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15.—SIR JONATHAN HUTCHINSON, F.R.S., 1828-1913

BY THE LATE
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Yorkshire

We older men who remember Sir Jonathan Hutchinson well, recall a tallish dark figure that changed very little from middle life to old age; dark eyes that seemed to look past you through his spectacles; black hair, black beard lengthening and growing grey with age; a suit of black broadcloth and a top hat that grudgingly gave place to a wide-awake. We see him presiding at our medical meetings and addressing them in precise clear-cut sentences, rather solemn, without much sparkle, but full of meat, and made attractive by more than a trace of Yorkshire accent. Or we think of him surrounded by an admiring crowd of doctors amongst his bottles and diagrams at the Polyclinic; or at his hospitable table in Cavendish Square discussing some literary subject with a party of eager surgeons old and young. Or the scene shifts to his other life at Haslemere, where, like a country squire, he led his guests about his estate, studied geology, farming, and diseases of animals and plants, shot his partridges and rabbits, gave lectures on all imaginable subjects at his Museum or retired.
to a cottage in his grounds for deep confabulations with his crony, Dr. Hughlings Jackson, undisturbed by the incursions of the family and less scientifically-minded guests.

Let us trace the steps by which he reached his unique position—unique inasmuch as he was a man apart both in personal characteristics and in attainments. On the medical stage he combined the parts of a general consulting surgeon and a specialist in three distinct departments; the public sought his help on three Royal Commissions and recognized his work as an originally minded educationalist; and amongst his friends he was reckoned a connoisseur on literary matters and a hopeful advocate of modern religious views.

No one could have had a more serious start in life, for he was born and bred a Yorkshireman, though his ancestors, who had been strict Quakers since the time of George Fox, belonged to Lincolnshire, where for two hundred years they had farmed a small estate at Gedney in the flat lands near Boston. His grandfather Jonathan, though a good grazier, "contracted at an early period a much greater inclination to the pursuit of abstract and metaphysical problems than simple and obvious truths." Small wonder that he was a "valued minister" in the Society of Friends. His son Jonathan, who was scarcely less devout, a man of strong character and amongst the earlier convinced total abstainers, moved to Selby where he became a prosperous and universally respected "middleman in the flax trade" and here our Jonathan, the second in a family of eight sons and two daughters, was born on July 23, 1828. Early Quakers sought their brides amongst the members of their own Society, so the sober strain was not diluted with worldliness on the spindle side. Jonathan the third was not sent to school; he received his early education from governesses, and thus he was scarcely brought into contact with the outer world—a world rather looked askance at by "Friends" of that day—till he had reached the age of 17 years. Then he was apprenticed to Caleb Williams, a Quaker doctor and minister, who had one of the largest practices in York, but was very unfitted to supply any special intellectual stimulus. After six months, "to his inexpressible pleasure" he obtained leave to commence reading a little "medicine." The following year he entered the York school of medicine and surgery, and the last two years of his apprenticeship he was allowed to attend the York hospital. What limited opportunities during those priceless years compared with those which are offered to the medical student of to-day!

The medical school at York was small enough to justify the well-known story of the solitary slumbering student being roused by the exclamation of the lecturer: "Wake up, Mr. Hutchinson, I've finished." It was not good enough to supply a complete
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medical education, but there was at this particular time, 1846-1855, one remarkable personage on its staff. Thomas Laycock, afterwards the well-known and somewhat quizzed "Professor" Laycock—professor of the practice of physic—in the Edinburgh University, was lecturer on clinical medicine at this small provincial school. He was a man of philosophic and original mind, more of a mental physiologist than a clinician, who upset many current notions on the physiology of the brain and started the study of unconscious cerebration. He must have influenced the thoughtful mind of young Hutchinson as he undoubtedly did a few years later that of Hughlings Jackson.

London

In order to complete his studies Hutchinson came to London in 1850, attended some lectures at St. Bartholomew's Hospital and took the diploma of M.R.C.S. the same year. At "Bart's" he met another truly scientific man, this time a surgeon, James Paget, still warden of the college, as well as lecturer on general anatomy and physiology, and assistant surgeon to the hospital.

After a brief return to York to serve a house-surgeony there, he finally settled in London in 1851 with a minor hospital appointment of clinical assistant at the Liverpool Street Chest Hospital. He was slow in deciding what precisely his life work was to be; for he disliked the thought of general practice, and at one time half thought of becoming a missionary. To account for this we must remember that he was still a strict "Friend," though even at the age of 18 years he had rebelled against some of the more obtrusive peculiarities of the Society. He was a very earnest youth, very systematic and conscientious about the use of time, and full of good resolutions as to its abuse. As his diary shows, he was a methodical reader of solid literature only slightly diluted with the works of such frivolous authors as Shakespeare, Byron, Scott and Tennyson. For a short time he practised a Spartan economy in order to save his father expense, and satisfied himself that the cheapest way of supporting life was a diet of figs and bread. Naturally, when he came to London he dropped into the Quaker circle and joined heartily in their activities. It happened that at this particular time there were several members of the same community who either were then, or afterwards became, distinguished. Hodgkin had an established reputation at Guy's; so had Peacock at St. Thomas's, who in 1846 had taken an active part in the foundation of the Pathological Society, while Daniel Hack Tuke the alienist was Hutchinson's fellow-student at St. Bartholomew's, and his fellow-lodger in Carthusian Street. Lister and Wilson Fox were students at University College, as was Buxton Shillitoe, who was destined
to make a reputation in one of Hutchinson's favourite specialties. With all of those he became more or less intimately acquainted. They all in time emerged from their narrow circle into the great world, but in their earlier years it had no doubt a cramping influence. Thus Hutchinson, yielding to his father's conscientious objections to having anything whatever to do with even the accessories of war, was obliged to refuse a tempting offer of an appointment in the Crimea, where many of his contemporaries were gaining invaluable experience and reputation.

