequently, with Dr. Jenner. The reputation of the new University, and the estimate to be placed upon the degrees it conferred, have depended, in no small degree, on the scope and character of its examinations; and the Senate has, consequently, always endeavoured to select the most efficient men as examiners. Dr. Tweedie laboured, for the long period stated, in this responsible position, zealously endeavouring to advance the reputation and the best interests of the rising University. No small amount of credit is due to him and his coadjutors for the high estimation in which the degrees of that University are held.

In 1858, Dr. Tweedie was selected by the College of Physicians, on the nomination of the President, to deliver the Lumleian lectures, and, at the request of the President, he devoted the lectures to the consideration of the nature and pathology of fevers. They were published, in 1862, in one volume, under the title, 'Lectures on the Distinctive Characters, Pathology, and Treatment of Continued Fevers.' The character of this work is eminently practical. The author avoids discussions on the more obscure and unascertained doctrines, such as proximate causes, but enforces with great earnestness the importance of discriminating the various forms which fevers assume,—giving especial attention to the phenomena by which enteric (or typhoid) is distinguished from typhus fever. The numerous practical details of the work, which so greatly add to its value, are derived from observations made during a long and extensive practice, in which the treatment of acute diseases, and especially of fevers and inflammation, has occupied so large a share of the author's attention.

Photographed by Ernest Edwards, 20, Baker Street, W.

THOMAS BLIZARD CURLING, F.R.S.,

SURGEON TO THE LONDON HOSPITAL.

Among the several roads that lead to success, perhaps none is safer than that chosen by the subject of the present memoir. His whole career, since the year 1834, when he was elected assistant Surgeon to the London Hospital, has been marked by a persevering industry of observation, directed to the elucidation of obscure forms of disease and to the advancement of practical surgery. Such concentration of research almost invariably meets with its reward.

Thomas Blizard Curling, born in London, on the 1st of January, 1811, was the third son of Daniel Curling, F.S.A., Secretary of Customs, who died suddenly in 1824, leaving a large and young family. At a comparatively early age, Mr. Curling manifested that devotion to professional studies to which his success is mainly to be ascribed. During the time of his pupilage, under the care of Sir William Blizard, the distinguished surgeon to the London Hospital, he contributed several reports of cases to the 'Medical Gazette,' and wrote, for 'Partington's Cyclopædia,' an article on the 'Cranium.' In addition to his studies at the London Hospital, he enjoyed the advantage of attending the lectures of Mr. Abernethy, Mr. Stanley, and Mr. Lawrence, in the school of St. Bartholomew's Hospital. After passing the College of Surgeons, in 1832, he soon aspired to gain some responsible position in the Hospital where he had studied. In the following year an assistant-surgeoncy became vacant. Mr. Curling was still young, and the rival candidate, Mr. Coulson, had already gained a position in surgery and a name in medical literature; but, after a sharp contest, Mr. Curling was elected, in January, 1834. In the following year he gained, by his essay on 'Tetanus,' the Jacksonian Prize of the Royal College of Surgeons. This was published in 1836, and was generally accepted as an excellent monograph and valuable work of reference. He thus gave early promise of the solid surgical reputation he was soon to acquire.

Being junior assistant surgeon to the Hospital, Mr. Curling was required by the Governors to reside in its immediate neighbourhood, to act in cases of emergency. He remained there seven years, attending the surgical out-patients, working zealously in the wards, and giving much time to pathological researches. He superintended the *post-mortem* examinations, and also gave lectures on morbid anatomy. There can be little doubt that the steady self-denial involved in so long a residence close to the large eastern metropolitan hospital, and the disregarding the chances of an early private practice, for the sake of more diligently amassing the varied pathological facts offered to his observant mind, account for the distinctly pathological turn of Mr. Curling's subsequent labours and publications, and the number and completeness of his researches.

In 1836, he contributed to the 'Medical Gazette' a paper entitled 'Observations on Affections of the Bladder in Paraplegia,' in which he showed that the ammoniacal condition of the urine after fracture of the spine, was due to a change taking place in the secretion after its arrival in the bladder. Five lectures on 'Human Entozoa,' which had formed part of the course on morbid anatomy, appeared in the same journal in 1838. In 1841, Mr. Curling was appointed lecturer on surgery in the school of the London Hospital, and continued to teach this important subject until 1863, when he resigned the chair.

