one point of the method of treatment accidentally adopted—on the one side only *some few* that were left to be dressed, on the other the multitude of wounded, less this small number; but the small number, in virtue of the uniformity of result satisfying the mind of this acute and truly logical observer, and leading him to the safe conclusion which his subsequent experience amply confirmed.

This, I repeat, is an unconscious illustration of the value of that numerical method which I have endeavoured to set before you, to explain, and to vindicate, in these three lectures.

Lettsomian Lectures

ON

THE OPHTHALMOSCOPE AND ITS APPLICATION.

DELIVERED BEFORE THE MEDICAL SOCIETY OF LONDON.

By HAYNES WALTON, Esq., F.R.C.S., Surgeon to St. Mary's, and to the London Ophthalmic Hospitals, etc.

LECTURE II.

MR. PRESIDENT AND GENTLEMEN,—Allow me a very brief recapitulation of a few of the subjects that occupied my last lecture. I shewed that Mr. Cumming had made no practical use of his discovery of illuminating the eye, not having even succeeded in complete illumination; that an instrument was needed to throw the light into the eye, and at the same time to admit of our seeing distinctly, which, under circumstances, might be used alone, especially when a near sighted eye was examined, but that for the most part a lens was required in addition; that, as soon as the interior of the eye receives the light, a red glare is visible, and that the visual focus of the observer is not got till the individual parts of the fundus of the eye, the optic disc, and the retinal vessels, come into view; that the optic disc is the termination of the optic nerve; that the retina is recognised by its vessels, being ordinarily unseen from its transparency; that the choroid chiefly gives the glare to the lightened eye, its individual vessels not being discernible in health, but the larger vascular plexuses recognised by markings, which are seen in contrast to their interspaces, which are darker, because containing more choroidal pigment. I shewed too that the retinal vessels, uncertain in number, enter the eye through the optic disc, sometimes centrally, sometimes at the side; and that there is great variety in the natural, or physiological, or healthy eye, with which it is necessary to be acquainted.

I proceed now to diseased states; and commence with *Cataract*. Few surgeons, I suspect, have long been engaged in active duty without being aware of the difficulty attendant on the diagnosis of incipient cataract. Doubtless, the majority of my hearers know this. Nor is it the general surgeon only who may be so puzzled. From my own personal knowledge, such men as Tyrrell and Dalrymple were deceived, as the progress of cases shewed. It would be easy for me to adduce parallel examples occurring among living practitioners. Indeed, till the ophthalmoscope appeared, we were necessarily often in difficulty; and no one felt this more than myself, as the means at our disposal—the catoptric test and the concentrated light—were not enough. It was especially so in old age, when the natural coloration of the lens, the amber hue existed, and particularly when it was unusually developed, for then streaks of opacity at the back of the crystalline lens, or general haziness of this body, were easily overlooked. The coloration itself was liable to be mistaken for disease, when there coexisted impaired vision from any cause.

A wine-merchant was assured by a gentleman engaged in ophthalmic practice in this metropolis, that he had cataract. An operation was proposed, and consented to. The chloroformist was even named. I was consulted, in order to satisfy some friends. I found the lenses very highly coloured, but not opaque, for I could see distinctly all the fundus of the eye.

Much hepatic derangement with a very debilitated system seemed to be the cause of defective sight, and a few weeks treatment confirmed the diagnosis I had given.

Whenever, therefore, there is a suspicion of cataract, an ophthalmic investigation should be instituted. A less intense light than ordinarily employed, is preferable, because it is possible here to over illuminate the eye, and the striæ may not be seen. With very high illumination, opacities may be less apparent than without the ophthalmoscope. It is on this account too that the eye should be examined at first without the lens. A source of fallacy must here be guarded against. The dots of pigment that are so often seen on the capsule of the lens as the result of inflammatory attacks, by which the iris and the capsule have been brought into apposition, as also cicatrices or spots on the cornea, must not be mistaken for cataract opacities. It is enough to direct attention to this point to prevent that mistake. Positively, cataract may now be detected before a person is himself aware of it.

A lady applied to me for defective sight in the left eye. I had little doubt that I saw radiating striæ in her lens; but to be quite sure, I used the ophthalmoscope, and had the fullest evidence of cataract. I looked at the other eye, and discovered a few small and irregular linear opacities, which I had not seen in my naked eye examination. I was told, in answer to my questions, that that eye was quite well, and vision was not impaired; yet I found by some delicate visual tests, that there was not perfect sight, but the derangement was so trifling, that it had not been noticed. I thought this a great triumph of modern science.

It is of no small diagnostic value to have a correct idea of the condition of the interior of the eye in cataract, to ascertain whether the loss of sight is in proportion to the degree of the opacity, and, in fact, depends on it, or on a more extended diseased state. We can get this knowledge by no other means. Do not considerations like these warrant an often repeated assertion of mine, that for what we have gained in this respect alone, the ophthalmoscope is of immense value; and if we went no further, might be truthfully considered amongst the greatest additions to recent ophthalmology.