When he had made up his mind to practise surgery his brass plate was put up in Finsbury Circus where he shared a house with the Quaker architect, Wm. Beck. His keenness for investigations of all sorts and his inveterate habit of note taking kept him busy enough though practice came but slowly. He joined the recently formed Pathological Society in 1852, and some idea of his activities may be gathered from the fact that during the first nine years of his membership he is credited with about seventy contributions of one sort and another. Like many young surgeons he coached pupils and wrote for the medical journals. He obtained appointments at two special hospitals—The Royal London Ophthalmic Hospital, and the Blackfriars Hospital for Skin Diseases. Here he could study his three favourite specialties, and to keep his hand in with general surgery, he sought and obtained an assistant surgery to the Metropolitan Free Hospital in the early fifties, and in 1859 he was fortunate in being appointed assistant surgeon to the London Hospital, which henceforth was the principal scene of his labours for twenty-five years.*

Three years before this he had married Jane Pynsent West, who though she came of Quaker stock was not actually a member of the Society. She was a cultivated lady of many interests and devoted, amongst other pursuits, to music and painting. At first they lived at Reigate; but when the London Hospital appointment brought the business of life into the foreground, he moved with his wife and two young children to Finsbury Circus, which became the family home for sixteen years. In those days the City was much further from the West End than it is now. Those who did not own carriages had to travel upon rough paved roads in very primitive cabs or buses. So the younger members of the staffs of the London Hospital and Guy's, at all events, mostly built up their consulting practices in the City and only moved westward, when they thought their reputations warranted the change. The migration was not made without regrets and misgivings; it was like a barrister "taking silk." Internal combustion engines have changed all this and the glory has departed from Finsbury Square and Circus, and from

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* He was full surgeon from 1863 to 1883. From 1873 to 1883 he was Senior surgeon.
remote St. Thomas's Street. Hutchinson had become very busy by 1894, when "with some hesitation" he moved into Cavendish Square, then the haunt of the more ambitious medical consultants. Mrs. Hutchinson writing to her daughter in May of this year says: "Our going to the West is very doubtful, I think, after all. Sir James Paget tells papa he must go, and give up all hope there of teaching and advancing science, for it is time he attended to No. 1. He can do that there but nothing else. This quite scared papa, and I can't help smiling at how advice which would attract most men, disgusts him, and he thinks he'd better stop here. We have not quite decided yet." At last he made up his mind. Perhaps his nine children turned the balance. The new home was next door to that of his highly successful colleague, Sir Andrew Clark, at that time one of the best known and most fashionable physicians in England, though Jenner, Gull and Quain were all in their prime.

Eight years previously Hutchinson had bought the nucleus of his property at Haslemere, where the children's holidays and all possible week-ends were spent, and to which he ultimately retired when he left London for good in 1911. He farmed at most about 300 acres, much of it wood or copse and impossible to cultivate. Being thus firmly anchored to both town and country, Hutchinson seldom went away for distant or prolonged holidays till science not pleasure tempted him late in life to visit Africa and India.

Objective Education

It seems impossible to trace his progress during the long years of his London life, except by dealing one by one with the different objects to which he devoted himself contemporaneously. They are dovetailed into one another in an altogether inextricable manner; and, after all, no excuse is needed for adopting a method so truly Hutchinsonian in trying to draw his portrait, hoping, as he would have said, to make up for its defects by supplementing it with a full index at the end. "Hutchinson's rôle," says Nettleship, "was in observation, collection, comparison, and the cautious use of a rich imagination"; to which we may add that he was on principle and by inclination a teacher. "Next to the ambition to discover something new," he says, "which after all, is only a higher form of teaching, the desire to be the means of spreading knowledge is the noblest aspiration of the human mind. It is so because it shows faith in light, because it is inclusive of all other aims. 'Let there be more light' will ever remain the morning and evening prayer of every benevolent man." Holding then these exalted views about the privileges and responsibilities of the teacher it was natural that he should have some original ideas about the best methods of imparting knowledge. Not that there was anything
peculiar about his clinical teaching except that which depended on his own personality. His late colleague, Sir Frederick Treves, with his graphic pen, thus describes it in writing to me on September 11, 1922: "Hutchinson was, without question, a great teacher. He attracted, I believe, a larger number of students to his demonstrations than did any other surgeon of his time in London. He had indeed a great following. He was an admirable speaker. He was not eloquent, nor did he make a practice of rhetoric, but adopted a slow, quiet, solemn and modest manner which was very impressive and effective. He made his teaching interesting by the ingenuity of his arguments, by apt illustrations and vivid metaphors and by an occasional quaintness of expression which impressed the memory. Above all were a solemnness and simplicity of utterance which was almost monastic. I think a prominent fault of his was a tendency to make facts accord with theory—and he had many theories. For example, at the time when he claimed that syphilitic eruptions were imitative, i.e., imitative of familiar non-specific eruptions, he was shown a man—a sailor—with many pustules on his body. He demonstrated the case as an example of a syphilitic eruption imitating small-pox. The man protested that he had never had syphilis, but this Hutchinson disregarded. The case proved to be small-pox. His theories about leprosy also pressed to a position far beyond that supported by fact."

Nor was there anything exceptional in his lectures and disquisitions at medical societies, except that none could vie with him in his wealth of accurate observations and his skill in marshalling them. Here again the stores of knowledge and clearness of exposition were more impressive than the deductions drawn.

What is meant by his original methods of imparting knowledge may be gathered by turning the pages of the "Smaller Atlas," published in 1895. It is a continuation of a larger atlas, "Illustrations of Clinical Surgery," the publication of which extended from 1875 to 1882, and to which we must first direct our attention. This larger atlas consists of two thick folio volumes of finely executed lithographic plates drawn by Burgess. Burgess for many years made his entire living by drawing for Hutchinson, who was not himself an artist. A great variety of morbid conditions, living and dead, are here illustrated in a way that had not hitherto been attempted. Some of the most striking drawings were made for the Astley Cooper Memorial Prize which Hutchinson won in 1865; it was never published, and, with its drawings and preparations, remains the property of Guy's Hospital. The subject was injuries of the head. He had studied the subject in an exhaustive and practical manner and had contributed at least one
important original observation. He proved that, up to a certain time after rupture of the middle meningeal artery from fracture of the skull, it was possible to determine the side of the clot from the state of the pupils. An observation many surgeons have made use of with thankfulness.

