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20.—ARTHUR JACOB, 1790-1874

BY

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ALTHOUGH this distinguished Irishman was perhaps better known to his contemporaries as an anatomist than as an ophthalmic surgeon, his original work was of high value and he was the author of an ophthalmic textbook which had a deservedly high reputation in its day, and is now regarded as one of the classics of the subject. He was also the designer of the special cataract needle that bears his name; it seems right, therefore, to include him in the series of British ophthalmological biographies that is being published in this journal.

An account of Jacob is to be found in Boase's *Modern Biography*; but the first part of what follows is mainly extracted from Cameron's *History of the Royal College of Surgeons in Ireland*, of which body Jacob was twice President; viz., in 1837 and in 1864.

"Arthur Jacob was born on June 13, 1790, at Knockfin, Queen's County. His father, John Jacob, Surgeon to the Queen's County Infirmary, enjoyed a large practice in the midland counties; and his grandfather, Michael Jacob, was also a surgeon. The Jacobs

were a family who in the 13th century held lands in Cambridge-shire.* The first of them who settled in Ireland received a grant of land at Sigginstown in Co. Wexford, in 1667, and his descendants (at first numerous) divided into two branches, the senior of which settled in Queen's County. The English Jacobs having become extinct, Arthur Jacob became the senior representative of this old family. Surgeon John Jacob died at Maryborough on June 24, 1827. His wife, Grace, only child of Jerome Alley of Donaghmore, Queen's County, survived till 1835, when she died in Dublin, and was interred in St. Mary's churchyard.

"Arthur Jacob, having received a sound preliminary education, was indentured on March 7, 1808, to his father; entered the College School in 1811; and became a pupil at Steevens's Hospital, under Colles. In 1813, he proceeded to Edinburgh, and graduated M.D., Edin., in 1814." The title of his thesis was *de Aneurismate*.

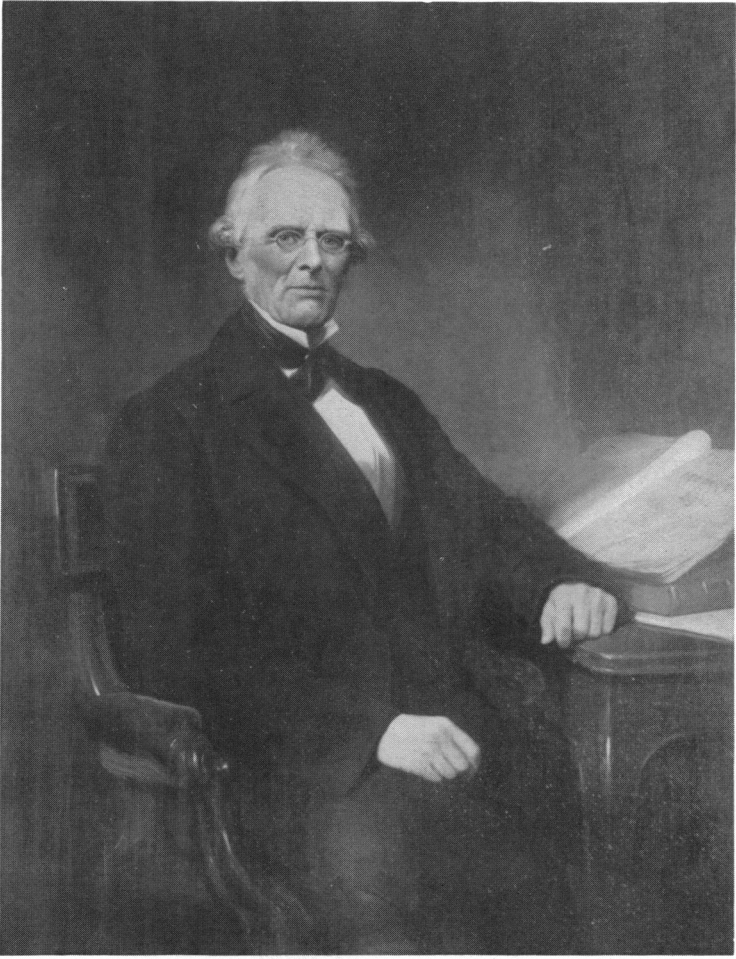
"In 1815 he was in London, attending the *cliniques* of Lawrence, Brodie and Cooper, and secured the friendship of those great surgeons." I do not find that he ever signed the pupils' register, under Brodie, at St. George's Hospital.