As early as the year 1835, his attention had been specially directed to the diseases of the testis. In the course of his studies and his attendance on the out-patients of the hospital, he had become convinced of the importance of further investigation of a class of diseases, which, after the labours of such men as Cooper and Brodie, still remained, in many points, obscure, and, while awaiting a truly scientific elucidation, had, too often, been treated by unqualified pretenders to the art of healing. Of the diseases themselves, and their effects on the general health, as well as on the social relations of patients, he had collected many observations, and had made valuable inductions with that cautious judgment which has, generally, guided his researches. In 1841, he contributed to the journals a paper entitled 'Observations on the Structure of the Gubernaculum, and the descent of the Testis in the Fœtus.' In this paper he demonstrated that the gubernaculum is largely composed of striped muscular fibres, which become everted in the descent of the testicle, and that, after the transition of the gland into the scrotum, these fibres constitute the cremaster muscle

surrounding the organ. He considered that the muscle of the gubernaculum was the active agent in producing this change in fœtal life. His chief surgical work, a 'Practical Treatise on the Diseases of the Testis and of the Spermatic Cord and Scrotum,' was published in 1843. In this work, which has reached a third edition, the author has given a comprehensive description of these diseases, and has produced the results of many years' observation and experience. His work has been generally received as a sterling contribution to surgical literature. A translation by Professor Gosselin of the second edition, published in Paris in 1857, is now the chief text-book on the subject in France.

In 1845, Mr. Curling was appointed secretary to the Royal Medical and Chirurgical Society, and held the office for two years. Among many papers which he contributed to the society's 'Transactions,' may be mentioned, 'Observations on some of the forms of Atrophy of Bone;' 'Acute Ulceration of the Duodenum in cases of Burn,' a paper of great interest, in which the author clearly established, by a series of cases and pathological observations, the relation of acute ulceration of the internal mucous membrane, to extensive destruction of the cutaneous integument. We also cite, amongst other communications to the society's 'Transactions':—'Cases of Varicocele treated by Pressure;' 'Observations on Cystic Disease of the Testicle,' showing the origin of the disease in the ducts of the rete testis, and in two forms, simple and malignant; 'Case of Traumatic Aneurism of the Ophthalmic Artery, cured by Ligature of the Common Carotid;' 'Inquiry into the treatment of Congenital Imperfections of the Rectum by Operation.'

Mr. Curling was one of the earliest hospital surgeons to recognize the boon to humanity and operative surgery of the inhalation of anæsthetics, and contributed much to its extended use in London by his example and advocacy of the method. In 1848, he delivered the annual oration before the Hunterian Society, taking for his subject the 'Advantages of Ether and Chloroform in Operative Surgery.' He was elected President of the Society in 1855.

After long service as assistant surgeon to the London Hospital, Mr. Curling was appointed full surgeon in 1849. In the following year, he was elected a Fellow of the Royal Society. He holds, also, the office of consulting surgeon to the Jews' Hospital, and to the London Orphan Asylum, and is a member of the Medical Board, and an active supporter of the Royal Sea Bathing Infirmary.

In 1851, Mr. Curling published his work entitled 'Observations on the Diseases of the Rectum.' This work—the third edition of which was published in 1863,—is appreciated by the profession as a standard treatise on the subject. In this work, the author has endeavoured to base the treatment of the numerous and often obscure diseases of this part, on a sound knowledge of their pathology, and to render the various operations required for their cure as simple and uncomplicated as possible. In the last edition, he has included the results of an elaborate enquiry into the nature and treatment of congenital imperfections of the lower bowel.

Besides the treatises and papers already noticed may be mentioned:—'Observations on the Treatment of Nœvi,' ('Medical Gazette,' 1850,) in which is suggested the removal of these growths by subcutaneous ligature to avoid deformity; 'Case of Malignant Tumour of the Thigh, for which amputation was successfully performed at the hip-joint,' ('Path. Trans.'); three papers in the 'Lancet,' entitled 'Contributions to the Pathology of the Rectum;' and in the same journal, 'Observations on the Treatment of Painful Cancer of the Rectum without Obstruction by establishing an anus in the left loin;' 'Observations on Sterility in Man,' (in the 'Medico-Chirurgical Review,' April, 1864); 'Report on Colotomy for Cancer of the Rectum,' ('London Hospital Reports,' 1865); in which the author gives the results of ten cases of operation, and points out the advantages which may result, in cancer of the lower bowel, from diverting the channel for the passage of the fœces by establishing an anus in the left loin; he shows that by this operation we are able to prevent or mitigate many of the distressing symptoms of this terrible disease, and, sometimes to retard its progress. There is, perhaps, no proceeding in surgery which offers fewer of the *common* inducements to operation, than this one of colotomy, or which, consequently, shews to greater advantage the personal character of the subject of this memoir, as a humane, enterprising, and practically successful surgeon. It is an operation not free from disagreeable accompaniments, not without technical difficulties, not likely to reward the operator by permitting the sufferer to survive long to testify to a successful cure. We believe no other surgeon has performed and recorded so many cases of the kind as Mr. Curling.