Another disputed point was finally settled by these plates. They gave ocular demonstration that there is such a thing as vaccino-syphilis. A boon, though an unwelcome one, for the British public who had been buoyed up by the assurance of ardent vaccinationists that such a ghastly sequel to arm-to-arm vaccination was impossible. It was a thorny subject to tackle. "I scarcely know," he said, "whether it is desirable that I should say a few words in justification of the publication of these portraits. I am well aware that my former reports were made much of by the opponents of compulsory vaccination, and that they were, with a want of fairness, I fear, almost characteristic, so quoted as to make it appear that I am myself opposed to the Law. In some instances quotations are given, as if from my pen with which I had nothing to do and which expressed opinions very different from mine." He goes on to say that he had met with recrimination and complaint from medical men; but that he was a firm advocate of compulsory vaccination, and that he had done all he could, by remonstrance, to prevent the base use of his facts. And then he continues: "The misguided zealots who have undertaken the anti-vaccination movement are, however, I fear, deaf to all appeals, and but scant fairness and courtesy are to be expected at their hands." He concludes by saying that his own conscience is clear. "In spite of the very serious nature of what I have referred to, I have never been able to regret for one moment that I have made the facts public. Concealment in such a matter appears to me the very worst policy. Let it never be possible for our opponents to say that the medical profession does not dare to look the facts in the face, and to make them public in the freest manner. It is only after having done so that we can meet them fairly and uphold our view of the case.

"We cannot ask that vaccination be made compulsory unless we can honestly say that we have done everything in our power to make it safe. There can be no doubt that the danger of transmitting syphilis is a real and very important one. It can be guarded against only by giving the fullest information respecting it to all the members of the profession, and by attracting their attention to it in the most forcible manner. I should deem myself culpable in a high degree if I failed in my duty in this respect."

These plates were, as far as he knew, the first ever published of vaccino-syphilis. The publication of his views, or it should rather be said his facts, had a definite effect in inducing the medical
profession and indirectly the public to insist on more care being taken in the selection of children for arm-to-arm vaccination. Calf-lymph has now superseded humanized lymph. "I am not prepared," writes Sir George Newman from the Ministry of Health, "to state that arm-to-arm vaccination is never practised now, but all vaccination carried out at the public expense is performed with glycerinated calf-lymph, and I should think that instances of arm-to-arm vaccination, if any, must be extremely rare." In their Final Report the Royal Commission on Vaccination stated: "Absolute freedom from risk of syphilis can be had only when calf-lymph is used." We are, therefore, probably justified in saying that vaccino-syphilis is a thing of the past.

This atlas met with a ready sale and the plates were reproduced in America and Germany. It was much valued in provincial schools and by country doctors. The well thumbed volumes at the Royal Society of Medicine show that it is not neglected at the present day. The text being largely clinical has lost nothing of its value in the fifty years since it was published.

After this digression we must return to the preface to the smaller atlas, published fifteen years later in which he makes the statement already referred to about objective teaching. Of this he says in another place: "To those who mourn over frailties of memory, it is a source of much gratification to know that year by year the means of acquiring knowledge are being developed and improved. It is objective teaching which really helps both understanding and memory."

The actual words in the preface are as follow: "I am a firm believer in the value of pictorial illustration as an aid to the acquiring of clinical knowledge and my aim has been to produce a volume which shall place such assistance within reach of all." This book is, like its predecessor, a typical example of Hutchinson's way of teaching. The plates are perhaps not quite equal to the earlier ones and some are rather too highly-coloured. They are mainly of skin diseases, but scattered amongst these are others of gall-stones, cancers, leprosy, diseases of joints, monsters, etc. They are arranged in no sort of order and each plate has a separate, short, pithy description. The book is in fact a museum—a private museum—containing a limited number of common specimens and many of great rarity. It would, therefore, be consulted to-day with one of two objects, either to verify a normal case or to see whether what appeared to be unique had escaped the eagle eye of such a keen observer and inveterate note-taker as Hutchinson.

His firm belief in objective teaching led him in 1868 to suggest to the British Medical Association that they should organize a museum at each of their annual meetings. The idea was at once adopted.
The museum was intended to illustrate "the cream of the year's progress," not only in pathology, but also in the production of foods, drugs, instruments and books. The scientific, and what may be called the commercial sections, were soon separated from one another. It was to the former, with the wax models, drawings, and preparations that Hutchinson devoted his attention. The museum continues to be one of the chief attractions of the annual meetings, though, as the material is collected by local committees, its interest varies with the towns where the meetings are held. Hutchinson had a good deal to do with the British Medical Association about this time. Indeed, he edited the journal for eighteen months after Ernest Hart's retirement in 1869, but relinquished the post, no doubt willingly, on Hart's return.

Confidence in this method of imparting instruction also prompted the formation of his clinical museum, housed at first at the back of No. 1, Park Crescent, and afterwards at the "Polyclinic" in Chenies Street. It contained an unrivalled store of pictures and diagrams, now, sad to say, scattered to the winds. It was intended for post-graduate instruction of medical men, principally of general practitioners—to rub off or to prevent the formation of the rust which so readily accumulates—and to introduce them to new discoveries. The drawings and specimens were used to illustrate the living cases which were shown. The project was warmly supported by Sir William Broadbent, Dr. Fletcher Little and others, though it was looked at with rather a jealous eye, by those who, on the one hand, disliked the system of gratis consultations with doctors over their impecunious patients, and, on the other, were perhaps over-scrupulous about displaying their wares in the view of possible clients. It had, however, a great vogue for a time, but did not long survive the retirement of its founder from participation in its work.

The absence of any provision for post-graduate teaching had long been a cause of complaint by foreigners and humiliation to Londoners. "What a waste of the finest clinical material in the world" it was said! But we simply grumbled about the size of London and the jealousy of the schools, hinted vaguely at a post-graduate hospital and university institute, and, somewhat sadly, watched Americans streaming through London to Berlin and Vienna, and our own graduates receiving their final polish in the continental schools. The failure of the "Polyclinic" was a great disappointment to Hutchinson. He had advanced money for the lease of the buildings and continued to subsidize it. He tried to secure its amalgamation with a general hospital, and to attract a larger number of distinguished teachers to its staff. But in vain. The absence of enthusiasm amongst the teachers and the exiguous fees asked for the pupils chiefly accounted for the
failure. The fact is he was before his time; and one is tempted to ask whether post-graduate teaching can ever be made a great success in our cumbrous metropolis. It needed the friendly rivalry with our brethren across the Atlantic, now bursting with a new enthusiasm, more rapid ocean steamers and the blasting effect of the Great War upon the continental schools to galvanize our present system of post-graduate teaching into life. And, after all, it is a failure at the general hospitals, and can only be described as working fairly well at the special hospitals, where the teaching is chiefly carried on. It looks as if a specially endowed post-graduate hospital could alone satisfy Hutchinson's ideal.