"Returning to Dublin he was appointed a Demonstrator of Anatomy in the School of Trinity College, Dublin, and retained that position until 1824, when, together with Cusack and others, he founded the Park Street School. On November 20, 1813, he became a Licentiate of the College, and on August 5, 1816, a member; subsequently he attained to almost every office of importance in connection with the College. In 1826, he was elected their Professor of Anatomy and Physiology. In 1852, he was one of the College Professors who founded the City of Dublin Hospital. In conjunction with Henry Maunsel he established in 1838, the *Dublin Medical Press*. In 1869, he resigned the Professorship and retired to Barrow-in-Furness, in Lancashire, where he died on September 21, 1874, aged 85 years.

"Arthur Jacob married Sarah, daughter of Coote Carroll, of Ballymote, Co. Sligo. Their family consisted of five sons, all of whom lived to manhood, and one daughter, who died in infancy. One of his sons, Archibald Hamilton, is Secretary to the College Council."

Jacob was an uncompromising champion for the College School and in the History of the College his name frequently occurs. In the debates which occurred at the meetings of the College he always took a leading part, and was by no means "mealy-mouthed" in reference to those from whose opinions he differed. As a writer he was much given to drastic polemical articles, which frequently greatly irritated those against whom they were directed.

*Since this paper was written I have been informed that the family tradition is that the Jacobs migrated from Holland to Great Britain in the 7th century. The English branch of the family is not extinct. I do not know from what source Cameron obtained his information.



ARTHUR JACOB, 1790-1874.

He rarely indulged in even the mildest festivities, but devoted himself wholly to his professional and editorial work, and to original research. He remained up till long after midnight as a rule, nevertheless he was always punctually at work early in the day. He had an intense dislike to charlatanism and humbug of every kind. He took a deep interest in the success of his pupils, and he laboured hard to instruct them. One of his few weaknesses was his notion that he alone of the professors should always give the introductory lecture at the commencement of the session at the College school. In 1860, there was a strong desire to present Jacob with a testimonial, but he decisively opposed the proposal. However, a very beautiful medal, in his honour, was struck. The obverse bears his bust, and the reverse the following words:—“Arthur Jacob, M.D., F.R.C.S.I., Prof. of Anat. and Phys., Roy. Coll. of Surgeons in Ireland, in commemoration of eminent services rendered to the profession in Ireland, 1860.”

Jacob's original work is of high value. In 1819, he published, in the *Philosophical Transactions*, his discovery of the delicately-constructed membrane now known as the bacillary layer of the retina. It was named, but not by its discoverer, *Membrana Jacobi*. He described in the *Dublin Journal of Medical Science*, for 1836, the infra-orbital sinuses of deer, and the mouth and mammary gland of the cetacea. He was the first to give an account of rodent ulcer, at one time termed Jacob's ulcer. He invented the curved needle for cataract which bears his name. His work on “Inflammation of the Eyeball” is a classic on that subject. On March 7, 1867, the Council of the Irish College of Surgeons resolved to have a portrait in oils and a bust in marble of Professor Jacob executed. It was also decided to present him with a piece of plate of the value of 100 guineas. The portrait was painted by Mr. Catterson-Smith, and the bust was by Mr. Kirk.”

Jacob served for a longer period as a professor in the College School in Dublin than anyone before him, *viz.*, 41 years.

Membrana Jacobi

Jacob's paper describing his discovery of the layer of rods and cones was read on July 1, 1819; it is printed in the *Philosophical Transactions* for 1819, p. 300. It is quite a short paper, and I have abstracted the opening sentences as follows:

“I find that the retina is covered on its external surface by a delicate transparent membrane, united to it by cellular substance and vessels I first observed this in the spring of last year, and have demonstrated it frequently since.”

