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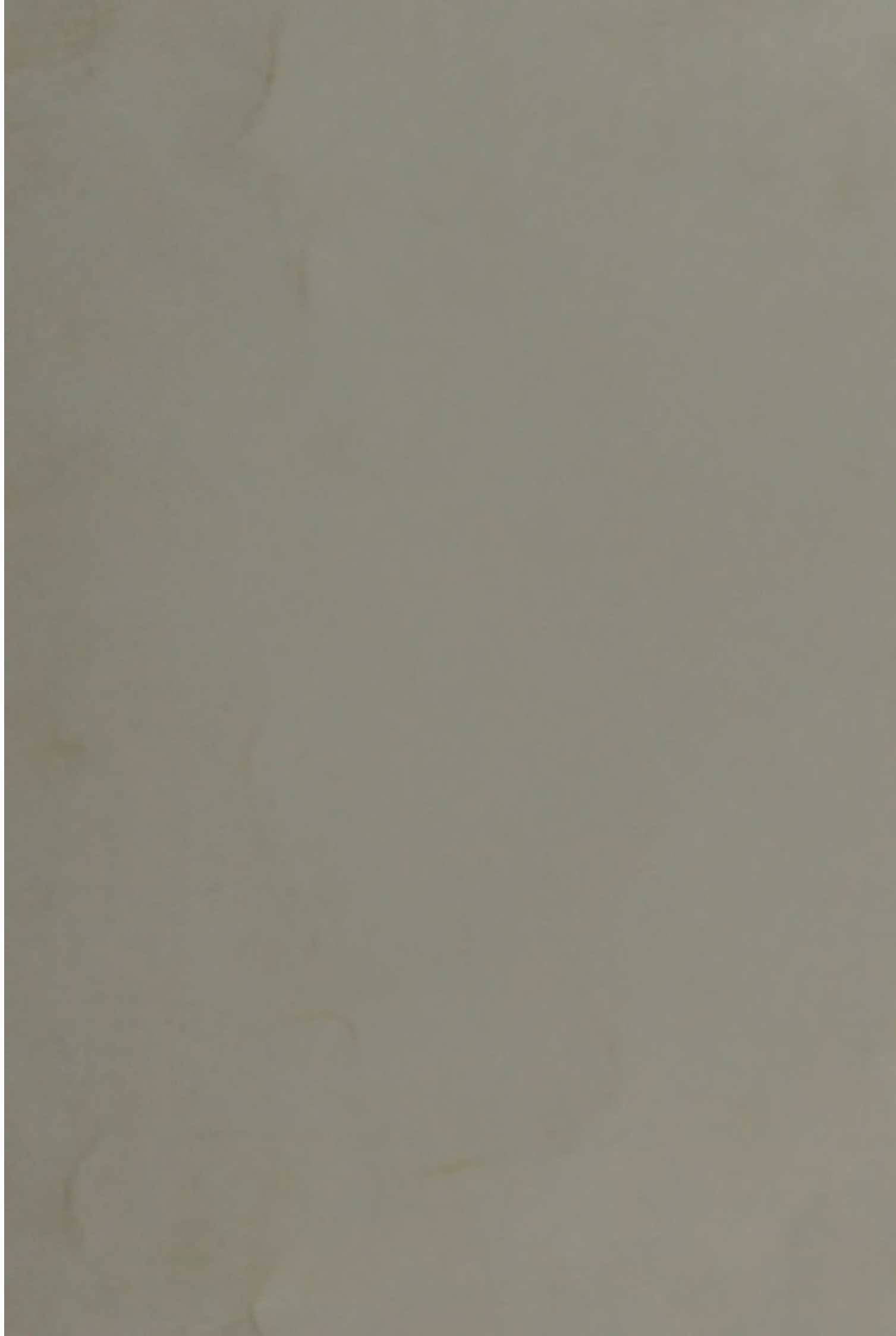
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THE

OPHTHALMIA OF IRELAND :

ITS NATURE, EFFECTS, AND
TREATMENT.

BY

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FANNIN & CO., GRAFTON STREET.

1857.

OPHTHALMIA OF IRELAND

THE NATURE, EFFECTS, AND

TREATMENT

CORK:

PRINTED BY T. P. KEMP, GT. GEORGE'S-STREET.