Another condition of the crystalline lens can be learned only in the recent state by illumination; I mean, *Partial Dislocation of this body backwards, or twisting out of its place by direct violence*. This may be palpable later when the opacity has pervaded the lens, but certainly not by any ordinary means till then.

Disease of the *Vitreous Humour* seems to cause more astonishment to an inexperienced observer than any other morbid changes; partly, I suppose, because any physical alteration apart from greater fluidity was never supposed, and because the moving about of shreds and granules, and flakes and threads, are such palpable and material things. We now know that this body, which certainly is of low organisation, since it is often very rudely treated in certain operations, and portions of it is lost with apparent impunity, does become materially altered, partaking of disease that invades the eyeball generally. Apparently, at times, it is the sole seat of morbid phenomena, which are great impediments to vision. This is quite new to us; and no speculation, guessing, conjecture, or indication, brought it within the range of probability. In inflammations of the eyeball in general, it mostly becomes opaque, and looks muddy, and more or less hides, as in a fog, the fundus of the eye. Careful examination generally discovers minute bodies in constant motion. I have seen opacity of it, in the greatest degree, without any other symptom that I could detect, or any cause; and some cases that seemed quite hopeless, from the degree of turbidity, and the corresponding loss of sight, and the absence of all indication for treatment, have got quite well. So frequently have I seen the cloudiness pass away entirely in acute specific inflammations of syphilis and rheumatism, even where there were floating patches and filaments, which we call exudations, that I have little prognostic dread of it, as compared with cloudiness unaccompanied by acute disease.

Floating objects are not uncommon in the vitreous humour while its transparency remains; and they may exist alone, or in connection with diseases of the retina or the choroid coats. These are generally seen by the individuals themselves, and are often the circumstances that induce them to apply for relief. This brings me to speak of *muscæ volitantes*, in connection with the internal ocular inspection, and that only. I think that any one who has studied the writings of Sir D. Brewster, and the masterly essay of Dr. Mackenzie, himself a sufferer from *muscæ*, or investigated the subject with pains and care, cannot fail to conclude that they are minute floating

bodies in the eye that cast their shadows on the retina, and that they are far back in the posterior part of the eye, almost in contact with the retina. As a consequence, this upsets the theory of pressure on the retina by varicose vessels causing them; but it does not invalidate the supposition that certain parts of the retina may be so pressed on, and rendered insensible, causing the loss of function to be manifested in fixed spots, or black disc that have not the motion, and other characters of muscæ.

I have not, so far as I remember, been able to detect moving bodies in the vitreous humour; but, in connection with other internal disease of the eyeball or defect of sight, I suspect that ordinary muscæ are too minute to be seen with the ophthalmoscope. It is becoming a prevalent idea that they may always be found if looked for. It is a fact which cannot be accounted for, that floating bodies in the vitreous humour are not always seen by a person, and that the perception of them varies.

Effusion of Blood in the Vitreous Humour is another newly recognised state. It is most threatening when extensive, because vision is quite obscured, and the eye to all appearance lost. It is nearly always impossible to trace the source; but, I presume, it must generally be from retinal vessels. It may be traumatic or idiopathic. The first is the rarer, and the amount of hæmorrhage bears no direct relation to the severity of the accident; a mere tap on the eyeball may produce as much internal bleeding as a smart stroke; and I shall presently shew that a blow about the region of the eye only, may cause intra-ocular hæmorrhage. The second, the idiopathic variety, may, like the first, be unaccompanied by any external sign whatever; indeed, only now and then is there associated redness of the surface of the eyeball. The subjective symptoms, by no means always present, are flashes, corruscations, combinations of colour, and spectra. The actual condition, therefore, the diagnosis, cannot be known, except by the ophthalmoscope. In partial effusion the clot may be seen in the always more or less hazy vitreous humour. But the whole of the interior of the eye may be so darkened that no illumination can be obtained. I do not know how much blood is needed for this. Among the idiopathic cases the worst have occurred in eyeballs long subject to chronic inflammation, and the hæmorrhage has quite destroyed the sight. Two of my patients lost their eyes in this way in the night. I have known recovery ensue many times when there has been so much effused, that I could not illuminate the eye; and I do not give a decidedly unfavourable prognosis, except there preexisted disease of the eyeball.

