ON A SPECIAL POINT CONNECTED WITH THE DIAGNOSIS OF HARD CATARACT.

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At the present period, when the literature of ophthalmic surgery is immense, and when talented men, learned in physiology, pathology, and the physical sciences, are closely studying the eye in all its relations as an organ of sense, it might be supposed that the disease "cataract", the phenomena of which are peculiarly exposed to examination, has been so investigated as regards symptoms and diagnosis at least, that there is neither error to be corrected, nor fact to be added. But so very limited is the power of man to inquire into the labyrinth of his mere mechanism, that successive ages contribute little that cannot be controverted. Even in the structure of an individual organ there will be more to investigate than the mind can fathom; and how much less can the intellect master the greater mysteries of vital action, and of disease, which are so intimately connected.

Except in the eye, I am unaware of any natural change incidental to age—a change consisting in the addition of slight colour—that bears so close a resemblance to a specific disease, as to be mistaken for it. The natural "coloration" of the lens has this relation to cataract, besides having the effect of marking the commencement of the affection; and I have been induced to bring the subject forward, because it is important; because I know that it is not generally understood; and because it is a great stumbling block to students in ophthalmology.

Under adult age, the pupil is usually so black, that any opacity is quickly recognised, and the existence of cataract at once detected; but later in life, if the power of vision be interfered with from any cause, the crystalline coloration may deceive, and induce the suspicion, if not the conviction, of the existence of cataract. Again, at the latter period, when cataract is quite incipient, and the central part of the lens is first affected, as it sometimes is (although not by any means so frequently as surgeons suppose), it may be impossible in our present state of knowledge to detect it, because of the "coloration"; and at best, only a broad guess can be made according to the subjective symptoms. The introduction of a case will assist my elucidation.

CASE. A lady, aged 75 years, desired me to examine her eyes, as an optician, to whom she had applied to have her spectacles repaired, pronounced, from the appearance of her pupils, that there was cataract. Certainly, if a brownish grey colour may be taken as indicative of this much dreaded disease, the tradesman was justified in his supposition, as this was very apparent; and my own first impression was, that cataract did exist; but being well aware of the possibility of deception, and of the absolute necessity of a careful examination of a person who, with such eyes, could walk readily into my consulting-room, and, in front of a large window on a bright day, take a seat without blundering, I reserved my opinion until after the necessary inquiry. I asked her to read with the eyes alternately; and putting on her glasses, a pair of forty-eight inch focus—the same very low power that she had used since such aid was required—she read rapidly with the left eye diamond type, and the still smaller character on the dial-plate of my watch; while, with the other, only large print could be made out. A close inspection of the eyes did not discover any very marked difference in the crystalline lenses, until the pupils were dilated, when I perceived the disparity, which was not great, but yet unmistakable. The remark of the optician induced her to compare the power of her eyes, until which she was ignorant of the existing defect—an occurrence not at all uncommon. It was evident, therefore, that in both eyes "coloration" was very marked. In the left there was nothing more. In the right was added

the commencement of lenticular degeneration. It is difficult to account for the fact, that an amount of colour so decided as to be apparent to an unprofessional bystander, and according to our notions of the physiology of the eye, more than enough to affect sight materially, did not produce a more decided result. That it has an effect by absorbing light, there can be no question; and I believe its chief consequence is the necessity for convex glasses in advancing life.