JOHN WILLIAMS, A.B., F.C.D.

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DUBLIN:

WALKIN & CO., GRAYSON STREET.

1837.

PREFACE.

So extensive is the literature of Ophthalmic Science, and so enriched has it of late years been by many able writers, that even for this unpretending contribution to its funds, a word in explanation is demanded.

It is undeniable, that among the peasantry of Ireland, but particularly its poorer classes, Ophthalmia, with that peculiar condition of the conjunctival investment of the eye-lids, improperly termed "Granular Lids," and its attendant train of ill consequences, is more frequently, and in a severer form to be met with, than in any other country in Europe.

This remarkable fact has attracted the notice even of English Ophthalmic Surgeons, who have had but a limited field for observation.

The following pages aspire no farther than to present to my professional brethren, who, I feel assured, will receive them in a liberal spirit, a simple but accurate description of this disease, as I have *seen* it in the peasantry of Ireland; and I have only to add, that the opinions which I entertain on the nature and treatment of this affection,

are the result of careful study and extensive observation, for which I possessed a most ample opportunity.

I have prefixed a few condensed remarks on the structure of those parts that are *chiefly* engaged in the disease, and I have also made brief allusion to those affections of the eye in combination with which it may occur.

With respect to treatment, I found it impossible to enter into details, in consequence of the variously modified forms the disease, from many causes, may assume. I have, therefore, endeavoured clearly to point out its general principles.

J. W.

Cork, January 1st, 1857.

INTRODUCTION.

ALTHOUGH from an early period, great attention had been paid to eye-diseases by Italian and German Physicians, it does not appear that until the beginning of the present century, an Epidemic Ophthalmia, which, probably, in a more modified form, broke out in Ireland, so long ago as 1720, and which has since then frequently appeared, arrested notice.

This formidable disease prevailed to a great extent during the campaign in Egypt, with which the nineteenth century opened, between the French, and English troops under Abercrombie, and committed extensive ravages in both armies. Asalini states, that at one time over two-thirds of the French troops were affected with it; and from an interesting paper, by Sir Patrick Mac Gregor, published in 1812, we learn, that *many* of our best regiments were rendered unfit for service.

It was carried by them from Egypt to both home and foreign stations, whither they were subsequently sent. It baffled every effort made to eradicate it, and is still to be met with, among the soldiers of Great Britain. Some idea may be formed of the severity of

this disease, when I state, that from the campaign in Egypt, to December 1st, 1810, no less than 2,317 of the soldiers of this country, had lost the sight of both eyes.

As may be expected, the medical world was now fully alive to the importance of closely investigating the causes, both remote and proximate, of this disease. The attention, particularly of Military Surgeons, was arrested, and prizes were awarded for the best essays on the subject. Egypt was regarded as its birth place, but afterwards it was ascertained to be a disease common in hot climates; and now, it is universally admitted, that it may, from atmospherical or other local influences, arise in *any* region of the earth, independently of imported virus from Egypt.

The investigation of its nature and causes engaged the attention of the most distinguished Ophthalmic Surgeons in Europe at various times; but I must here remark, that the laws which govern Epidemics are still undiscovered, and we must be content to remain in ignorance of their exact nature and causes, until we arrive at an intimate acquaintance with the atmospherical and terrestrial conditions, that are co-existent with the prevailing Epidemic.

The frequent occurrence in Ireland, during the last century, of an Epidemic Ophthalmia, did not escape the observation of Power, who, in a pamphlet "On the Ophthalmia of Egypt," published in 1803, remarked, that "*A species of the same disease*

was frequently prevalent among the Irish peasantry, and considered by them to be infectious." No doubt, the Epidemic disorder alluded to by Power, was identical with that modified form of Egyptian Ophthalmia which prevailed to so great an extent through the workhouses of Ireland, during the momentous years of 1849 and 1850, and which, in many instances rivalled the latter disease in severity.

"By a return obtained from all the Unions in Ireland, it appears that in the former year, out of 932,284 persons admitted into, and relieved in the workhouse, no less than 13,812, were medically treated for inflammatory disease of the Eyes, and in the year 1850, no less than 27,200 were similarly attacked out of 805,702 admitted into the workhouse."