His method was as follows: “Having procured a human eye, within 48 hours after death, a thread should be passed through the layers of the cornea, by which the eye may be secured under water, by attaching it to a piece of wax, previously fastened to the bottom

of the vessel, the posterior half of the sclerotic having been first removed. With a pair of dissecting forceps in each hand, the choroid coat should be gently torn open and turned down. If the exposed surface be now carefully examined, an experienced eye may perceive that this is not the appearance usually presented by the retina; instead of the blue-white reticulated surface of that membrane, a uniform villous structure, more or less tinged by the black pigment, presents itself. If the extremity of the ivory handle of a dissecting knife be pushed against this surface, a breach is made in it, and a membrane of great delicacy may be separated and turned down in folds over the choroid coat, presenting the most beautiful specimen of a delicate tissue which the human body affords. If a small opening be made in the membrane, and the blunt end of a probe introduced beneath, it may be separated throughout, without being turned down, remaining loose over the retina; in which state if a small particle of paper or a globule of air be introduced under it, it is raised so as to be seen against the light, and is thus displayed to great advantage; or it is sometimes so strong as to support small globules of quicksilver dropped between it and the retina, which renders its membranous nature still more evident. If a few drops of acid be added to the water after the membrane has been separated, it becomes opaque and much firmer, and may thus be preserved for several days, even without being immersed in spirit. That it is not the nervous layer which I detach, is proved by the most superficial examination; first, because it is impossible to separate that part of the retina, so as to present the appearance I mention; and, secondly, because I leave the retina uninjured, and presenting the appearance described by anatomists, especially the yellow spot of *Soemmering*, which is never seen to advantage until this membrane be removed: and hence it is that that conformation, as well as the fibrous structure of the retina in some animals, becomes better marked from remaining some time in water, by which the membrane I speak of is detached." The appearance of the membrane at different periods of life is also described.

A Treatise on the Inflammations of the Eyeball

As already stated, this book is one of the classics of ophthalmology. It is really a reprint of various detached essays that came out in the *Dublin Medical Press*, during the years 1847-1848; the book was published in 1849.

As the ophthalmoscope was introduced by von Helmholtz in 1851, Jacob's work is one of the latest, if not the last of the English textbooks to appear before that epoch-making discovery. I conclude that one of the reasons for its publication, though the author does not say so, was that there must have been a distinct opening for a small practical handbook on the more important

inflammatory diseases of the eye. The medical student, whose primary object is to obtain his qualification, does not, as a rule, like to have to read large textbooks on the special senses. The works of MacKenzie, Lawrence, and Tyrrell were all large books, more suited for the practitioner and senior student than for the rank and file, and Jacob's severely practical work must have been a boon to the latter class of students.

It is a small octavo of 340 pages and the contents are sufficiently indicated by the title. There are no illustrations. The symptoms and signs of inflammation of the various tunics of the globe are carefully described and the methods of treatment are discussed at length. The following excerpts are taken at random.

With regard to intolerance of light in inflammation, "the practice so commonly pursued of immuring persons suffering from inflammation of the eye in a dark room is founded on a vulgar error. I do not deny that intolerance of light often takes place, but I do not believe that it is a necessary consequence of inflammation . . . in hospital I have no green walls or shaded windows, and in private practice I never permit the light to be excluded, unless intolerance of it actually exists. If the patient has followed the usual unhealthy practice of sleeping in a bed hung round with curtains to exclude light and confine foul air; in a room with closed windows in addition, I cannot perhaps venture to alter this bad habit at once, but I do all I can to mitigate the evil by insisting on some illumination of the room, and some ventilation round the patient; so inveterate, however, is the prejudice in favour of these objectionable domestic arrangements, that I find great difficulty in obtaining consent to a change."

A description of keratic precipitates is as follows: "In some cases, and more particularly in syphilitic inflammation of the eye, the back of the cornea presents a remarkable form of opacity. It appears speckled with faint dots, as if spattered with thin white paint from a brush; but this is, evidently, in the membrane of the aqueous humour . . . it requires care to distinguish it. Looking directly at the eye from some distance it appears as a general cloudiness of the cornea, or even of the conjunctival layer of it; but looking closely at it with a lens of short focus, the faint, speckled, or dotted appearance is perceived; still it is not easy to demonstrate that it is on the back of the cornea. To be certain of its being situated there the eye must be viewed sideways or in profile, with the light shaded off so as to prevent the reflection from the surface."