From a very extensive examination of lenses extracted soon after death, I have found that the "coloration" is not uniformly in a ratio with the age of the individual, as in some persons it is more marked at fifty than in others at eighty; and I have even met with a difference in the eyes of the same individual. But this is only a confirmation of what may be observed in life, and with which I have been acquainted for years. A practical inference, therefore, is, that coloration is not a disease, not a progressive affection, that destroys sight, but a slight natural change incidental to age; and that cataract is a degeneration—a decay that progresses. It is well, however, to give some substantial proofs of the correctness of these views; and I have much pleasure in using that which has been afforded by the labour of my colleague, Mr. R. Taylor, who has been investigating the matter microscopically. He writes:—"In elderly people, without an exception, so far as I have observed, the lens assumes an amber colour, more or less deep. The age at which this change commences, varies exceedingly: I have seen it distinctly present at thirty, and very strongly marked at thirty-five; while again, it has been but slight in a person of sixty. Generally speaking, it will be found at the age of forty: I have never failed to find it at forty-five. It appears to be more early developed in the coloured races, and in persons with any admixture of black blood; but my opportunities of observation on this point have been very limited. The colour pervades the whole of the lens, but is most intense in the nucleus, and fades off gradually in the cortical layers. When the coloration is very intense, it impedes the transmission of light, so as to impair the sight, though the lens remains perfectly clear, and free from opacity. Such persons see best in a bright light, and are frequently benefited by convex glasses, which concentrate the light. Notwithstanding the depth of colour, I have never heard any complaint of a yellow hue being thrown over objects, as is the case in looking through a piece of yellow glass; nor is there any difficulty in distinguishing different shades, even of blue and green.

"The colouring matter, which is said to be iron, is in solution; there are not any pigment cells or granules; which last, as it is said, are found in black cataracts. The coloration does not appear to interfere in any way with the healthy condition of the lens; in the oldest which I have examined, from a woman, 93 years of age, the lens-tubes, both nuclear and cortical, were perfectly healthy, though they were tinged of a bright amber colour.

"In cataract, on the contrary, the lens is disorganised. The superficial layers are softened and broken up, so as, in advanced cases, to be reduced almost to the condition of a pulp, which renders the drop of water in which it is examined turbid and milky. The opacity is due chiefly to a quantity of fine molecular matter, the result of the coagulation of the albuminous blastema of the lens, which is found partly aggregated in masses, and partly studding the exterior, perhaps also the interior, of the tubes, as well as, in many instances, filling the large globular cells which lie immediately within the capsule. Occasionally, in cases of long duration, crystals of cholesterine are found interspersed among the lenticular debris. The nucleus also undergoes a very remarkable change, becoming hard and dry, to an extent very far from anything that is ever seen in the healthy lens of the oldest person. The tubes are withered, atrophied, and brittle, and fall asunder and in fragments on the slightest touch of the dissecting-needle. Their outlines are disfigured by deep transverse and longitudinal cracks and fissures, and by irregular nodules, pro-

bably of coagulated albumen, and in many instances they show a tendency to split into minute fibrillæ."

It is evident, therefore, that on the recognition of these data, and the practical application of them, much error may be avoided, and the absence or existence of cataract rendered more certain, not to speak of the assistance that they offer in unravelling other ophthalmic disease; for lenticular coloration has been described as an objective symptom of other affections, "amaurosis" being one of these.

It would answer no good purpose to tell any of the many cases of coloration and impaired vision, not due to opacity of the lens, that have been sent to me by surgeons for operation, under the supposition that cataract existed; nor of other mistakes connected with the subject that have come under my notice, such as the extraction of lenses, not cataractous, but merely coloured. I may say that mistakes are frequently made. In the case that I have detailed, it is easy to understand that, had there been defective sight in the left eye, from disease at the posterior part of the eyeball, how readily it might have been supposed that cataract was present. It may be received as a rule, that if a person can see to read the smallest type, with or without glasses, and discern distant objects clearly, the pupil being undilated, no matter how clouded the lenses may appear, cataract does not exist. After this is understood, the only point on which there can be difficulty is to pronounce whether, in any given case of defective sight, cataract is present or absent, and the solution of which, so far as it can be told, depends on the proper discrimination of physical appearances, the distinction between coloration and lenticular degeneration, rather than on any subjective symptoms, although those may greatly assist.