Hutchinson's museum at Haslemere was of a totally different kind, but it was based upon the same principles. He started it in rooms near his own house, but it was afterwards moved to suitable buildings in the town. It was intended for the instruction of his neighbours in almost every conceivable subject, but especially geology, archaeology and natural history. It now contains good local collections, better than those met with in most country museums; but its special feature is a long room in which the attempt is made, with the aid of fossils, drawings and specimens, to show the relation of the different forms of life to the geological periods in which they are first met with. "Space-for-time" may be said to be its motto. When historical times are reached important events and discoveries in science and art, by land and sea, are illustrated in the space allotted to their appropriate centuries. Here he gave informal lectures and addresses, on Saturdays to the young, on Sundays to adults. In the latter he lightly passed from natural science to poetry, and from poetry—often that of Browning or Wordsworth—to Darwinism, natural religion and the belief in life after death, without drawing hard and fast lines between these at first sight incongruous subjects. Sir George Newman, who knew him well, has written a sympathetic memoir of him in the "Friends Quarterly Examiner." In this he speaks of his "being a great believer in objective instruction and learning both by the eye and by cross-questioning." On Saturdays and Sundays it was his habit to discourse to all and sundry in the Museum at Haslemere or in the fields. He would pick a flower and find in it lessons for all who had ears to hear and eyes to see.

Again, a lecture is announced on "the thickness of the earth's crust," but it includes a delightful dissertation on "Elephants" and "John Wesley"; three subjects which it is not customary to take together. But he believed, as he said, in "a mixed diet." Here is another afternoon to be spent with "Whales"; but the whales tail off into the "Influence of Wordsworth's poetry" and "Tuberculosis and Leprosy as Social Questions." There is no
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holding such a tutor. Yet there was no madness in it. It was part and parcel of his scheme. "The human mind," he argued, "is infinitely varied, and to teach a miscellaneous group of persons calls for a diversity of information and method." These Sunday lectures were well attended, and, far from being tabooed, were welcomed by the broad-minded incumbent of the parish.

Hutchinson founded a similar museum at his native town, Selby, which was handed over to the Urban District Council after his death. He hoped that his example would be followed in other parts of the country, but we do not meet with similar museums elsewhere. The Haslemere museum is still an important educational establishment because it possesses the essential element of success, namely, an energetic curator up to his work and a good teacher. Frequent demonstrations and lectures are given there and examinations are regularly held.

A natural outcome of the system followed at the Haslemere Museum was the publication in 1897 of a second edition of "The Centuries," the first edition of which had been printed privately years before. It is described as "a chronological synopsis of history on the 'space-for-time' method." Its purpose may be gathered from the opening words of the preface: "The present work is designed as a study-table companion for all readers of Biography or History. It is intended to supply a skeleton-conspectus of General History, and to serve at the same time as a note-book for the reception of additional memoranda. In this way it is hoped that it may be the means of encouraging and facilitating a wider study of history than is generally thought practicable." The volume—it can hardly be called a "book"—consists of 122 large octavo pages nearly half of which are blank. Starting with the arbitrary date 10,000 B.C. as that of the probable dawn of history, he passes over the first twenty centuries because they are almost devoid of recorded facts, and begins with 3,000 B.C., which is his seventy-first century. Four pages are devoted to each subsequent century; the first two containing a synopsis and memoranda arranged in decades, and the other two being left blank for additions by the reader. In the labour of compilation he was greatly helped by Mr. Harold Smith, a well-known K.C. It must indeed have been a heavy task. The result is a fund of information as to contemporaneous events occurring in different parts of the world, and a convenient note-book for students of History or Biography.

During the same year, 1897, he published a small duodecimo of 96 pages called "Life Register," dealing this time, not with the general history of the world but the minute details of one human life. "So teach us to number our days" was its motto, and first the parents and then the owner of the book himself were
invited to be the authors. The Register may be begun at any age, but if it be started at birth, the parents are supposed to keep it for the first fifteen years, recording the child's health, mental and physical development and usual or occasional places of residence, then the subject himself takes up the autobiography, filling in, if he has patience to do so, a page divided into monthly periods for each year of his life up to his seventy-second year, when he may lay the weary pen aside. The "Life Register" is arranged on the same lines as the more elaborate "Life Album," prepared by the British Medical Association some years before, and mainly produced by Sir Francis Galton; but it was by no means a copy as it was in existence long before the album was published. It begins with some prefatory instructions as to the method of keeping the register, and ends with a few simple memoranda as to the management of health.

In these two publications Hutchinson was clearly trying to enlist his intelligent fellow-countrymen in the campaign for the recording and marshalling of well ascertained facts.

Hypotheses; Leprosy. Debate on Syphilis

It has often been said, by those who allow Hutchinson's pre-eminence as a teacher that his deductions were sometimes scarcely justified by the facts on which they were founded, or that he tended to make facts accord with theory; and his work on leprosy is always cited in support of this statement. His interest in this puzzling disease began in 1855 in consequence of observing some cases at the London Hospital, and it only ended with his life.

In 1863 he propounded what he called his "fish hypothesis"—"that decomposing fish is the one sole cause of leprosy"—and in consequence he became a disbeliever in the infectiousness of the disease and an opponent of the segregation of lepers as cruel and useless. Neither the discovery of the leprosy bacillus by Hansen in 1874, nor any argument of his opponents caused him to give up, even if he somewhat modified, his theory. In 1899 he visited Norway, where the smell of salt fish stinks in the nostrils to this day and leprosy still prevails on parts of the west coast. In 1901, feeling, as age advanced, that the cause in which he still believed "might soon be without an apologist," he went to South Africa to test upon the spot the truth of the oft-repeated assertion that leprosy occurred there in people who had no access to fish, either fresh or putrid, and convinced himself that this was not the case.

