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REPORT

OF THE

TORONTO DISPENSARY,

FOR

*Diseases of the Eye.*

CHURCH STREET, TORONTO, CANADA WEST.

A. D. 1851.

BY

J. S. STRATFORD, M.R.C.S.,

*Surgeon and Oculist.*

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PRINTED BY A. F. PLEES, 7, KING STREET WEST.

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# REPORT

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## TORONTO DISPENSARY FOR DISEASES OF THE EYE.

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THE within Report is respectfully submitted to the Governors and Subscribers of the Toronto Dispensary for Diseases of the Eye in this city. It is due to them, as an evidence that the confidence they have so generously reposed has not been totally misapplied, while it offers a satisfactory proof of the necessity and usefulness of such an institution. The language and detail may not be completely applicable to the taste of the general reader, but for this, the nature of the subject must, I think, plead a sufficient excuse.

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Number of Patients under treatment, during the year ending the 1st June, 1851.....	149
Cured .....	108
Greatly relieved .....	20
Discharged incurable.....	10
Ceased to attend from some unknown cause .....	6
Remain under treatment .....	5
	———— 149

The various diseases treated, bore the following proportion to the total number of cases presented at the Dispensary :

Simple inflammation of the conjunctiva .....	11
Purulent ophthalmia .....	6
Gonorrhœal ophthalmia .....	16
Purulent ophthalmia of infants .....	3
Pustular ophthalmia .....	10
Scrofulous ophthalmia.....	12
Tumours of the lids .....	3
Granulated conjunctiva .....	27
Hordeolum.....	3
Foreign body in cornea.....	1
Acute corneitis .....	9
Partial dilatation of the pupil .....	1
	————
Carried forward .....	101

Brought forward .....	101
Acute iritis .....	9
Amaurosis .....	9
Muscæ volitantes .....	3
Cataract .....	7
Inversion of the eyelids .....	3
Eversion of the eyelids.....	2
Fungus hæmatodes of the eye.....	1
Ephiphora .....	4
Stillicidium lachrymarum.....	2
Acute inflammation of the lachrymal duct.....	2
Chronic do. do. do. ....	3
Obstruction of the nasal ducts .....	2

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### *Simple Conjunctival Inflammation.*

Of the eleven cases of catarrhal ophthalmia, three occurred during the month of November, and eight in February, March, and April,—during which months the east wind prevailed in a remarkable degree, being generally north-easterly, while it was also for the most part dry and dusty. The influence of cold upon the constitution appeared generally as the exciting cause; but that the simple influence of cold upon the body is likely to produce the disease, without a necessary condition of the system, is contrary to medical observation. The nature of this condition is at present hid in much obscurity; but I believe it will hereafter be found to be greatly dependent upon the positive state of the blood, at the period the body is submitted to the influence of cold. When the blood is loaded with the effete, and useless material of the constitution, that should be removed by the excretions, then is the individual more susceptible to the influence; and it is a curious fact, that the speedy solution of the catarrhal disease, goes hand in hand with the liberation of the excrementitious matter by the proper emunctories of the body. For example: the urine is always found loaded, and the stools dark coloured and biliary before the inflammatory action subsides, while the check upon the excrementitious operations of the skin, has been a subject of popular observation in all ages. During the early part of the year, the influenza also occurred pretty generally in Toronto, and no doubt, had some influence in the production of the ophthalmic disease. The immediate cause of the complaint appeared to be dependent upon intemperance in four individuals, who had been exposed for a considerable time to the night air. Two were washer-women, who had been working hard in rooms heated by a stove; while one had walked a considerable distance in the rain, and got completely wet.

The symptoms presented by the individuals labouring under the complaint, were more or less redness of the conjunctival mem-

brane, where it covers the lids or is reflected over the sclerotic coat, while the corneal portion did not appear perceptibly to participate in that condition. This redness evidently depended upon the entrance and circulation of the red corpuscles of the blood in the minute vessels of the membrane, in which previously only a transparent or colourless globule had circulated. This change is so obvious to the senses, that it constitutes one of the most favourable positions in which the various results of inflammatory action may be presented to the observation of the student. This redness was of a bright scarlet colour, the vessels large and evidently superficial with regard to the sclerotic coat, moveable upon it, and when not very intense and that coat was implicated in the complaint, its minute pink vessels might be seen shining through the conjunctiva, presenting a very marked contrast. This redness of the conjunctival membrane was, in the first commencement of the complaint, irregular in intensity, shewing that some fasciculi of its vessels were more filled or congested than others; but as the disease proceeded, the redness became general throughout the membrane, but this was always more marked at the circumference, and diminished as the vessels proceeded toward the cornea. In one case, small spots of extravasated blood were observed effused into the areolar tissue, in others more or less effusion of a thin serous fluid was seen distending the structure of the membrane, and giving it a thickened appearance.

The pain for the most part was of a smarting character, not very severe, and generally confined to the inflamed structure. In two cases however, which seemed to be connected with influenza, the pain was more extended, implicating the head and throat, shewing a participation of the complaint in the mucous membrane of the frontal sinus, the fauces, and trachea. There was not much intolerance of light, save in the two cases above mentioned.

A sensation of dryness, stiffness, and as it were the presence of a foreign body between the lids, was always complained of, especially at the onset of the disease; but after a time the lachrymal secretion became more profuse, when some of these symptoms ceased. The secretion of mucus was at first thin, but afterwards became more thick and glutinous, and in the most severe cases assumed the character of pus.

In the two cases mentioned above, as being connected with influenza, there was catarrhal fever, frequent chills, heat of skin, disordered stomach, and foul tongue; but these symptoms I apprehend were more dependent upon the influence of the epidemic than upon the ophthalmic complaints.

The treatment consisted, in the first place, in the employment of general and topical blood-letting, according to the intensity of the inflammatory action and tone of the constitution; active purgatives, such as calomel and jalap, followed by salts and tartarized



antimony. The use of warm fomentations to the eyes, and blisters to the nape of the neck or behind the ears. These were continued until the acute inflammatory action had subsided, after which stimulating and astringent applications were applied, such as the vinum opii or the solution of the nitrate of silver. I have occasionally employed the powerful astringents in the very commencement of this complaint, as recommended by Mr. Melen and Mr. Guthrie, but think that their use is to be deprecated until the acute stage has subsided, when they are remarkably beneficial.

*Purulent Ophthalmia.*

Of the six cases of purulent ophthalmia, all occurred during the months of August and September; four were sent from the country, and had resided in marked malarious districts, while the others were inhabitants of low miserable hovels in this city.