Happily, this formidable affection rarely occurs as an Epidemic; but isolated cases of it are frequently to be met with. It may, however, be regarded as a conjunctival inflammation, differing in degree only, from the ordinary Catarrhal form, which, from its prevalence among the peasantry of Ireland, but particularly the destitute inmates of workhouses, daily forces itself on our attention, and which, from the peculiar effects, by which it is almost universally characterized in those classes, I have named, "*The Ophthalmia of Ireland.*"

Mr. Dixon, Surgeon to the Royal London Ophthalmic Hospital, in his work "On Diseases of the Eye," states, that "Any person who has attended the

practice of a London eye-Infirmiry, must have been struck with the fact, that the severer cases of "Granular Eye-lids," and the attendant deformity of entropion and misplaced Eye-lashes, are met with among the more destitute Irish patients;"—and Wharton Jones remarks,—“That *almost all* the persons affected with granular conjunctiva, who present themselves at University College Eye-Infirmiry, I find, on enquiry, to be from the south of Ireland.”

In my attempts to eliminate from the various causes that give rise to Ophthalmic affections, those from which the disease in question may be supposed to originate, I am much assisted by the fact, that it is almost, if not altogether confined to the lowest orders of the Irish, and especially when congregated in workhouses; hence, I regard inattention to cleanliness, which, in these classes reigns supremely, and an impaired state of the general health, induced by want of sufficient and proper food, as its chief *pre-disposing* causes.

Exposure to cold may be regarded as a *proximate* cause, and from close observation, I have concluded, that want of *covering for the feet*, which, too frequently is a secondary consideration, and in many cases, is regarded rather an encumbrance, operates more powerfully in the production of this disease than any other exciting cause; and I feel convinced that if the guardians of the poor adopted adequate measures to obviate this *evil*, the number of inmates in workhouses, who are, from the effects

of chronic Ophthalmia, left a burthen upon their country, would be speedily and materially reduced.

It is not my intention to refer in these pages, to the operations necessary for the radical cure of "Entropion" and "Ectropion," those subjects are elaborately discussed of in almost every systematic treatise on "Diseases of the Eye."

I found it necessary to make brief allusion to the other forms of conjunctival inflammation, with which the "Ophthalmia of Ireland," is so frequently to be seen in combination, and I have prefixed a brief anatomical sketch of the structures chiefly engaged in the disease.

In concluding these introductory remarks, I would again, state my decided conviction, that not only does *every* form of conjunctival inflammation,—nay, simple irritation of that membrane, as it affects the poorer classes of the Irish, predispose to a granular state of the eye-lids, but also, I have frequently observed that condition fully established with the co-existence of so trivial an amount of inflammatory action,—*certainly, there is some,*—as scarcely to cause more than slight inconvenience to the patient; who never thinks of seeking medical relief until the conjunctiva corneæ or the cornea itself becomes affected.

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 relief until the conjunctiva comes to the surface,
 itself becomes affected.

CHAP. I.

THE PALPEBRÆ, OR EYELIDS.

THE Palpebræ, or Eye-lids, are those moveable curtains, situated in front of the orbit, and moulded with accuracy to the anterior surface of the Eye, over which they slide with facility, and which is alternately concealed, or exposed, as they are in apposition, or separated. They act the part of an external iris and pupil, in graduating the light that falls upon this surface. They protect the Eye from injury, exclude foreign particles, such as dust, or sand, &c. ; and serve, by their constant motion, to clean and polish the cornea. Their shape, strength, firmness, and elasticity, mainly depend on the peculiar structure of the Tarsal Cartilages, which may be regarded as the frame work or skeleton of the Lids.

The Tarsal Cartilages are two concavo convex plates of cartilage, or fibro cartilage, of a semi-lunar shape ; their external surface is convex, and is covered by skin, areolar tissue, and muscular fibre, the internal, concave, and is covered by mucous membrane, and glands. The upper Tarsal Cartilage, as also the upper Eye-lid, exceeds the lower, both in its vertical and transverse measurement. Their orbital or fixed edges are continuous with the fibrous expansion which is attached to the

circumference of the orbit, and their ciliary, or free borders, are thick, square, and cut off horizontally, so as to be in *exact apposition* when the Eye-lids are closed. Some anatomists affirm, that the Tarsal borders of the Eye-lids are bevelled internally, so that a groove exists between them when shut, which serves to conduct the tears to the puncta; others deny its existence.