In the first case that I met with, I suspected the eye to be lost, but complete recovery ensued. A gentleman in good health and with, as he thought, perfect eyes, perceived large soot-like bodies floating before the left eye. There were occasionally coloured clouds. He at once came to me. In a cloudy vitreous humour I saw the extravasation. There was no other objective symptom. I saw him two days after, and the vitreous humour was quite obscured. At the end of five weeks he could read any type, but was a little interrupted by some floating shreds in the vitreous humour, temporarily obscuring the type. A few weeks later his sight was quite restored, and I could not detect any abnormal ophthalmoscopic appearance whatever.

I will give the particulars of another case that occurred in the practice of my colleague, Mr. Taylor, and closely watched by him. Through his kindness, I saw the patient twice.

Mr. C., an artist, aged 30, applied to me for advice last February. A few mornings previously, on commencing work, he found that the sight of the right eye was obscured, to use his own words, "by various forms of dense matter, like those produced by blood dropped in water, or wreaths of blood coloured smoke, the denser parts of which, when looked at against a strong light, appeared of a brilliant brown red." About two-thirds of the field of vision were totally obscured, the lower third being of a pale green colour, through which he could discern objects "with tolerable distinctness". During the following two days, the obscuration extended over almost the whole field of vision, and the colour of the wreaths deepened to black centrally. His written description was accompanied by a beautifully executed water-colour drawing of the spectrum. Though his health is generally pretty good, yet at the time his strength was rather reduced by over-work at his profession; he had had several slight attacks of bleeding at the nose, and had a bad cold and cough. The external appearance of the eye was perfectly natural. With the ophthalmoscope it was impossible to distinguish the fundus of the eye, the vitreous humour being of a dense grey or smoke colour; here and there only a faint red

tinge could be perceived. As the eye moved, numerous small spots and filaments were seen floating across the pupil. In about three weeks the optic disc could be seen dimly, as through a fog; soon after, the retinal vessels could be distinctly traced, and a small dark red spot, the source of the hæmorrhage, was seen on one side. The improvement was now rapid; and a little more than two months from the seizure, the sight of the eye was completely restored, though it was apt to become dim after a few hours work; and a few floating filaments could still be seen in the vitreous humour with the ophthalmoscope.

[To be continued.]

Original Communications.

SCROFULOUS DISEASES OF THE EXTERNAL LYMPHATIC GLANDS:

THEIR NATURE, VARIETY, AND TREATMENT.

By P. C. PRICE, Esq., Surgeon to the Great Northern Hospital; the Metropolitan Infirmary for Scrofulous Children at Margate; etc.

I.—INFLAMMATORY CONDITIONS OF THE EXTERNAL LYMPHATIC GLANDS IN SCROFULOUS SUBJECTS.

[Continued from page 578.]

Simple Subacute and Chronic Inflammation. Inflammation of a low insidious form, attacking the external and internal lymphatic glands in scrofulous constitutions, is of frequent occurrence at all periods of life. In many particulars, it differs from the more active inflammatory lesions which were lately described. It is met with both as a primary and secondary affection, furnishing, I believe, the greatest proportion of so-called transitory *scrofulous swellings* of the neck, abdomen, and other parts; and may be most advantageously considered under the following heads:—

Firstly. When it occurs as a specific affection, and is apparently confined to the lymphatic ganglia situated on the external surface of the body.

Secondly. When it involves the external glands, as a consequence or accompaniment of various scrofulous affections.

Thirdly. When it affects internal lymphatic glands, such as those of the intestine, mesentery, etc.

The former two divisions of the subject will be now considered; the latter meeting with attention at some future time, when discussing the various abnormal conditions of those glands which are situated within the cavities of the body.

1. All the absorbent glands situated on the exterior surface of the body exhibit a greater or lesser tendency to assume certain specific forms of slow limited inflammatory action; and, although such conditions are not always the direct result or accompaniments of a well marked scrofulous diathesis, still they are very frequently closely associated with some such constitutional taint. When a merely simple, slight inflammatory enlargement of the absorbent glands occurs without any very apparent complication, and with little or no distress, either local or general, it is not always easy to decide whether the derangement is the direct result of external agencies, an inherent disposition to disease, or systemic irregularity.

Some authorities have doubted the possibility of the absorbent glands becoming idiopathically affected. The late Professor Thomson of Edinburgh believed that all chronic inflammatory swellings of the lymphatic glands in scrofulous subjects were symptomatic, and arose from irritation in parts not glandular. On the other hand, Dr. Henning strongly maintained that atmospheric irregularities were, if not the sole, at least the chief sources of derangement of the glandular system, which was *always* the primary seat of scrofula; and that, if other parts of the body were affected, it was but as a consequence. Cullen and other acute observers freely admitted a peculiar constitution of the lymphatic system, and imagined that it not only predisposes to various derangements of the glandular portions, but actually allows a development of certain idiopathic phenomena. Such an opinion is, perhaps, still to be justified on the ground that, while our knowledge of the nature and causes of diseased actions is materially advanced, we are yet frequently compelled to allow that a large proportion of