The symptoms of the disease, when seen in the earliest stages, were to all appearance identical with the complaint above described; but as it progressed (which it often did with great rapidity) the conjunctival membrane was marked by high vascular action, bright redness, great tumefaction, and profuse discharge. The chemosis which was caused by the swelling of the membrane, was in some cases so great as almost to overlap and cover the cornea. The eyelids were also greatly swelled, being filled with a serous fluid, rendering it difficult to uncover the globe. The lachrymation was great, and was soon accompanied by an abundant purulent discharge, that was forced between the lids at every attempt to uncover the globe, and often ran down the face in streams. The cornea which in the commencement was seen bright and clear, although surrounded by a ridge of elevated conjunctiva, by degrees became dim, and after a time perfectly white, showing that inflammatory action had implicated its structure, and that lymph was deposited in its substance; in one of the cases sloughing took place to a considerable extent, so that an evacuation of the humours of the eye was the consequence. In another case a small ulcer was observed, which having penetrated into the anterior chamber, permitted the escape of the aqueous humour, and the iris falling forward, was afterwards seen adhering to the cornea. As is obvious from the above examples, the inflammatory disease implicated other textures of the eye, besides the conjunctiva, and according to its extent, produced more or less derangement of the several structures, and in two cases produced total destruction of the eye. The pain from the first was severe; but as the disease spread to the other textures of the globe, it became excruciating, often attended with exacerbations, which were generally most severe at night, comprehending not only a pain in the eyeball itself, but attended with a fulness and throbbing of the brow and temple, and not unfrequently with general headache and fever.

In none of these cases did the ophthalmia seem to proceed from contagion, but appeared to arise sporadically, from the state of the weather, and the local peculiarities of the atmosphere.

In all these cases free depletion was immediately practised, and blood was allowed to flow until syncope was induced. On examination of the eye after the bleeding, the deep red tint of the conjunctiva was changed to a paler hue, the lids were less swelled and distended, and the pain and uneasiness was greatly diminished; in but one case was it necessary to repeat the bleeding, in consequence of a return in the severity of the disease. Active purgatives, such as salts and tartarized antimony, were freely administered; considerable advantage seemed to be obtained by the nauseating effect the antimony produced, which evidently held the ground that had been gained by the previous venæsection. When the deeper tissues of the eye were evidently influenced in the disease, calomel and opium was exhibited with marked effect; and in these cases the pain in the brow only subsided upon the constitution feeling the influence of the remedy.

The local applications to the eyes consisted, in the first place, in the frequent ablution of the part with lukewarm water, in those cases in which it seemed to sooth the pain and afford a feeling of comfort to the patient, it should be often repeated. In many of these cases, however, I have found the local application of cold water freely applied to the eyes produce great relief. I have never had an opportunity of using the douche as recommended by Dr. Gerick, but I am convinced from the experience I have had of it in other complaints, that it is a powerful antiphlogistic remedy, and deserves a trial in such cases.

As soon as the active inflammatory symptoms had began to subside, as was known, by the diminution of pain, the feeling of distension, and the distinct appearance of the purulent discharge, an injection between the inflamed lids of a solution of alum (four grains to the ounce of water) was often repeated; and after several trials, if this was found to be borne with advantage, a weak solution of the nitrate of silver (two grains to the ounce) was used, and this was gradually increased in strength to ten or twelve grains as the discharge diminished, and the swelling and thickening of the lids subsided. Under this treatment the chronic inflammation of the conjunctiva soon subsided, and in most cases the opacity of the cornea was easily removed, and the cornea restored to its wonted transparency, perfect vision being the result; but in some cases, it must be confessed, the success was not so complete, for more or less opacity remained in consequence of the lymph deposited in the structure of the cornea.

It is curious to observe these different results, and difficult to explain them. A knowledge of the minute structure of the part may, perhaps, assist our judgment.

From the observations of physiologists, the cornea is shown to consist of different structures: first, on the outer side, the conjunctival layer of epithelium and its basement membrane; next, the proper structure of the cornea; then, the elastic lamina of the membrane of the aqueous humour, with its proper epithelium. The proper structure of the cornea is a fibrous texture, the layers following the curvature of the cornea, constituting a series of more than sixty lamellæ, which lie in superimposed planes, for the most part parallel, but crossed by others at an angle: the resulting interspace opens on all sides, and forms tubular spaces, which are moistened with a minute quantity of transparent fluid, which tends to preserve the transparency of the fibres,—the *tout ensemble* affording a density of structure, and giving a peculiar translucence to the part, which constitutes its most admirable characteristic.

These different structures of the cornea are evidently nourished by two sets of vessels, a superficial and a deep. The arterial trunks of the first set evidently belong to the conjunctiva; these are prolonged a short distance upon the margin of the cornea, and inosculate with each other, during health carrying but a transparent fluid, to supply the basement membranes of the epithelium;—while the deeper set of vessels which nourish the proper substance of the cornea, are derived from the ciliary arteries, and terminate in loops of veins in the sclerotic coat, after the manner of cartilage. From these radiate minute transparent vessels that proceed to the tubular structure of the cornea, conveying a fluid of such little density, that the transparency of the part is perfectly preserved.

When under disease, these facts become abundantly evident. Great numbers of these minute vessels, then distended, carry the red globules of the blood, and as may be seen, clearly mark the two distinct sets of vessels. Red vessels are now seen traversing the conjunctival layer, appearing like the radii of a circle, extending nearly to the centre of the cornea, while the pink tint of the sclerotic texture, in true inflammation of the cornea, gives an imperfect demonstration of the deeper set of vessels.

The vessels of the conjunctiva covering the cornea may be long distended with red blood without producing any permanently bad effects, dependent, in all probability, on the facility of distention in the part; so that a deposit of lymph into the structure of the cornea, would seem unfrequently to be connected with their disease. Not so the minute vessels of the cornea proper; for it seldom happens that they become affected without the cornea appearing more or less opaque; coagulable lymph being carried into its structure, and perhaps deposited in the tubular spaces. In many cases, as I have before remarked, this appears to be quickly removed by the absorbent functions of the minute transparent vessels; while in other cases, we must presume that the lymph has become organized as in other textures of the body; or it may have

become hardened and sacculated in the tubular spaces; and although a foreign body, is permitted to remain uninfluenced by the circulatory apparatus, would seem to have assumed a tolerance similar to that which obtains in the case of shot and grains of powder, or other foreign bodies, which often remain quiescent in the animal economy for some time. Many cases of permanent opacity of the cornea must, I think, be thus accounted for, as we often see an opaque spot completely surrounded by transparent cornea. Here we should be able to see vessels carrying a fluid of sufficient density to preserve the character of the opaque spot; for, was this deposit under the influence of the circulation, coagulable lymph must still be conveyed to the diseased structure; or was it but the transparent fluid of health, it must be obvious that the dense matter once removed, and not renewed, the part would eventually become transparent: showing that, in some cases at least, this opaque matter is beyond the action of the absorbent vessels, and must remain an inorganic deposit,—explaining the reason why it is perfectly uninfluenced by any remedial means.