The *Tarsal, or free borders* of the Eye-lids, are broad, square surfaces; from the anterior edges of which, the Eye-lashes spring, while the posterior sharp edges, which may be regarded as the line of demarkation between the skin and conjunctival mucous membrane, correspond pretty accurately with the apertures of the *meibomian glands*.

Close to the posterior edges of the free borders of the Eye-lids may be seen the minute apertures of the glands of Meibomius. These glands, or follicles, secrete an unctuous matter, which prevents an overflow of tears, and assists in conducting them to the puncta, excludes foreign particles, lubricates the edges of the Lids, and obviates the ill effects of attrition from their frequent contact.

In abnormal conditions of these follicles, or in death, their secretion may be expressed like fine white threads or worms, which have a twisted, or tortuous appearance, and which may be regarded as accurate casts of the excretory ducts.

The two depressions, or *puncta*, which lead into the lachrymal canals, are placed *in* the cartilaginous eminences, or papillæ, on the free borders of the Lids, near the inner canthus;—they are thus kept permanently patent. In the normal state, the aspect of these orifices, is outwards and backwards, towards the surface of the Eye-ball, with which

they are in contact; to expose them, the lids must be slightly everted.

From the anterior edge, which is not so abrupt as the posterior, of the free border of the Lids, the cilia or Eye-lashes spring; their bulbs lie close to the Tarsal Cartilage, and extend to the depth of the eighth of an inch, between it and the orbicular muscle; they are placed in three or four rows, and are more numerous in the centre of the tarsal border than at its extremities; in fact, internal to the puncta, there are neither cilia or meibomian follicles.

THE CONJUNCTIVA.

This mucous membrane may be said to consist of a parietal or palpebral, and visceral or ocular portion; the parietal lines, the meibomian follicles, enters into the puncta, invests the entire inner or concave surface of the Tarsal Cartilages, in conjunction with which it may be regarded as a fibromucous membrane, and is continued through its excretory ducts into the lachrymal gland; passing inwards through the puncta, it lines the canaliculi, lachrymal sac, and nasal duct. In its reflection from the inner surface of the upper and lower Lid to the Eye-ball,—when its visceral portion may be said to begin,—the conjunctiva forms two sinuses, respectively termed, the *superior* and *inferior palpebral sinus*.

The visceral portion of conjunctiva is reflected over the front of the Eye-ball; externally it is loosely connected to the sclerotic; but this attachment becomes much more intimate near the cornea,

over which it is prolonged, and to which it is closely adherent.

The structure of the conjunctiva is identical with that of all other mucous membranes—it consists of epithelium, base-ment membrane, and areolar tissue, which connects it to the subjacent parts; it is largely supplied with nerves, and its parietal portion, or the conjunctiva which lines the inner side of each lid, presents on its free surface, numerous papillæ, or mucous glands. The conjunctiva has not inaptly been compared to velvet—the villi on its surface resembling the pile of the latter. But one of the elements which enter into the structure of the conjunctiva, (viz: its Epithelial layer,) is continued over the cornea; its basement membrane, and areolar tissue, proceed no farther than the circumference of the latter.

The extension of the sclerotic conjunctiva over the cornea, formerly was doubted. Morbid and comparative anatomy have, however, confirmed the assertions made by modern anatomists, as to its existence there. In its normal condition, few, if any, red vessels, are to be seen in the ocular conjunctiva; but in a state of inflammation, large vessels start from the angle of conjunctival reflection, and, in their tortuous course over the sclerotic, to the margin of the cornea, divide and sub-divide, into numberless minute branches, which, by their free anastomosis, form a loose, vascular network, of a brick red colour, which, in some cases, extends up to the periphery of the Cornea.