Mr. Curling was elected an Examiner in Surgery to the University of London in 1859, and held the office the usual period of five years. In 1864, Mr. Curling was elected a Member of the Council of the College of Surgeons.

Photographed by Ernest Edwards, 20, Baker Street, W.

CHARLES RADCLYFFE HALL, M.D.

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON, AND OF EDINBURGH; CONSULTING PHYSICIAN TO THE ERITH HOUSE INSTITUTION FOR GENTLEWOMEN; AND PHYSICIAN TO THE WESTERN HOSPITAL FOR CONSUMPTION; TORQUAY.

The subject of this memoir, a descendant of the Lancashire family of Radclyffe, was born at Congleton, in Cheshire, in 1819. He commenced practice as a physician at Clifton, and was elected physician to the Bristol General Hospital in 1849; but finding his health unequal to the continuous pressure of hospital duties, he resigned this position, and removed to Torquay in 1850, where he has since then resided, and practised as a physician.

While residing at Clifton, Dr. Radclyffe Hall had formed the plan of attempting to establish there a Consumptive Hospital, and the hope of assisting to do something of the kind in a still more favorable locality, was one amongst other inducements for removing to Torquay. He found here that the nucleus of such an institution as he had contemplated had already been formed, in the same year, 1850, by Miss Gore of Wilcott Manor, Marlborough,—now the Honourable Mrs. Powys-Keck. In the following year, he became associated as physician with his friend Dr. Tetley, in working for the development of this infant institution, in which he has ever continued to take a lively interest.

The Torquay Hospital for Consumption has, for several years past, afforded during the eight colder months of the year, accommodation and medical aid to fifty in-patients, twenty-five of each sex.

In 1854, the late Sir Culling Eardley and Lady Eardley were the principal founders of an institution at Torquay, designed for the reception of gentlewomen in reduced circumstances, suffering

from disease of the chest. To this 'Erith House Institution' Dr. Radclyffe Hall was, in 1855, appointed one of the physicians, and also one of the trustees. The former office he resigned in 1864, and was then appointed Consulting Physician.

In 1853, when the British Medical Association held its annual meeting at Swansea, Dr. Radclyffe Hall was selected to deliver the address in medicine, and chose for his subject 'Nature's Modes of Arresting Tuberculous Disease in the Lungs.' In 1860, when the same association met at Torquay, he was appointed President for the year. On this occasion he delivered an able and eloquent address on 'Modern Medicine, its Aims and Tendencies.'

His connection with the Torquay Hospital for Consumption and with the Erith House Institution, in addition to his private practice, supplied to Dr. Radclyffe Hall numerous interesting observations of which he availed himself in a series of 'Essays on the Natural History of Pulmonary Tubercle,' illustrated with numerous engravings. These appeared in vols. 15, 16, and 17, of the 'British and Foreign Medico-Chirurgical Review' for the years 1855 and 1856.

The other writings of Dr. Radclyffe Hall include various papers on 'Strabismus,' and the 'Physiology of the Muscles of the Eye-ball,' which appeared in the 'Medical Gazette' for the years 1840 and 1841; 'On the Structure and Physiology of the Iris,' published in the 'Edinburgh Medical and Surgical Journal' for 1844; and an 'Experimental Investigation into the Ganglionic System of Nerves,' in seven essays, illustrated with many engravings, and contributed to the 'Edinburgh Medical and Surgical Journal' for the years 1845—48. We have also to mention a series of nine papers on 'Mesmerism,' which appeared in the 'Lancet,' (1845); four papers on 'Homœopathy,' contributed to the 'Provincial Medical and Surgical Journal, (1850); an essay on the 'Contractility of the Bronchial Tubes;' and some observations 'On the Spirometer,' in the 'Transactions of the Provincial Medical and Surgical Association' for 1850 and 1851; a paper on 'Pulse-breath,' in the 'Medico-Chirurgical Transactions' for 1862; and a little work entitled 'Torquay in its Medical Aspects,' which was was published in 1857.