The case of purulent ophthalmia, in which sloughing of the cornea occurred, was an inhabitant of this city, of a leucophlegmatic debilitated constitution (not long out from Ireland), evidently suffering from the effects of poor, unhealthy diet, and vitiated atmospheric influence. Here, a free administration of bark, and a generous diet, combined with the local employment of astringents, soon arrested the sloughing, and encouraged the rapid cicatrization of the wound.

#### *Gonorrhœal Ophthalmia.*

In appearance and character the Gonorrhœal Ophthalmia bears a strict analogy with the preceding complaint. In some cases the rapid intensity of the symptoms, as compared with the former variety, would seem to offer some slight diagnostic peculiarity; but even in these, I fancied that the positive state and condition of the constitution was sufficient to account for the difference. Certain it was, that intense redness of the conjunctiva, great tumefaction of the lids, and profuse yellow discharge, shewed a condition of the highest inflammatory action, which in many cases rapidly spread to the cornea, and deeper tissues of the globe, often causing blindness or derangement of vision.

In all the cases, the application of infectious matter to the eye, was clearly traced. In one instance, a stage-driver in the western country, having gonorrhœa upon him, complaining of a slight affection of the eyes, was advised to wash them with his urine. Thirty-six hours after, he got a most severe attack of inflammation of the conjunctiva: this, however, at first he neglected, merely washing his eyes with cold water, and wiping them on the towel in the bar-room. In a few days, no less than

ten individuals, boarders and servants in the same house, who it was proved had used the same towel, got an attack of acute inflammation of the conjunctiva. In these individuals, it was curious to observe the difference in the intensity of the disease; in four it progressed with such rapidity that in a very few days, they either lost the use of one, or both eyes, while in others, although the disease was sufficiently active, it terminated with but slight opacity of the cornea; in the remainder, notwithstanding that the conjunctival inflammation lasted even for a longer time, it left none of these inconveniences behind it. Was this difference dependent upon the amount of infectious matter applied to the eye, or was it contingent upon peculiarity of constitution? Possibly of both. Another instance occurred in this city, at a lodging house, when a blacksmith, having gonorrhœa, inoculated his eyes with some matter on his finger. Soon afterwards, the disease of the eye evinced itself, and he wiped them on the towel used in the establishment. In a short time, six individuals were attacked with symptoms of acute inflammation of the conjunctiva. In these instances, however, although the inflammation was very intense (but being seen early) active treatment evidently arrested the disease; for notwithstanding some cases were of a protracted character, none fortunately had to deplore the loss of vision, or any great deformity, as the consequence.

The treatment of these cases of gonorrhœal ophthalmia, was identical in character with those indicated under the head of Purulent Ophthalmia; some of the cases, however, demanded even a more active antiphlogestic treatment. Blood-letting was repeated to a greater extent in those cases that were marked with the more rapid progress of the inflammatory action. In two cases, I incised the conjunctiva, as recommended by Mr. Tyrrell. In these, the chemosed structure bled freely, and the feeling of distension was considerably relieved; but that this operation upon the conjunctival membrane, had any other than a secondary influence upon the cornea, I could not conceive, being assured that the cornea proper derives its vessels from the schlerotic portion of the circulation, which would be beyond the reach of the knife, under present circumstances.

#### *Purulent Ophthalmia of Infants.*

The symptoms which the cases of this disease presented, showed a marked affinity with the preceding variety; in fact, they were cases of acute inflammation of the conjunctiva, occurring from a similar cause, in the eyes of a new-born infant. The disease commenced in each case on about the third or fourth day, and soon took on a severe character. The eyes, which were freely open, appeared clear and bright after birth, as soon as the disease began, were kept constantly closed; the lids swelled and

looked red, and there was a great discharge of yellow purulent fluid. If an attempt was made to examine the eye-ball, the orbicularis muscle closed spasmodically, and sometimes caused a complete eversion of the lids; then too we might see the conjunctiva highly vascular and inflamed, and perchance the cornea opaque, or even ulcerated.

In all these cases enquiry was made, if the mother had, at the time of her confinement, a vaginal discharge, and after a little hesitation, all confessed that they had. Two stated that their husbands had given them gonorrhœa during pregnancy, but the third stoutly declared that we meant to insult her. The husband, however, subsequently acknowledged that he had been infected, and feared that he might have inoculated his wife.

The treatment consisted in the application of a leech to the superior eyelid, and the injection of a solution of alum (two grains to the ounce of water) frequently introduced between the lids by means of a syringe. The strength of the solution was gradually increased, and after a time was changed for a solution of the nitrate of silver, while the bowels were kept open with castor oil and rhubarb powder, and an occasional dose of calomel.

Two of the cases were seen early in the disease, before much mischief had resulted to the cornea, and seemed speedily to be relieved by the treatment above mentioned. But the third was not presented until the 24th day after birth, when both the cornea were found perfectly opaque, and considerable ulceration was apparent in one of them. The nurse that brought the infant stated that the disease had been mistaken by the medical gentleman that attended the mother, he declaring that the child had simply taken cold, and advised the eyes to be washed with warm water. The consequence of this neglect was total blindness of both eyes, from destruction of the cornea.

#### *Pustular Ophthalmia.*

The subjects of this disease were all children, apparently of a strumous habit, with light hair, blue eyes, and tumid bellies.— Upon looking into the eye, a small elevation, situated on the cornea, or schlerotic coat, might be seen, having a more or less dense fasciculus of conjunctival vessels. In the first place, the little elevation appeared like a spot of effused lymph, and as it progressed seemed to take on a pustular character. Sometimes even ulceration took place, and when situated upon the surface of the cornea by degrees penetrated its different layers, then the membrane of the aqueous humour might be seen projecting like a little shining drop; and when this gave way, the anterior chamber was emptied, the iris fell forward and plugged up the opening; the aqueous humour was again secreted, and the disease was cured as the ulcer healed, but in most cases with a considerable derangement of the pupil,

which not unfrequently destroyed the use of the organ. It is seldom, however, that the disease proceeded to this extent, being generally arrested by very simple treatment—such as the use of free purgative and alterative medicines, and the application of the wine of opium to the eye. In one instance, however, the child had been neglected, and it was necessary to touch the ulcerated surface of the cornea, with a point of nitrate of silver. This stimulated the ulcer to a healthy action, and healing, saved the prolapsus of the iris and other evil consequences.

In many of these cases an herpetic eruption might be seen on the face and head, coexistent with the disease of the eye, indicating the identity of its constitutional origin.

#### *Scrofulous Ophthalmia.*

The nature of the diseases classed under this head were intimately allied to the preceding variety: the same cast of countenance, the same character of constitution predominated; indeed, when we take the constitutional characteristic as a type of the disease, an infinite variety of ophthalmic complaints must be included under this head, a circumstance that is apt to lead to great confusion, making it difficult to define our ideas as to the nature of the local complaint, as it influences a vast variety of them.