The implication of the Sclerotic in the existing inflammation, is indicated, by the presence of a circumcorneal *pink zone*—this pink zone, which is composed of the fine straight vessels of the

Sclerotic, contrasts, remarkably with the brick red vascular network of conjunctival vessels, which are so superficial, and loose, that they may be made to slide over the pink Sclerotic zone, the fine, hair-like vessels of the Sclerotic, lie so deep, and are so minute, as to be scarcely discernible. The brick red colour of the Conjunctival vessels is most intense at the angle of Conjunctival reflection, and, is shaded off *towards* the Cornea, while the pink zone of Sclerotic vessels, is shaded off *from* the Cornea towards this angle.

In its normal condition, and particularly in early life, the Sclerotic is of a pearly white colour, and can be distinctly seen through the transparent conjunctiva.

THE CORNEA.

The Cornea is that highly polished, strong, and transparent window, in the front of the Eye-ball, its surface is perfectly smooth, and, in its normal condition presents accurate and well defined images of whatever objects are depicted on it; in disease, the reverse is the case. It forms one-fifth of the globe, and projects beyond the Sclerotic, with which it is intimately connected, it is convex anteriorly, and concave posteriorly, but, as those two surfaces are not accurately parallel, it cannot be regarded as a simple meniscus, or concavo convex lens. It is possessed of both refracting, and converging powers. In its healthy state, no vessels can be traced *into* its substance, or, at least, are not apparent; but, in diseased conditions of it, not only are superficial vessels developed in its conjunctival lamina, but, distinct vessels can be traced into its proper substance.

The Cornea, according to Messrs. Todd and Bowman, may be divided into five distinct laminae,—viz. “The Conjunctival layer of epithelium, the anterior elastic lamina, the Cornea proper, the posterior elastic lamina, and the epithelium of the Aqueous humour.” I consider this division as of vast practical importance.

When the ocular portion of Conjunctiva, as I before remarked, approaches the margin of the Cornea, to which it is almost inseparably united, it leaves behind it two of its constituent elements, and, its Epithelial layer which is a membrane of extreme tenuity, alone invests the anterior elastic lamina of the former; with respect to the line of union between the Cornea and Sclerotic, the manner in which a watch-glass is inserted into the groove in the case, was regarded as an illustration, but this is very incorrect. Externally, the Sclerotic overlaps the anterior elastic lamina, to an extent, which varies, according to some constitutions, and certain periods of life. In individuals advanced in years, this overlaying is considerable, and frequently is so opaque, as, to form a blueish white ring round the apparent margin of the Cornea, which was regarded diagnostic of Arthritic Iritis; but Wharton Jones has admirably shewn the fallacy of this supposition. He remarks, in reference to the cause of this appearance, “It is to be remembered that the insertion of the ciliary ligament is at some little distance from the apparent margin of the Cornea; that the vessels which form the red zone of the Sclerotic in the internal inflammations of the eye, and in inflammation of the proper substance of the Cornea, are vessels which send branches inwards to the iris, opposite the ciliary ligament, branches outwards

to anastomose with those of the conjunctiva, and lastly, branches which, following the original direction, go to be continued into those newly developed in the proper substance of the Cornea. These vessels are not apparent in the healthy state, and one set of them only may become apparent in inflammation. Thus, in inflammation of the iris, they will be apparent only as far as opposite the insertion of the ciliary ligament. Between this and the clear part of the Cornea, is the opaque overlapping part of the Sclerotic, which of course, not being in the way of the progress of the vessels towards the inflamed part, remains white as usual; and the Cornea not being affected, there are no vessels developed in its proper substance. Hence, the overlapping part of the Sclerotic is seen in contrast between the abruptly terminating red Sclerotic zone, on the one hand, and the transparent Cornea—appearing dark on account of the dark structure behind it,—on the other, and forms the blueish white ring.” Hence, it is apparent, that in all internal inflammations, the blueish white ring must exist round the margin of the Cornea, and, will be apparent, if a thickened and vascular conjunctiva be not interposed.

In young persons, and in those of good constitution, although advanced in years, the overlaying portion of the Sclerotic is so transparent, and encroaches so little on the Cornea, as to present no remarkable appearance; but, “The condition of the Eye necessary for the *distinct* appearance of the blueish white ring round the Cornea, occurring principally in *old persons of bad constitution*, and these being the very persons in whom an internal inflammation of the Eye, very often presents what is called

an arthritic character, are circumstances which readily explain the error of supposing the blueish white ring round the Cornea diagnostical of Arthritic Iritis."