In the following year he made a similar tour of investigation and propagandism in India from which he returned more confident.
than ever, and in 1906 he published the result of his life-long studies in a book of 400 pages.* He apologizes for addressing the public as well as the profession on a medical subject, urging as an excuse the pressing importance of the subject and the shortness of human life. It is couched in simple and comprehensible language and forms a readable, indeed a fascinating treatise.

Two quotations from it may be given which are good examples of his style of writing:

"It may be well here to repeat briefly that the fish hypothesis is not at present prepared to suggest the precise mode by which fish becomes the cause of the disease, or to specify any particular kind of fish, other than that it is fish in a state of partial decomposition. It assumes that really fresh fish and really well preserved fish are both alike innocuous, but that either cured or uncured fish in commencing decomposition may occasionally contain an ingredient which shall be effective in the causation of leprosy. Whether that ingredient be the bacillus itself or some toxine capable of stimulating and differentiating the tubercle (sic) bacillus already present in the patients' tissues, it does not profess to decide. It assumes that it is probable that even in fish in a state of decomposition the presence of the dangerous ingredient is exceedingly rare, but that a very small quantity of fish containing it may be efficient in the production of the disease. Thus the large or small consumption of fish has comparatively little to do with the matter. It is not the excessive use of fish, but the accidental reception of a specific ingredient in connection with it, which determines the occurrence of the disease,"†

This is a good enough, though somewhat parenthetical example of a hypothesis if we accept the logician's definition of a hypothesis as "an explanation, supposition, or assumption which is put forward in the absence of ascertained facts and causes."

Before, however, any hypothesis can mature into a real explanation, or, as it is technically called an "inductive truth," great care must be taken in collecting and testing all ascertainable facts to see if they are, every one of them, explained by it, and if no other law will explain them. The following is a fair example of Hutchinson's method of marshalling his facts; the reader can judge whether it is precise enough to have satisfied, say, John Stuart Mill:

"I may confess that when I first realized the fact that leprosy is unknown in the north of China, and that the districts from which it is absent abound in salt and have very little fish, I thought that it brought the question to an end. Nor has subsequent

† Loc. cit. p. 192.
investigation much modified that impression. I can see no escape from the inference that the two facts are in connection as cause and effect. In order to avoid fallacies, I inserted in the pages of the Lancet a short letter, asking those more conversant than myself with the social and dietetic habits of the Chinese whether any other explanations could be suggested. This letter has gained me no information. So far as is known the food of the residents in the north is the same as that of the south (where leprosy is prevalent), with the single exception of the abundance of salt and the deficiency of fish. Thus we are enabled to put aside the suggestion of pork, decayed vegetables, and other articles, of which it has been said that they may possibly be causes of leprosy."

The "fish hypothesis" never met with general—or indeed very wide—acceptance; but the tale is told so graphically in the book that, after reading it, one can hardly avoid a sort of sneaking suspicion that there must be something in it after all.

Before leaving the subject of Hutchinson's method of arguing we may give one other example of his hypothetical laws. It was intended to explain such bilateral diseases as "sympathetic ophthalmia." It runs thus: "All forms of common inflammation have the power of so infecting the blood as to induce similar processes elsewhere." From which, if it turned out to be true, another law naturally followed: "There is another law of selective affinity underlying the general one of blood contamination which renders it likely that the secondary process will be set up in certain definite parts, to the exclusion of all others."

These are both extremely suggestive, and though one may call to mind Dr. Moxon's cynical remark about the "fallacies of universality, totality, and unity," it must be remembered that hypotheses are the stock-in-trade of deductive philosophy, some of which stand the test of experiment while many, perhaps most, have to be laid aside.

Moxon's clever and witty speech was part of a very full-dress debate on the pathology of syphilis opened by Hutchinson in a highly philosophical paper which he read before the Pathological Society of London in February, 1879.† It was a memorable occasion and marked a distinct step forward in the study of the disease. The stages of syphilis, its relation to specific fevers, the symmetry of its earlier manifestations, the visceral lesions, its probable microbial origin and the vague question of how long, if at all, it might be described as a "blood disease" were all warmly discussed. It was then that Gull startled us by one of his

† Trans. Path. Soc. xxviii., p. 341.
unforgettable phrases: “Well I think syphilis is a flesh-and-blood fever.” And again: “Syphilis once, syphilis ever; syphilis general, syphilis universal, in the man as long as he lives.” Hutchinson wound up the discussion with a lengthy written reply which, as well as the whole debate are well worth reading to-day, if only from the historical point of view.

**Ophthalmology**

When he was dealing with facts and his faculty for observation had full play, Hutchinson's work was but little open to criticism, and much of it was so sound and so new that his name will, one imagines, always be connected with certain well recognized pathological conditions and clinical processes. He has been wittily called the greatest general practitioner of his day in Europe; the jibe, of course, referring to his distinction in so many specialities. He would have freely admitted that he could not have accomplished so much in such different lines if he had not been supported by a company of adherents and admirers. Amongst them special mention must be made of two—both shy men—who worked with him at the London Hospital, Moorfields, and Blackfriars, and in private practice. One was Edward Nettleship, who, in spite of his retiring disposition, reached the most prominent position amongst the ophthalmic surgeons of his day. The other, Waren Tay, who is still with us, always hid his brilliant light under a bushel.

Hutchinson was early attracted to the science of ophthalmology. He worked at Moorfields indefatigably for sixteen years, 1862-1878. His best known contribution to the subject, a very important one, was the discovery that interstitial keratitis is caused by congenital syphilis, thus distinguishing it from strumous opthalmia with which it had formerly been confused. This distinction had important practical results, especially in places where both diseases are rampant, as was the case amongst the miserably poor population of the east end of London. At the time he made this discovery he was much interested in the subject of congenital syphilis and "Hutchinson's triad" became a recognized medical term. It included interstitial keratitis, notched teeth and labyrinthine disease.