The generality of patients with this complaint were young children, ranging from two to twelve years of age. The most marked symptom of their disease was a great intolerance of light; so great, indeed, was the pain and inconvenience produced by the slightest application of the influence of light to the eye, that the child instinctively covered them, and often buried its head under its clothes: here you might see the brows knit and the eyelids spasmodically closed, by the violent contraction of the orbicular muscle. Was an attempt made to separate the lids, it was most strenuously resisted; and even when that was accomplished, the eyeball was seen involuntarily turned upwards, while the child screamed from pain and fear, and hot acid tears streamed down the cheeks. Often after the most patient trials to see the condition of the cornea, we had to give up the investigation without complete success.

In many cases in which we succeeded in our explorations, great was our surprise to find that the eye had scarcely any other visible symptom of disease,—perhaps a slight redness of the conjunctiva covering the lids or reflected over the globe might be seen. This redness was frequently but a few fasciculi of vessels, tending to form a minute pustule. Often even had this greatly subsided, leaving but a slight mark to indicate its presence, after the child had suffered from the intolerance of light for six or eight months. In other cases again, the organic disease of the

eye was more grave, the cornea, iris, and other structures of the eye, were evidently affected; and did the disease of these parts progress, the complete destruction of the organ might be the ultimate result. From this contrariety of circumstances, the essential nature of the disease is evidently clothed in great obscurity, and offers a fit subject for our investigation.

That the chief symptom, the great intolerance of light, is dependent upon disease of the retina, it is difficult to conceive. We have but to observe how very readily and powerfully the slightest causes act upon the retina, causing blindness: while the length of the continuance of this complaint, its speedy removal without any ill consequences to vision, must convince us that at least it is not dependent upon organic disease. I have seen this symptom exceedingly severe, while the admission of the rays of light into the eye were prevented to a very great extent by a thick capsular cataract. If it is dependent upon an affection of the retina, it must be a species of sympathetic neuralgia, in which the sensibility only of the expanded nerve is greatly exalted; but I confess I am inclined to look upon the disease more as a neuralgic affection of the iris, ciliary nerves, and sometimes all the branches of the fifth pair supplying the eye. The observations of Mr. Lawrence, regarding injuries of the fifth pair of nerves, go to bear out this suggestion, and shew a vast sympathy between the retina and the ophthalmic branches of this nerve, which has not yet been explained.

The treatment of this disease for the most part was by purgative and alterative medicines, often repeated for a considerable period, and these were combined or followed with bark or steel, when there was any marked debility in the patient. A point of the utmost importance was a necessary attention to the diet, which should be light, nutritious, and not easily running into the acetous fermentation. I may mention a marked case of the influence of diet upon this disease. A little boy, about ten years of age, had had this complaint for eight or ten months, had been shut up in a dark room, his eyes covered with bandages, and the most feeble rays of light prevented from reaching the eye. He had been leeches, purged, and blistered, but to no effect; for still the intolerance of light continued as severe as ever. On inspection of the eyeball but the slightest traces of disease were visible. A few purgations of rhubarb, calomel, and jalap were exhibited, followed by grey and rhubarb powder; the eyes directed to be freely exposed to the air and light, having a green shade to intercept the more direct rays; a diet consisting of coffee and crackers for breakfast and supper, a little underdone fresh beef, with rice or custard pudding for dinner, was recommended. The symptoms rapidly subsided under this treatment, and in a few days I met him out walking before the house,



greatly delighted that he could go to play. After a few days I called again, and was concerned to find that the intolerance of light had greatly returned. On questioning him, I found that he had been indulging in cucumber and other indigestible food, unknown to the family. This, I am convinced, was the cause of the relapse; for, on repetition of the remedies above specified, and more strict attention to his diet, all the symptoms of the complaint speedily subsided, and under a continuance of such a diet, failed to return; while the boy before thin, pale, and ex-sanguine, became of a good colour and robust health: the whiteness of his complexion, was doubtless owing to his being completely etiolated by the confinement in a dark room.

In some cases, when the conjunctival irritation was present, the local employment of wine of opium, or the solution of the nitrate of silver, added to the above constitutional treatment, was found to accomplish a cure. In the severer cases of this disease, in which the intolerance of light had been a predominating symptom from the commencement, I should be inclined to use the quinine, and that very freely, notwithstanding any apparent vascular disease in the several tissues of the eye. I remember one such case where I used quinine in two-grain doses with marked advantage.

#### *Granulated Conjunctiva.*

This condition of the eyelids represents by far the most numerous class of ophthalmic diseases which present themselves in this country; and during the autumn of last year would, from their number, appear almost to have been epidemic. In all cases it is the result of some previous disease of the conjunctiva, attended with inflammation, which has extended to the tarsal cartilages. I have observed the complaint to follow as a consequence all the varieties of ophthalmia which have been previously noticed: especially on purulent and gonorrhœal ophthalmia. If in any one of these complaints the circulatory apparatus of the cartilage shall have become implicated, the disease will show itself, and this most frequently happens in subjects of a scrofulous constitution.

The conjunctival membrane consists of three parts: epithelium cells covering the free surface; a basement membrane on which these rest, and areolar tissue, carrying the arteries, veins, and nerves, that supply the parts with nourishment and sensibility. Besides these, where this membrane is reflected over the tarsal cartilages, there is the peculiar circulatory apparatus belonging to that structure; the arterial circulation traversing the areolar tissue or perichondrium does not penetrate the cartilage, but forms large ampullæ or varicose-like dilatations on the surface, from these the cartilage derives its nourishment; after which the

blood is returned by the veins into the general circulation. During health the amount of blood sent to these parts is not great, but no sooner does acute inflammation arise, than this circulatory apparatus is taxed to the utmost: first, that of the conjunctival membrane, then the peculiar circulation of the cartilage shares in the excitement, all the vessels are greatly distended with blood, and the ampullæ of the cartilage participates in the congestion, and may ultimately become thickened and diseased to a great extent, forming the appearance called granulations; these enlarged ampullæ are also covered with a thickened and hypertrophied mucous membrane, and are the cause which produces the irritation of the globe, so constantly evinced in the disease. A similar condition of disease has been observed in some varieties of laryngitis, where the cartilaginous structure is covered with mucous membrane, and takes on a very similar granulated appearance.