With undilated pupils, it is difficult, if not often impossible, to recognise the difference. I have known surgeons of the first eminence in this metropolis to err respecting it: hence the necessity for dilatation whenever doubt exists. Then, in the expanded pupil, the presence of striæ or opaque bundles of fibres, which so commonly exist in the early stage of cataract, at the circumference of the lens, can at once be detected. Coloration is more central and browner; the light penetrates the lens; and the concentration of it is perceptible in the direction in which it falls. The opacity of cataract is more diffused and opaque, and reflects the light. In the first, vision is made worse by dilatation of the pupil, while in the other, it is almost always improved, certainly always when the opacity is marked. Indeed, when the pupil is dilated it is seldom that a correct conclusion cannot be arrived at. The exception is this. When the lenticular degeneration is yet slight, and has commenced in the centre, it may be impossible to detect it, that is, to be able to say with certainty that cataract is present, and the lapse of time only can decide. The late Mr. Dalrymple treated a gentleman for amaurosis; he had prescribed an arsenical preparation for some time, without benefit. I was consulted, and after a long investigation, I decided that cataract was present, at least in one eye. This disease soon became palpable, and in time I operated on both eyes with the best success. There has never appeared the slightest amaurotic symptom. Can I offer a stronger proof that there may be uncertainty in the matter? When vision is much affected by loss of transparency of the lens, the opacity must be palpable; therefore, when this is not readily detected, any material loss of visual power must be attributed to some other cause; and this applies especially to defective vision in the aged, in whom the "coloration" is most marked, and where the eye, in obedience to the laws of mortality, which allows an exception, perhaps, only in the prostate gland, is apt to get shrunken, and becomes besides, so to speak, vitally impaired. Several times, under these circumstances, I have prevented the performance of a needless operation, and proved that a feeble retina was the defective cause.

I have not found the ophthalmoscope of the least use in this subject.

THE IRREGULARITIES IN THE ACTION OF STRYCHNIA.

By JOHN ROULSTON, M.D., Low Harrogate.

In the present *strychnism* of society, perhaps the following case may not be without interest.

A friend of mine, residing in South Africa, wishing to destroy a large cur dog, aged about 5 months, gave it three grains of strychnia, between two pieces of beef, which the animal bolted without any mastication. He was then going on horseback into the country, and the dog followed for two miles, leaping and gamboling the whole way, and back again home. My friend purposely lingered on the road, as he wished to see the finale; but at length concluded the attempt had failed; when, after the horse was stabled, and he was turning to enter the house, suddenly, without the least spasm or tremor, the dog, which until that moment had not shewn the slightest symptom of illness, and was playing with its mother at the time, leaped up in the air with a faint cry, and fell dead on the spot.

The time which elapsed between the administration of the poison and death, would be at least an hour and a half. This case shews how readily extraneous circumstances may interfere with the known action of this or any other drug—either accidentally, as in the present instance, or intentionally—where the quantity required to produce a fatal effect is so small in the human subject as to allow of being enclosed in a portion of some slowly soluble medium, and given in the form of pill.

Again, in the above case, exercise had no doubt completely arrested the digestive process for the time.

It is a very common plan with the farmers of South Africa to use strychnia in order to get rid of jackals, hyænas, etc., which infest their folds, and which, when dead, become a fatal meal to their successors.

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THE MEDICAL BILL.

THE Medical Bill of the Association, amended by the Select Committee, has been printed, and is, perhaps, at the moment we are writing, under discussion in the House, as it is ordered to be recommitted this (Thursday) evening. We are glad to find that, with one exception, the measure, in its new shape, represents all the principles for which the Association has so long contended; and, therefore, it may still be considered to be the Bill of the Association.

Preliminary Examination, Uniformity of Qualification, Reciprocity of Practice, Registration, and the General Superintendence of Professional Education by a Medical Council, have been the points contended for by our Association steadily for years, and now we find them embodied in this Bill as strongly as they are in Mr. Headlam's measure. The one point in which the amended measure differs from the original one, is with respect to the constitution of the Council. The Government has determined to nominate the members, instead of constituting it upon the representative principle. This is certainly an alteration which will be exceedingly distasteful to many