We may note, in passing, that this is not the only recognized medical term of which Hutchinson's name forms a part. Others are 'Hutchinson's facies" in ophthalmoplegia, "Hutchinson's pupils" in meningeal haemorrhage, and "Hutchinson's teeth."* "Hutchinson's splint" is perhaps forgotten; "Hutchinson's lotion" reminds us that he devised a simple antiseptic treatment of his own —very useful in some cases—which consisted in the continuous

* First communicated to the Pathological Society in 1857-8-9.
dropping of a lotion containing liquor plumbi diacetatis, spirit of wine and water, in varied proportions, on to lint laid over recent compound fractures and some surgical wounds.

Less outstanding ophthalmological work of Hutchinson's, according to Nettleship, is included in his writings on "dental defects seen in children who have suffered from convulsions and who often have lamellar cataract," "tobacco amblyopia," "a particular form of iridocyclitis in young persons whose ancestors suffered from gout," "ophthalmoplegia," "recurrent haemorrhages into the vitreous in young men," "haemorrhagic retinitis" and many others safely interned in the medical journals.

**Syphilis**

Syphilis—that protean disease—in all its aspects fascinated Hutchinson from the first. It led him into those bypaths the pursuit of which made him a multi-specialist. The results of his prolonged study were given to the world in a duodecimo volume of 530 pages in 1887 (of which an enlarged edition appeared in 1909). It is vastly more interesting than the ordinary text-book or monograph, and illustrates clearly how Hutchinson's methods of study and composition differ from those of the ordinary systematic professor. It is the work of a thoughtful clinical observer. "In the following pages," he says, "I have aimed less at systematic completeness, than at clinical exposition. To the latter subject I have devoted my best efforts, and my hope is that those who may honour this work by their attentive perusal, will obtain from its pages clear impressions of the present state of our knowledge on most of the topics which it concerns. Nor will they, I hope, miss suggestions as to the kind of research which is yet needed in many directions. It has been my endeavour to make the numerous case narratives tell their own story, and to allow their various weak points, as points of evidence, to be apparent. I trust it will be found that no attempt has been made to exaggerate the precision of our knowledge, and that, as far as possible, all dogmatic assertions have been avoided. The attempt has been to point the way to general principles, which, once accepted, may obviate the necessity for much of the detail which we find in systematic treatises."

Acting on this principle he divides the book into two parts. The first, only a fifth part of the whole, is all that is devoted to "general statements," *i.e.*, a systematic description of symptoms, diagnosis and treatment. The second, and far the most important part is occupied almost entirely by 243 "commentaries" the majority of which are accounts of actual cases. Its object and scope are thus explained: "I have endeavoured, in the preceding pages, to give a general sketch of syphilis in its various stages..."
and different forms. I have abstained almost wholly from the production of cases, and have avoided the discussion of moot points and exceptional facts. I propose now to go over the same ground again, but in quite a different manner. The standpoint will here be that of the clinical observer and practitioner, and I shall endeavour, by the citation of cases, and occasionally of statistics, to illustrate the various assertions which have been made as to the laws under which the different affections due to syphilis are developed. In this way I shall hope to fill many gaps which have been left in the previous concise narrative, and also to bring into stronger prominence the more important facts as regards diagnosis, treatment and prognosis. In doing this it will be inconvenient to attempt much in the way of arrangement. Many of the case-narratives will bear at the same time on questions relating not only to the different stages of the disease, but to both its acquired form and congenital forms. I shall, however, group my facts so far as they admit of it, and shall hope to remedy defects on this score by a full index at the end of the volume."

Such a record of facts can clearly never be out of date, and fortunately, the book was written late enough in the day for its author to be a confirmed believer in the germ theory. "The creed which will be found to interfuse not only this work, but almost all that I have ever written on syphilis, is that the disease depends upon a living and specific microbe, and that it is contagious or transmittable only so long as that microbe retains its vitality. It is, I believe, of the utmost importance to keep this doctrine clearly in mind, for it simplifies our reasoning and clears our view at every step. Considering the successes which the study of bacteriology has attained of late years, it is certainly surprising that no one has as yet been able to demonstrate the special microbe of syphilis. That this discovery is in reserve for some future investigator, I have the utmost confidence in believing."

This was written eighteen years before the spirochaeta pallida was discovered in syphilitic lesions, and, although seven reprints of the book were issued between 1887 and 1899, Hutchinson waited till the relation of the organism to the disease was fully established before issuing his second edition in 1909. It had now grown from a large duodecimo into a small octavo containing about twenty more pages. It had been both compressed and expanded and to a large extent rewritten; so much so, indeed, that its original features are a good deal masked. It was no longer divided into two parts and its quaintness and picturesqueness were diminished—almost lost—by the disappearance of the "commentaries." It was still essentially a clinical treatise, but more methodically arranged and more complete than the first edition. It was still eminently readable and wholly free from the dryness of the typical text-book.
The spirochaete now holds the stage and the "Wassermann reaction" is in full swing. Hutchinson treats them both with a certain aloofness. He dwells upon the difficulties of the former and the chances of error in the latter. In the preface he says: "We must await hopefully the results of further research, and in the meantime, continue to put our trust in clinical methods of inquiry which in the main these [investigations] seem to corroborate."

As to the spirochaete itself he writes: "The discovery had, however, been so confidently foreseen, and had by inference so definitely interwoven with the texture of our creed, that now that it has been actually made it brings us but little help. The phenomenon of syphilis had been claimed as being certainly the result of a parasitic contagion, and the disease had been placed in the category of specific fevers which observe stages. We had, therefore, but little to learn from the ocular demonstration of the parasite and the giving to it of a name. To those minds incapable of accepting as practically proven anything not actually demonstrated, the discovery is invaluable; and, at the same time, it furnishes an important weapon of defence to those who for themselves had long ago accepted its conclusions."