When examining these patients, if we evert the lids, we observe a morbid structure bearing the external appearance of a granulating ulcer, but these elevations are infinitely more firm; suffice it to show that the smooth, delicate, lining membrane of the lids, is thus morbidly changed in character, to enable us to comprehend the effect which such a state of things must produce upon the globe. The constant friction and irritation of these elevations cause the vessels of the conjunctiva to become enlarged and to carry red blood. The portion of the membrane thus acted upon, covering the globe, becomes evidently thickened, the conjunctival vessels first carry a more dense fluid than usual, when the cornea takes on a hazy look, not unlike ground glass. Should the irritation continue, red blood may be seen traversing these delicate vessels, which for the most part take their course in straight lines, like rays from the circumference almost to the centre of the cornea, occasionally the proper substance of the cornea participates in the disease, and we observe coagulable lymph deposited in its structure—then we see also the deep pink vessels, and hear the individuals complain of pain in the brow. That opacity may sometimes result from congestion of the conjunctival circulation is certain; but it is not very frequent or enduring in this disease, and always appears as a thin superficial scum on the surface of the cornea. As the complaint progresses, we may have superficial ulceration of the conjunctiva, as is known by its thin transparent character, appearing as though a piece had been cut out of its surface. This, when confined to the mucous membrane, often heals without leaving any opacity behind it. If the ulceration continues, it penetrates the layers of the cornea, opens up the anterior chamber, and permits the escape of more or less humours of the eye, causing derangement or destruction of the organ. Fortunately these extreme results of

this disease are not very frequent; for I have seen persons who have laboured under this complaint for seven or eight years, in whom the corneal opacity was by no means extreme.

Another of the most marked characteristic symptoms of this complaint is its liability to exacerbations. After you have allayed the acute inflammatory action by proper antiphlogistic means, and the eye appears to be progressing favourably, all at once a relapse of conjunctival irritation is observed, attended with increased redness and lachrymation and great intolerance of light. The patient declares that he has taken fresh cold; but the increase of the disease may often be traced to some indiscretion of diet, with more or less derangement of the chylopoietic viscera. So marked in many cases is this intolerance of light, that one is led to believe that it must bear a strict analogy with the scrofulous ophthalmia before adverted to; and one is greatly inclined to believe that the same constitutional influence exercises a great weight in the persistence of this complaint. Every surgeon knows how liable the cartilaginous structures of the body are to disease in this state of the constitution; and this will form a powerful argument to strengthen the belief that the granulated state of the lids is dependent upon a disease of the tarsal cartilages, occurring in a scrofulous constitution.

The view which I here present of the character of this disease will in some degree explain the reason why it has so long been an opprobrium medicinæ; for, if we treat it only as a local disease, the constitutional influence continually operating, is acted upon by a great variety of causes, producing frequent aggravation of the local complaint. I have known persons in whom this disease had progressed with continual exacerbations for eight or ten years: and, curious to say, that in many these were marked by a periodical advent. In the treatment of the cases that have presented themselves to my notice, I have been guided by the above convictions. I have, no doubt, employed local means; but as I have looked upon the constitutional influence as the cause of the continuance of the complaint, I have not failed to address myself especially to its improvement.

In all cases in which any degree of acute inflammatory action was present, as known by the redness of the conjunctiva, intolerance of light and a feeling of *heat in the tears*, I have invariably used antiphlogistic means, in accordance with its intensity, such as cupping, leeching, and blisters; active purgatives, followed by the continued use of alterative medicines, a strict attention to the character of the ingesta, using only gruel, sago, or arrow-root. As soon as there was a marked change in the above mentioned indications, and the *tears felt cold*, stimulants were applied to the eye, such as a solution of the nitrate of silver, varying in strength according to the circumstances of the case, ever holding in view

the object intended to be produced, viz., the causing of a contracted state of the conjunctival vessels, which, from the continual irritation, had become enlarged and varicose; at the same time also hoping to exercise a similar salutary influence upon the diseased condition of the cartilages. I have seldom ventured to employ the heroic remedies of late so strenuously advocated by authors,—who appear to me in many instances to have let their zeal get the better of their judgment,—by using violent escharotics, such as pure nitrate of silver, bichloride of mercury, and even the mineral acids. These, in many cases that have come under my observation, have tended to bring on the more grave symptoms that shew themselves in this complaint, such as opacity and ulceration of the cornea. With the local stimulants a more nutritious diet was recommended, precisely similar in character to that advocated in scrofulous ophthalmia; this should be persisted in for years, especially avoiding all crude indigestible matter, and particularly the employment of all salted provisions. At this stage, also, the continued employment of gentle alterative medicines, such as the carbonate of soda and powdered rhubarb, will be found beneficial, and in obstinate cases the employment of a seton.—Under strict attention to the foregoing plan, the disease will generally subside, the enlargement of the vessels diminish, and the cornea become clear. But, as during the continuance of the constitutional influence, a relapse is very liable to occur; the indications of activity in this state of the disease should be invariably attended to; often shall we have to begin *de novo* the active treatment of this complaint; but our patience must not be wearied, and while we combat the active symptoms, we must apply ourselves more strictly to remedying the constitutional influence. Here many of the remedies which have been so greatly lauded in strumous disease may exercise a beneficial influence, such as change of air, sea-bathing, &c.

In cases in which inflammatory action has recently extended to the cornea, and lymph has been deposited in its structure, alterative doses of calomel and opium were used to encourage its absorption; and when ulceration had occurred, bark sometimes was found useful.

#### *Acute Corneitis.*

This disease generally happened to young persons, from five to fifteen years of age. In all, there was more or less opacity of the cornea, according with the intensity of the inflammatory action. In some cases a thin cloud-like appearance was visible; in others the white tint was much more dense, completely obscuring any internal view of the organ. There was always a pink zone of vessels around the margin of the cornea, evidently the deep sclerotic vessels appertaining to the circulation of the proper substance of the cornea, these could be traced to its very margin, forming a

marked contrast with the clouded appearance of that tunic. In one case the conjunctival circulation appeared to participate in the complaint when the striæ of enlarged vessels could be distinctly noticed as a complication of the disease. There was always some pain in the brow, of a dull aching character, but no fever or intolerance of light.

The treatment consisted in the employment of purgatives, followed by alterative doses of mercury, so as slightly to affect the mouth. Counter irritation, by means of blisters, was repeatedly applied to the neighbouring parts, and in some cases the abstraction of blood by cupping was employed. These means, if persevered in for a considerable time, generally removed the disease; but in one case of a very obstinate character, it seemed to have little effect, until the repeated application of leeches to the neighbouring part every second day, for upwards of a month, as advised by Doctor Beaumont, eventually relieved the complaint.

#### *Partial Dilatation of the Pupil.*

A child was presented that had a partial dilatation of the pupil. Upon looking into the eye, the Iris on the right side was observed to be irregular, towards its outer and inferior surface, a portion appeared removed, or as it were cut out of its tissue of about one eighth of an inch in diameter. The pupil was a circle until it approached the vacant spot, when it suddenly extended to the greater circumference of the Iris, leaving a space in which this membrane was totally deficient. It happened in a child upwards of a year old, and was said to have been caused by a sudden explosion of a gun, close to the infant a few days previous to my seeing it. There was no appearance of inflammation, and the effect was in all probability produced by some paralytic influence upon the ciliary nerve which was deficient going to that portion of the Iris. In the left eye the pupil was perfectly normal, and both the Irides were fully acted on by the natural stimulus of light.

#### *Acute Iritis.*

Of the cases of Acute Iritis that were under treatment, two were decidedly of a venereal character, while the others appeared to be irrespective of any observable constitutional influence.