These brief notes of a life devoted to medical study and practice would be very imperfect without some accompanying attempt to give, at least, a brief analysis of the writings already mentioned.

In his papers on 'Strabismus,' Dr. Radclyffe Hall draws certain conclusions on various points in the physiology of vision from a study of the phenomena of shadows and of double vision, in cases of strabismus, observed before and after the performance of the operation. By such observations he has been led to infer, that the mind judges of the situation and distance of an object by the action of the muscles of the eyeball, which is necessary to see it with the greatest distinctness, conjoined with the position of the image upon the retina in relation to the centre of acute vision; that this centre is either an original, or, in a squinting eye, an acquired spot; and also, that objects are seen erect in accordance with the same law of visible direction.

Dr. Radclyffe Hall has contributed some interesting papers to the literature of 'Mesmerism.' His general conclusion on this subject may be briefly stated thus:—while admitting that several striking phenomena in the physiology of the nervous system are illustrated by the so-called 'mesmeric' condition, however induced, he asserts that the same phenomena present themselves without the use of the agencies assumed in the theory of 'mesmerism.' All the statements brought forward to prove the assertions made in favour of 'clairvoyance' and 'mesmero-phrenology,' he discards as founded on no sufficient evidence.

In an 'Essay on the Iris,' the author refers the contraction of the pupil to a *Sphincter Iridis*, and its dilatation to the emptying of erectile tissue around the base of the iris and in the ciliary processes.

From a series of observations on the 'Contractility of the Bronchial Tubes,' the author has inferred that their muscles contract in a rhythmical manner during ordinary expiration, in a spasmodic manner during continued coughing, and with persistent, tonic force in the paroxysms of asthma.

In his paper on the 'Spirometer,' Dr. Radclyffe Hall allows the general correctness of Hutchinson's rule,—that the quantum of expiration is in direct ratio with stature; but adds, that the rule must be modified by consideration of width of chest, enlargement of liver, and other abdominal conditions. These elements in the calculation, he notices, as affecting the conclusions that might be drawn from low degrees of expiration-power in certain cases, while he regards as the most important evidence, that which is deduced from a comparison of the present quantum of expiration of any given person with that previously shown by the same individual.

In the papers on 'Homœopathy,' the writer argues that, inasmuch as one and the same remedy is given in a large number of diseases entirely dissimilar in their nature and their symptoms, the maxim of '*similia similibus*' is not maintained by the homœopathists themselves; and, further, that, so far as this maxim has any foundation, it is grounded on old and familiar experience and is practised by the medical profession; and, lastly, that, since it has more exceptions than examples, it has no title to be put forth as the one sole law of the host of varying facts which form the basis of the art and science of medicine.

In the series of 'Essays on Pulmonary Tubercle,' the writer gives minute details of original research on the development, the varieties and metamorphoses, the destructive course and the curative processes of chronic tubercle in the lungs. Among other valuable pathological observations in these essays, may be noticed that of fatty degeneration of bloodvessels adjoining pulmonary tubercles, the connection of which with the occurrence of hœmoptysis is obvious. The paper on 'Pulse-breath' contains a novel observation and pathological explanation of cases in which the pulse is audibly communicated to the breath of the patient.

Of the seven essays on the 'Ganglionic System of Nerves,' we are unable to give, within our limits, such an analysis as their interest demands. The author's views of the functions of the nerves differ widely from those, at present, commonly entertained. In the first place, he is far from regarding the influence of the nerves over the processes of nutrition, as being restricted to the control of muscular contraction of the bloodvessels, and, secondly, he ascribes all the power of the ganglionic nerves over muscular contraction to the spinal cord. The crossed tract in the medulla oblongata, by which sensation passes into the encephalon is pointed out, and illustrated by a drawing, and a conjecture is thrown out, that the cerebellum is largely concerned in all kinds of emotional action. From experiments made upon the most accessible of the various detached ganglia — the lenticular ganglion—and also from a minute anatomical analysis of each ganglion, in detail, it is concluded, that every ganglion consists of either two, or three, separate elements, and that the office of the ganglion is simply that of bringing these elements into co-operation. Every spinal ganglion consists of an impressional and an organic element. Such are the higher ganglion of the glosso-pharyngeal,