The preface gives a valuable insight into his personal history, showing how he was led irresistibly by his other pursuits to a deep study of syphilis and to publish its results; how in spite of a desire rather to avoid than to cultivate a practice in venereal diseases, the opportunity was forced upon him of turning his attention to its effects amongst educated people; and how he thus came to form very decided opinions upon the social questions involved. The most difficult of these is the terribly responsible one of how soon after apparent recovery marriage is permissible. His views were held by many to be too optimistic and it was said that the interval he considered adequate was too short. But Hutchinson, as might be expected, stuck to his guns. He was, as he says, "a diligent note-taker," and spoke as if his ripe experience had attained to "something of prophetic strain." "My own years," he says, "having been unusually prolonged, in association with fair powers of memory and mental vigour, I have been able to secure a kind of experience which falls to the lot of but few. I have seen many of those whom in their early vigour I had treated for syphilis, now in honoured grey hairs and apt to boast of their grandchildren." Modern methods of diagnosis and treatment, afford firmer ground for forming an opinion on this subject than was possible in Hutchinson's day, and support the views of those who would err, if at all, on the side of caution.

Some of his observations on congenital syphilis have already been mentioned, and also his insistence on the way in which the
outward manifestations of syphilis mimic those of other simple or less constitutional diseases. He published a pamphlet on the latter subject in 1879. It may have been the resemblance of syphilis to other diseases which led to his most important contribution to syphilography, which was propounded in the first volume of "Reynolds' System of Medicine," published in 1866. This was the now generally accepted fundamental doctrine that syphilis is a specific fever like the acute specific fevers; only differing from the acute specific fevers in the prolonged intervals between the various stages—fever, appearance of the rash, sequelae and so on. He was able to produce an ample array of facts to support this theory. His work on syphilis was so original and so eminently practical that he was everywhere recognized as one of the leading authorities on the subject.

The great debate at the Pathological Society has already been referred to.

**Dermatology and Neurology**

Syphilis and dermatology always run in couples because so many syphilitics consult a skin doctor first, and it is natural that many sufferers from simple skin affections should find their way into the consulting room of the syphilographer. No wonder that Hutchinson thought it worth while to become attached to the Hospital for Diseases of the Skin in Blackfriars Road, and that he should have been a member of its staff till 1897. In time he became as great an authority on this as in his other specialties. A leading dermatologist writes thus with regard to his contributions to the science: "Hutchinson, as far as I can visualize him was a collector pure and simple as far as dermatology was concerned. He loved to collect rare skin cases for his museum and many of them he published in numerous atlases. He certainly added a considerable number of names to dermatological literature, and was undoubtedly the first to describe the clinical features of many now well recognized dermatoses. As far as I know, however, he never pushed his investigations very far, so that most of these conditions were subsequently described and worked out under other names, and only afterwards was it found out that they were previously described by Hutchinson." No doubt he did a great deal of useful work for dermatology, and he is not the only one whose discoveries have been re-discovered and named after some later discoverer, British or foreign—mostly foreign!

Neurology has sometimes been added to the list of Hutchinson’s specialties, but that is rather an exaggeration—a picturesque addition to his portrait. A former pupil and colleague of his, now a well-known neurologist, writes: "I cannot recall that Hutchinson made any permanent and valuable additions to the science of
neurology. He reported some excellently observed cases of divided nerves, and was always greatly interested in Hughlings Jackson's views. In fact, he was not only responsible for Jackson's candidacy for the staff of the London Hospital, but throughout all the earlier years they were together as colleagues they were intimately associated in clinical work. This was greatly accentuated by the fact that both men were profoundly interested in introducing the use of the ophthalmoscope. Of course, Hutchinson's preoccupation with syphilis brought him into frequent contact with diseases of the central nervous system.

General Surgery and Medical Politics

Having this wide outlook upon the science and practice of medicine, Hutchinson came to be regarded as what has been called a "medical surgeon"—a title highly appreciated by those who take the right view of surgery. The number of references to his name in the first edition of Dr. Hilton Fagge's "Handbook of Medicine" gives some idea of the esteem in which he was held by the leading physicians of his day.

It must not be thought, however, that all his energies were devoted to exploring alluring bypaths, though men of average ability and diligence may find it difficult to understand how those excursions allowed him time to pursue what he no doubt considered the main business of his life. The first duty of his most active years it must be remembered, was that of surgeon to the largest hospital in London. For most of this time he was in charge of over sixty beds, and was followed by an eager following of students whom he engaged to instruct in clinical and systematic surgery and medical opthalmology; and he was not one to shirk duties solemnly undertaken. In addition to this he acquired in time a large general surgical practice, the burden of which, however, was somewhat lightened in later years when his eldest son—the fourth Jonathan in succession—became a member of the staff of the London Hospital, and his father's right-hand man in Cavendish Square. It would distort the picture, however, to dwell very long upon Hutchinson's general surgical work. His fame does not rest upon this. But even if he was not exactly a pioneer in general surgery he added more than his quota to its science and to its art. He came rather too late in the day to take part in the advances of bacteriology which for a time distracted the attention from what may be called the old-fashioned method of surgical advance. This was all the while, however, proceeding unostentatiously, and Hutchinson's share in the work was at least equal to that of most of his well-known contemporaries.

He has been described as a safe but not a brilliant operator;
and this, at a time when brilliant operating was beginning to be looked upon with suspicion, must be counted to him for merit.

The transactions of medical societies, the larger atlas, and the medical journals afford sufficient evidence of the variety of his contributions to general surgery and pathology. It is hard to make a selection from these, but his work on traumatic separation of epiphyses, head injuries, diseases of the tongue, high amputation for senile gangrene, cancer and melanosis, and the operative treatment of intussusception give some notion of their value. To these may be added his insistence on the importance of chronic irritants in the production of epithelial cancers, his conception of a precancerous stage of cancer and the production of cancer by the administration of arsenic, and enough will have been said to indicate Hutchinson's position in the march of general surgical progress. He was in fact acknowledged to be one of the leading London surgeons of his day. He became in due course a Fellow of the College of Surgeons, Hunterian Professor (Surgery and Pathology, 1879, 1883), Member of Council, Examiner and finally President (1889-90). At *viva voce* examinations his solemn manner was rather depressing. He liked to adopt the strictly logical, though dull and it must be owned unusual method of putting the same series of questions to all the candidates. It was an original idea and made it easy to appraise the merits of the candidates till the news of what was taking place leaked out into the "funking room," as it was apt to do. Be we hasten to add that perfect examiners are so rare as to be almost unknown.

He was President in succession to all the larger medical societies and to some of the smaller ones, the list of which it would be tedious to enumerate.