In each eye affected with Iritis, the first symptom which indicated the attack, was a zone of pink vessels around the margin of the cornea, dependent upon the increased amount of red blood carried by the vessels of the sclerotic coat, connected with the circulatory apparatus of the Iris. Due reflection as to the distribution of these vessels serves to guide our diagnosis to the structure primarily affected. In inflammation of the cornea proper we always find a pink zone encircling the inflamed part; here the vessels evidently pass onwards to the diseased structure, while in Iritis,

this is plainly not the case, for although the pink zone is present, the red vessels distinctly pass into the eye before they reach the cornea, and so leave a white margin around it—the manner in which this cornea is inserted into the sclerotic coat serves to explain this fact, and points out that the vessels of the cornea proper are uninfluenced by the excitement. When idiopathic inflammation of the membrane of the aqueous humour occurs, this appearance is considerably modified, still we find the zone of pink vessels, and notwithstanding the comparative disappearance of the white margin of Iritis, the blood-vessels do not so distinctly enter the cornea as in inflammation of that structure, but as the diseased part is located directly posterior to it—so its vessels are now intimately connected with the circulatory apparatus of the cornea proper; hence the pink tint has encroached upon the white margin around the cornea. As the Iritis progresses the redness of the sclerotic coat increases, and as the other structures become influenced in the disease, each peculiar circulation participates in the congestion, and may serve to confuse this diagnostic mark, but other symptoms ere this present sufficient indications of the true seat of the complaint. A change of colour in the Iris might now be observed; in one case where it was of a light blue tint, it assumed a greenish cast—it always had a thickened muddy appearance and a darker colour, generally approaching to red; a change manifestly dependent upon the increased quantity of red blood sent to the membrane. The pupil now became greatly contracted—the patient complained of pain in the brow, intolerance of light, and more or less obstruction to vision. In the two cases which were evidently of venereal origin, being connected with the papillary eruption, and sore throat; two small yellowish coloured masses, having the appearance of effused lymph, might be seen upon the surface of the iris; these were about the size of split peas, and evidently advanced upon the surface of the Iris; in one of these cases which had been neglected, the substance having all the appearance of matter, fell to the bottom of the anterior chamber, and lay there uninfluenced by the aqueous humour. Almost invariably as the action of the Iris yielded to the influence of the belladonna, the pupil had more or less irregularity; this was caused by the adhesion of the pupillary margin to the capsule of the Iris, and accordingly as the Iritis subsided, these adhesions would be ruptured, and the black trace of the posterior coat of the Iris left attached to the capsule, this was plainly seen upon inspection of the eye; in these instances it was of trifling extent, but I have seen a case, in which the pigment universally adhered to this part, and constituted so complete an obstruction as to form a black cataract. The pain in the brow was always severe, often attended with an increased exacerbation about midnight, and there was usually considerable constitutional excitement.

In the very acute cases of Iritis, bloodletting both general and topical was freely employed, and in nearly all the employments of mercury, so as to affect the constitution with more or less rapidity, according to the intensity of the symptoms, was made use of. In the severer cases where lymph was evidently effused upon the surface of the Iris, and there was considerable danger of loss of vision, calomel and opium was exhibited, every four hours, so as rapidly to produce the desired effect, but in the milder, or more chronic cases, blue pill and opium was given in alternate doses. The extract of belladonna was invariably applied freely to the brow, and continued as long as there was any danger of a contracted pupil, and in the more severe case, mercurial ointment was mixed with it, and freely rubbed into the forehead—perfect rest to the organ, and the simplest anti-phlogistic diet was recommended. Under this treatment the inflammatory action gradually subsided; the lymph was absorbed, the Iris became brighter in colour, and the pupil was more or less perfectly dilated; the zone of red vessels now slowly vanished, and the eye, in most cases regained perfect vision. In one case, however, the pupil always remained very greatly contracted, but curious to relate, this did not seem very materially to interfere with the use of the organ.

In cases in which from some obvious peculiarity of constitution, the employment of mercury was inadmissible; I have used the hydriodate of potass with decided advantage, and this appeared more applicable to the latter stages of the disease, when after the use of mercury, chronic Iritis still lingered—while in the more acute attacks as evidenced by the effusion of lymph, the employment of spirits of turpentine in drachm doses has been remarkably beneficial.

#### *Cataract.*

Of the varieties of cataract presented for treatment, three were congenital, one was hard, and three soft lenticular cataracts—one purely capsular, and the remainder of a capsulo-lenticular character.

The chief symptom in all these cases was more or less opacity of the lens or its capsule, appearing as a whitish opaque body, situated posterior to the Iris, and seen through the pupil, impairing the use of the organ, and in some cases causing complete blindness, by preventing the rays of light from entering into the eye, so as to act upon the expanded nerve of sight.

The several varieties of cataracts presented to observation, evidently bore a great dissimilarity of character, as their several designations would indicate. These differences may however, I think, be explained by a consideration of the circumstances under which they individually occur, and a just appreciation of the anatomical conformation of the parts. That the crystalline lens is formed from extremely transparent nucleated cells, is I think evidently

deducible from the observations of Todd and Bowman; these by elongation and due coalescence, form a series of fibres which are united into laminæ by the sinuosities of their edges, which lock into one another. The continued formation of these transparent nucleated cells, which are the organized connecting medium for all the purposes of growth and nutrition, between the lens and its capsule, may be generally seen by a magnifying glass at the soft circumference of the body. The continual formation and coalescence of these cells, cause the concentric arrangement around a centre nucleus; this may be clearly seen in the boiled lens, that of the fish for example. The elongated cells having become arranged in the form of fibres, still evidently preserve a tubular or cellular character, and contain very minute quantities of fluid, which serves to preserve the general transparency of their fibres. This quantity of fluid, or the diameter of the tubes evidently diminish as we proceed from the circumference to the centre, whereby the centre portion of the lens is more dense than the circumference. It is this circumstance that gives the lens so beautiful an achromatic power, and is the cause why it so immeasurably excels all human attempts at imitation. These nucleated cells receive their nourishment by endosmose from the liquor Morgagni, and they may be greatly influenced by its deficiency, its superabundance, or its morbid content.

The capsule surrounding the lens consists of a basement membrane, having epithelium cells on its free surface, as the other serous membranes; this membrane gives out a fluid, (the liquor Morgagni,) which serves as the nourishing material for the nucleated cells of which the lens is formed. The posterior part of the capsule is in connection with the hyaloid membrane, and is supplied with circulating fluid by the arteria centralis retinæ; the anterior portion of the capsule has reflected over it, the membrane of the aqueous humour, and derives its nourishment from vessels that take their course between these two textures, supplying the epithelium of both structures.