With regard to the state of an old inflamed iris, "the pupil when closed and adherent to the capsule is generally found not only motionless but entirely unaffected by extract of belladonna—and in any attempt to form an artificial pupil the iris stretches

under the instrument like a lifeless membrane, and affords so little resistance that an opening can be made in it by an extensive sweep of the knife only, or by a large cut of the scissors."

Excessive bleedings are to be avoided if possible; *i.e.*, phlebotomy; Jacob is very sure of this fact. Hot bathings are extolled, but exposure of the eye to steam rising from a vessel of boiling water is not recommended. Mercury and atropine are highly praised in the matter of treatment, as are iodine and turpentine in iritis.

"*Festina lente* is frequently the maxim to be inculcated, and in accordance with it, I generally find myself acting. In private practice, when I am permitted to have my own way, I am in the habit of commencing by getting rid of all those encumbrances which accumulate in a sick room, and making such arrangements as will secure the admission of light, and fresh air: an object often difficult of accomplishment; such places being generally more like the crowded storerooms of furniture dealers than apartments provided for human beings."

A very noticeable feature of the work is the way in which extracts from the works of others, such as MacKenzie, Wardrop, Lawrence, and Tyrrell, are inserted.

Interstitial keratitis is of course not recognized as being of syphilitic origin; but it is easy in reading the section on scrofulous inflammation of the eyeball to see that many of the statements fit in with this disease.

"No inflammation of the eye should be pronounced scrofulous unless the local disease or the constitutional peculiarities fully justify it." If only he had gone a little further he might have anticipated Hutchinson. What better description of the cornea in interstitial keratitis than the following could be given:

"A general haziness or milky hue, and a remarkable roughness or loss of polish on the surface of the conjunctival layer, or a slight loss of transparency, having more of a yellowish tint, as if some very slight effusion had taken place in the structure of the part. Very deep seated small white opacities, generally in or near the centre, are also sometimes to be seen. It also in cases of long duration, is pervaded by vessels carrying red blood, and becomes permanently opaque."

I cannot resist quoting the final paragraphs from his last chapter on neuralgic inflammation of the eyeball, in view of the present-day habit of looking so askance at pyorrhoea in cases of iritis.

"Since the above was written I have seen a communication from Dr. Hays of Philadelphia, in the *American Journal of Medical Science*, which affords some illustration of the above observations. It contains an account of three or four cases of 'exalted sensibility' of the retina from disease affecting the teeth. In one, pressure

on the lateral incisor causing pain, that tooth was extracted; after which the intolerance of light, previously most distressing, and 'a disagreeable gnawing or pinching sensation at the back of the eye' ceased. An abscess was found at the point of the fang. In another case, a gentleman who had suffered two years previously from a slight attack of iritis; upon recovery experienced, when he attempted to read, a peculiar uneasiness in his eyes. After the extraction of a tooth, at the root of which an abscess was found, he was entirely relieved. In a third case, a young lady subject to frequent severe attacks of inflammation in the eyes, with excessive intolerance of light, was greatly relieved by the extraction of some decayed teeth.

I here bring to a conclusion these inquiries respecting the inflammations of the eyeball. They embrace some of the most important diseases of this organ, and bring together facts and results calculated to instruct by comparison. I am convinced that the subject is one not only of importance as regards the inestimable value of sight, but as affording most valuable illustrations of disease in general."

Charles Lever, who studied medicine in Dublin, has immortalized one of the prominent Irish medical men in the "Confessions of Harry Lorrequer," namely, Cusack Roney; one would have thought that the polemical Jacob would have offered equal facilities for reproduction in one of Lever's novels, but I am not aware that such is the case.

I am indebted to Miss Euphan Maxwell for obtaining the photograph from the Registrar of the Royal College of Surgeons in Ireland, and to the latter for permission to reproduce it.

ON THE MOVEMENT OF THE INTRAOCULAR FLUID AS TAUGHT BY THEODOR LEBER

BY

PRIESTLEY SMITH, Sen.

BIRMINGHAM

MANY ophthalmic surgeons must, I think, have been perplexed or even seriously disturbed by the vigorous attack on Leber's teaching made of late years by certain well-known physiologists in Germany and France. Others will probably now be so by the revival of it in Duke-Elder's important monograph "The Nature of the Intraocular Fluids." To abandon one's old belief in a slow continuous movement of fluid from the ciliary processes, forward