He was made a Fellow of the Royal Society in 1882 in recognition chiefly of his various contributions to the study of "the natural and clinical history of disease both in man and the lower animals."

He was a member of the Royal Commission on small-pox hospitals in 1884, and of that on vaccination in 1890-96. So it may be fairly said that he played his part in the medical politics of his generation. In recognition of his many services he received honorary degrees from most of the existing universities in the kingdom, and several honorary distinctions were bestowed upon him abroad. He was knighted in 1908, having, it is commonly reported, previously declined the offer. Such worldly honours were in his younger days very seldom accepted—if offered—by members of the Society of Friends to which he remained attached, if by rather a loose rope, to the end of his days, and this may have strengthened a natural distaste for an "empty title."
The New Sydenham Society

A bibliography, as full as can be made without great labour, is appended to this memoir, but it gives a very imperfect idea of Hutchinson's literary output. His writings are scattered far and wide in journals and magazines. And not content with these efforts, but as it were, to fill up spare moments in his busy life he devoted much time and energy to the New Sydenham Society which, Phoenix-like, rose from the ashes of the Old Sydenham Society in 1859. The "Old" Sydenham Society, founded in 1843, died from want of support. Hutchinson alone pleaded for its continuance and on hearing Sir John Forbes's taunt that if younger men wanted such a society they had better start one for themselves took up the challenge, and with the assistance of his friend Sedgwick Saunders promptly founded the new one. For almost fifty years it poured out, at a very moderate price to subscribers, a succession of translations of foreign books, atlases, collected editions of British authors and collected essays. No fewer than 194 volumes appeared before the society came to an end in 1906. During the whole of its lifetime Hutchinson was the Honorary Secretary. Distinguished men occupied the Presidential Chair; distinguished men helped in supplying material and translations, but Hutchinson was the life and soul of the society. The volumes occupy much shelf space, more than most private libraries can afford. That is why permanent subscribers were comparatively few and tended to fall away. In a public library the publications give easy access in the English tongue to many invaluable foreign classics, together with, as may well be supposed, a number of works whose interest has been more or less ephemeral. Some of its best publications were entirely of English origin. Its atlases of skin diseases and of pathology were found of great value. Its one great mistake was the issue of an elaborate and long-drawn-out dictionary of medical terms; but for this Hutchinson was in no way responsible. In fact he was opposed to the undertaking from the first.

Epitome

The difficulty of estimating the relative value of Hutchinson's contributions to science arises from their number and their variety. There is a similar difficulty in giving a true impression of the personality of such a many-sided man. So far we have studied it chiefly from the point of view of medicine. Few have worked so hard during a long life both in and for his profession. In most of this he had no thought of personal reputation or advancement. To whatever cause he believed in he gave unstintedly both time and money. The profession throughout the world has been
influenced by his teaching and discoveries, many of which, it is
fair to assume will always be associated with his name.

For the other sides of his character, so different from and yet
consistent with the first we must turn again to his life in the
country. He was never a really practical farmer, having, like so
many busy country-loving doctors, to work vicariously through
a bailiff. But, as might have been expected—and this was the
subject of mild chaff—he was quite as keenly interested in the
diseases of his stock as in their quality. He loved dogs, and was
revered by successive generations of spaniels. With these he
walked down his partridges in old-fashioned style; but he was
more attracted by the exercise for himself and his friends than the
sport and was easily drawn aside by some botanical or geological
detail or curiosity. He was a good shot himself, which was more
than could be said of some of those who joined in the merry
though perilous London Hospital shooting parties.

The "Library Inval" contained a carefully arranged collection
of professional, scientific, and general works. His literary tastes
were broad, but they had limitations. He was devoted to
Shakespeare, Wordsworth, Browning, and Carlyle. He read
widely in history and biography, but was not, like his friend
Hughlings Jackson, a voracious novel reader. On the contrary
Dickens, Thackeray, and Meredith, were unexplored ground, and
the mild domesticities of Trollope satisfied his appetite for fiction.
Tennyson, Morley, and Tyndall, were personal acquaintances, and
he was familiar with their works, though not greatly attracted by
them.

He was always a student of natural history and a keen observer,
with the naked eye and the microscope, of plants and the lower
forms of animals. He did not publish any papers on these subjects,
though they were often used as effective illustrations of professional
and lay discourses.

Recreation with him meant change of study. Every day he
was at work upon one subject or another, and his power of
continuous application was extraordinary. He never seemed to
tire except when prostrated by occasional headaches, and those
who knew him most intimately were astonished at the amount of
intellectual work he could accomplish. In the country, many
hours a day were devoted to these studies, and they were continued
on the journeys to and from London and even during the fragments
of hours between one patient's house and another's. But labor
ipse voluptas!

After thirty years of married life, enlivened by his family of ten
children, Hutchinson was left a widower in 1886, during the height
of his professional activity. His declining years were fully
occupied in spite of some of the inconveniences of old age. He
went abroad as we have seen. He studied as of old. It is said, for example that when at last he could go but little out of doors his daily wood-basket supplied him with material for comparing the tumours of trees with those of men.

This is not the occasion to do more than hint at the effect produced by Darwin's writings and the whole trend of scientific thought during the second half of the nineteenth century, upon his logical mind, brought up as he had been amongst the restricting influences of the Quakerism of his youth. His emancipation was made clear in his Sunday lectures and sermons. And when he died at the ripe age of 84 years, on January 23, 1913, it was in the parish churchyard that a goodly company of friends and admirers gathered round his grave. And here, as he directed, these words are inscribed upon his tombstone:

"A Man of Hope and Forward-looking Mind."

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The Literature on the Crystalline Lens

So many articles have already been written on the subject of the crystalline lens, that an attempt to add to their number seems to demand an apology. So far, however, ophthalmologists and chemists have carried on their investigations independently, and it is hoped that this article will serve to correlate what is known of the biochemistry of the lens with the changes observed in pathological, and more especially, in cataractous lenses. The first half of the paper is a summary of the facts which have been brought to light, merely by chemical analyses of normal and cataractous lenses. The latter half deals with the action of light on the lens, and enters more fully into a discussion of the probable causes of cataract.