Contemplating these anatomical characteristics of the part, I think we may be led to the following views of the nature of the diseases of the lens. Thus in old people we find the amber coloured lenticular cataract, the result of want of nourishment, an atrophied condition dependent upon the diminished quantity of the liquor Morgagni, the nutritive material of the cells, whereby we have a closer approximation of all the fibrillæ, and consequently a density of the concentric layers, that reflect light instead of transmitting it to the interior of the eye; this is often co-existent with a diminished condition of all the humours of the eye, hence the want of prominency in the cornea of old people. Again, lenticular cataract may depend upon an increased proportion of albumen, and salts of the blood, introduced into the liquor Morgagni, thus supplying a denser material than in the normal state of this fluid; and



which may be taken up by the cells of the lens and introduced into its tubular structure, causing opacity of its previously transparent texture. It is remarkable, that we frequently find this variety of cataract occurring in gouty or rheumatic constitutions, in which the above-mentioned materials would seem to abound. In this variety of cataract we find the lens is enlarged, has in some degree encroached upon the posterior chamber of the aqueous humour, the posterior margin of the iris is slightly everted, and the dark rim of the uvea may commonly be observed surrounding the pupil. Again, under these circumstances, the quantity of normal fluid supplied to this structure, may be increased in quantity and afford an incipient symptom of cataract; but when once too dense, or opaque a material has found its entrance into the cellular, or tubular structure of the lens, it must always remain stationary. Somewhat similar views were originally presented by Sir D. Brewster, to the British Association for the advancement of science in 1837, but seem to have escaped the notice of the profession generally. Capsular cataract is always the product of inflammatory action, the anatomical characteristics of its conformation must render this point sufficiently evident; the deposition of lymph into its transparent texture, may be either partial, or general, tending vastly by its diversity in amount and character, to produce the infinity of cataracts presented to our observation—when it is the product of severe inflammatory action in the capsule, the cataract is of a dense white appearance; while this state of things is progressing the lens also soon participates in the diseased action; as in all cases of inflammatory action, the local vessels carry a more dense material to the diseased structure, so the liquor Morgagni formed at such a period, would convey to the structure of the lens matter incompatible with its transparency; consequently we soon have capsulo-lenticular cataract. That variety of this complaint known as congenital cataract, evidently differs from the preceding, and for the most part bears a marked analogy to those produced by local injury; and I apprehend is the result of somewhat similar causes. In traumatic cataract, or cataract produced by a blow upon the eye, which will occasionally happen without any positive rupture of the capsule of the lens, the result of the injury, would seem to be loss of vitality in the lens, or its peculiar transparent cells, such at all events are the conclusions which I think we are authorised to draw from the progress and result of the injury. In a case of traumatic cataract as above-mentioned, the presence of the altered or diseased lens, produces first an increased secretion of the liquor Morgagni; the lens evidently swells, and becomes somewhat opaque; as this state of things progresses, it causes irritation of the capsule, inflammatory action is set up, lymph is deposited, the capsule by degrees becomes opaque, after a time the absorbed vessels are called into action, the superabundant liquor Morgagni is at first removed; after which the lens

itself is submitted to their influence, and in process of time, (sometimes a considerable period) we find only a fragment of the lens remaining—and eventually nothing but the thickened and opaque capsule is left behind, constituting the hard coriaceous cataract. That such is the progress of traumatic cataract, is confirmed by observation on those cases when the capsule is but slightly wounded; and even when complete dislocation of the lens from its capsule occurs, sufficient testimony or confirmation of these facts may be learned. Any person who has closely watched the progress of congenital cataract, must be convinced of its great analogy, and strict accordance in all its changes with the foregoing events.—The history of the one is the description of the other, differing only as to the period of its occurrence; indeed it is no more or less than traumatic cataract, caused by some pressure or injury to which these delicate parts are submitted during birth. These facts I fully pointed out in my manual of the Anatomy and Diseases of the eye, published in 1828.

There is a variety of congenital cataract that appears to depend upon the partial deposition of lymph upon the capsule previous to birth; this may be central or otherwise diversified, remaining stationary through life, and often causing but trifling inconvenience or deformity. One case of this description presented itself in a woman 25 years of age.

In the treatment of cataract the operation of reclinacion was performed in three cases; in two the success of the operation was complete without any subsequent inflammation, but in one a considerable amount of opacity of the capsule supervened, and required subsequent removal. The two cases that succeeded were soft lenticular cataracts, apparently uninfluenced by any constitutional peculiarity; but in the third case the patient had previously lost one eye from rheumatic inflammation; and although there did not appear any affection of the capsule previous to the operation, this was felt evidently more firm than in the preceding cases; and a subsequent attack of inflammation which produced the capsular opacity was evidently of a rheumatic character. Proper precautions had been taken to treat the constitutional peculiarity prior to any attempt at operation, or undoubtedly the inflammation would have been sufficiently intense to have destroyed the eye. In the cases of congenital cataract, the opaque capsule was freely divided by the needle, and the soft lens cut up; in one case it was necessary to separate the adhering portions of the capsule a second time; the separated parts were however absorbed by degrees, and left the pupil perfectly clear.

In one case of incipient lenticular cataract, which could clearly be perceived as a slight cloud before the eye, not unlike very diluted milk, and was especially proved to be seated in the lens by a catoptric examination. In this instance the patient complained of

fulness about the head and eyes, had a quick full pulse, and was evidently of a plethoric habit. Bleeding and active purgatives followed by alteratives were employed, the patient put upon low diet, and forbid the use of the organ for a considerable period.—The cloud before the eye very greatly diminished, and the visible opacity became much less, so that I flattered myself that I had by these means lowered the tone of the system, and diminished the quantity of albumen in the blood, and thereby had succeeded in removing the superabundant production of the liquor Morgagni that might have ended in the absorption of albuminous deposit in the texture of the lens, and have eventually caused confirmed cataract. At all events I think this is a subject well worthy the attentive consideration of the surgeon, and certainly deserves to be tried in cases of incipient lenticular cataract, for we might possibly supersede by timely means the necessity of an operation.

*Amaurosis.*

The cases of Amaurosis that presented themselves at the Dispensary were for the most part of long standing, in which vision was more or less totally destroyed. A remarkable example of congenital predisposition to this disease happened in the cases of three brothers; which hereditary tendency they seemed to have derived from their mother.

The elder brother first presented himself complaining of loss of vision; he stated that about a year ago, a little saw dust got into his eye which caused slight irritation; this lasted for several days, during which time he frequently observed flashes of light in the eye, and that even in a dark place, which surprised him much; he also experienced a dazzling kind of pain in the eyeballs; a few days after he was at work—hewing some timber, and suddenly observed a mist come before his eyes—felt giddy, and became sick at stomach, so that he was obliged to leave his work; by degrees vision became more indistinct, not in consequence of a haze or cloud before his eyes, but in consequence of the darkness and indistinctness of the objects around him. At the time he asked for assistance, the darkness or deficiency of vision was very great, so that although he managed to go about the streets of Toronto, it was more by his previous knowledge of the localities, than an ability of distinguishing the places by means of vision. He indistinctly saw the windows of the room, but could not see the frames; in a printed book, he could see the lines of words, but could not distinguish the largest letters. He complained that the darkness had a net-like character that seemed to prevent his seeing; the pupil was moderately dilated, and the eye had all the appearance of health.—The colour of the iris was light blue, and did not appear to have any remarkable deficiency in the black pigment, so as to lead to a supposition, that the confusion of vision was in any way caused by

the reflection of the rays of light at the bottom of the eye. Constitutionally he seemed weak and debilitated, and at the present time presented no symptoms of cerebral or constitutional irritation. A seaton to the nape of the neck was employed, and the protiodide of mercury was gradually exhibited until the system was completely under its influence ; this was continued for some time, and many of the symptoms gradually diminished, so that he could again distinguish persons when he met them in the street, was enabled to go about his duties with much greater facility, and appeared very thankful for the advantages derived from his improved state of vision.

Two of the brothers presented themselves afterwards with precisely similar symptoms ; in one case the complaint immediately followed a severe blow upon the head, but in the other it appeared to happen without any obvious cause. In one there was more pain and other constitutional symptoms, so that bleeding from the arm was practised, and in each of these cases the protiodide of mercury seemed greatly to mitigate the disease, and in the more recent case to restore almost perfect vision. The positive seat of the disease in these cases, appeared to me to depend upon an affection of the retina, in the commencement evidently complicated with cerebral irritation, which however I conceive was but of temporary duration. The net-like deficiency of vision, the flashes of light in the eye, and the dazzling kind of pain complained of, distinctly point to the retina as the part affected, and was particularly contrasted with a case which I suspected to depend upon compression or disease of the optic nerves. Here the individual complained of pain in the forehead from the first ; had complete loss of vision, which was perfect darkness without any of the ocular spectra complained of in the preceding cases ; the pupil was largely dilated, while the eyes had every appearance of perfect health. Another variety of amaurosis sometimes presents itself, dependent upon disease influencing the origin of the optic nerves, this of course is accompanied with the symptoms of cerebral irritation from the first, and is particularly marked by pain in the head and double vision, at the very onset of the complaint.

#### *Fungus Hematodes of the Eye.*

This happened in a child about four years of age ; it was marked by the premonitory symptoms of the disease, especially the white shining appearance at the bottom of the eye, which by degrees became enlarged, and showed an evident bulging of the fungoid mass as the disease progressed. The eyeball was extirpated, and when examined, distinctly proved the nature of the complaint, showing a complete disorganization of the internal structure of the eye ; this was transformed into a dense brain like structure, affording scarcely any traces of the normal condition ; no re-appear-

ance of the disease occurred in the orbit, but the child died in about twelve months after the operation, apparently from the influence of a similar disease in the brain.

#### *Inversion of the Eyelids.*

The inversion of the lids in two cases were very simple in their character, depending upon a slight thickening of the conjunctival lining the lower lid. These were easily cured by the excision of a suitable piece of skin covering the diseased eyelid, the cut surface being brought together by sutures; the disease disappeared as the wound healed. The third was a very protracted and obstinate case: the inversion of the lid had caused considerable irritation, and thickening of the corneal conjunctiva, and even the cornea itself had begun to participate in the disease, and besides the intolerable misery in this case attendant upon the disease, would decidedly have caused blindness. The patient had been previously operated upon at the General Hospital, (and from the obstinate character of the complaint) with but temporary benefit. In this instance it was the upper eyelid that was inverted, and for its relief I performed the operation recommended by Mr. Guthrie, consisting of a complete division of the diseased eyelid at both its angles including the tarsal cartilage,; this was perfectly everted up towards the brow, and confined by three sutures, supported by sticking plaster in that position, until by the gradual healing of the wound, the lid was brought by degrees to its normal position. To assist this operation, a piece of the lax skin of the eyelid was removed, and this greatly tended to preserve the proper direction of the tarsal margin. In many of these obstinate and protracted cases, a vitiated curvature of the tarsal cartilage dependent upon its long continuance in the abnormal state, is the true reason that the more simple and less complicated means are not available. Here however, the disease was completely cured without any other deformity being observable, than the two little notches at the angles of eyelids. In the worst of cases this operation far excels the barbarous method of removing the whole tarsal margin which has been practised by some surgeons, in utter despair of remedying the complaint.

#### *Eversion of the Eyelids.*

In both instances of this complaint, it was the result of orbital disease. In one case an abscess had occurred in the areolar tissue of the orbit, apparently from inflammation of the periosteum of the orbital plate of the temporal bone: a sinus was remaining which led to a piece of dead bone, in the structure above-mentioned, apparently about the centre of the orbital plate. In consequence of the contraction of the areolar tissue, the upper lid was drawn upwards, so that it would not descend sufficiently to cover the globe,

was also partially everted which caused some disfigurement. In this case I advised to endeavour the separation of the piece of diseased bone, being careful to watch its progress, and particular to guard against the supervention of disease of the brain, for I considered this untoward result not unlikely to happen—after reflecting on the location and great tenuity of the orbital plate; and was fearful that inflammatory action here, might be attended with as fatal consequences, as often results from caries of the petrious portion of the temporal bone in diseases of the ear. After the disease of the bone had been cured, I suggested that by freely dividing the adhesions within the orbit, and keeping the upper lid forcibly depressed by means of sutures affixed to the cheek with sticking plaster, until the granulations had filled up the deficiency, which would effectually cure the eversion and contraction of the lids.

The other case presented a far greater degree of deformity, a complete eversion of the upper lid, which had been produced by a tumour of the orbit. This tumour, from the womans description had been of an encysted character, in all probability an hydatid, as she described the discharge as fluid and like water; it had been injudiciously opened by a medical man, and not completely removed as should have been the case. The cyst continued to discharge for some time, but gradually contracting produced great puckering and derangement of the neighbouring parts, that ended in complete eversion of the lid. I proposed to perform an operation for the removal of the deformity, but the old lady has not yet consented.

#### *Diseases of the Lachrymal Apparatus.*

I have thought it better to include all the varieties of the diseases that influence these organs under one head, especially as I had hoped ere this to have brought the report to a close. Through the whole I have endeavoured to be as concise as the subject matter would permit, and I had thought that perspicuity was consonant with the comprehension of the subject; but from the unavoidable extent, I shall endeavour to conclude as hastily and as briefly as possible.

The diseases of the lachrymal apparatus admitted for treatment, upon the whole were not very numerous, and although each case presented interesting matter for the consideration of the ophthalmic surgeon, still there is nothing that demanded very special consideration. I might mention that one case of stricture of the lachrymal sac, appeared to be cured by the employment of anals probe, which was passed daily for a considerable time. In another instance I was obliged to employ the common style; a tube had been previously used, but was found to become obstructed, and consequently useless, while its presence seemed liable to excite considerable local irritation.