The third lamina of the Cornea, or the "Cornea proper," is so intimately united with the Sclerotic, that the bond of union may be regarded as uninterrupted; in fact, the texture of the third lamina of the Cornea, may be simply regarded as a modification of that of the Sclerotic.

The fourth, or posterior elastic lamina of the Cornea, is connected, not only to the Sclerotic, but, an extension of its fibres is prolonged across the anterior aqueous chamber to the iris, and choroid, with which it is intimately united.

We now see, from the close Anatomical connexions that exist between the different tissues of the Cornea, and the Sclerotic, choroid, and iris, how absurd it would be, to concentrate our observations in inflammatory, or other affections on either of these structures, when the other parts must of necessity, be involved to a greater or less degree.

The fifth, or last layer of the Cornea, is the membrane of the aqueous humour, which may be regarded as the peritonæum of the Eye; some Anatomists have doubted its existence in certain situations, where, from the extreme tenuity of its texture, it is not demonstrable.

With respect to the structure of these five laminae, I have to remark, that the first is simply the conjunctival epithelium, but much more delicately fabricated over the anterior elastic lamina than in any other situation. The second, or anterior elastic lamina may be regarded as a simple cartilaginous expansion, which is connected intimately with the

Cornea proper, by numberless minute processes, which enter into depressions in its lamellæ.

The third lamina, or Cornea proper, consists of transparent lamellæ or *scales*, which are connected by fine transparent areolar tissue, in which are minute spaces or tubuli, filled in the normal condition, with clear fluid, but, in various affections, infiltrated with lymph, pus, or blood. The Cornea derives its form and strength, chiefly from this lamina.

The fourth, or posterior elastic lamina, is a tissue highly elastic, and transparent; it is perfectly homogeneous in its texture, and, its transparency is not affected by acids, or other agents, which render the Cornea proper opaque, *and I have observed that it possesses the power of resisting ulceration for a long period*; which must be regarded of great practical importance. This lamina is the seat of exudations of lymph,—in it, according to some Authors, are those mottled opacities, which are so characteristic of that affection, termed, “Aquo Capsulitis”—but which, others consider, as situated *between* this lamina and the membrane of the Aqueous humour.

The margin of the Cornea is surrounded by a superficial and a deep seated set of vessels, the superficial arteries are prolonged a little distance on its surface, but the arteries of the deep set of vessels, do not enter into its proper substance; in disease, however, an extension of both superficial, and deep sets of vessels, takes place.

THE OPHTHALMIA OF IRELAND.

CHAP. II.

INFLAMMATION OF THE CONJUNCTIVA.

ACUTE FORM.

The "Ophthalmia of Ireland", is essentially, an inflammation of the conjunctival mucous membrane; but, from fortuitous, or other causes, by which the disease may be modified, it is generally to be found in combination with diseased conditions of other structures of the Eye.

It consists of two forms—*Acute*, and *Chronic*.

The *Acute form* admits of degrees, and, accordingly, may with propriety, be subdivided into—

1. SIMPLE CONJUNCTIVAL INFLAMMATION.
2. PURE CATARRHAL OPHTHALMIA.
3. PURULENT OPHTHALMIA.

The *Chronic form*, which, from its prevalence in the Workhouses of Ireland, is commonly known as "Workhouse Ophthalmia," is of more frequent

occurrence than the acute, by which it may be preceded, but, usually, it assumes a chronic character from its commencement; under favourable conditions however, it is apt to pass into the acute form.

Ophthalmia in Ireland, is characterized by that peculiar condition of the conjunctival mucous membrane, termed, "Granular Lids," more frequently, and in a severer form, than in any other country in Europe; and this condition of the conjunctiva is also the most frequent cause of blindness in the poorer classes.

In the following pages, I propose to discuss, first, the acute and chronic forms of Conjunctival Inflammation, with the invariably attendant condition—a "Granular state of the Lids." 2ndly—The consequences of those Ophthalmiæ; (it must be remarked, although an *effect* of Inflammation, I consider the Granular state of the Lids, an integral portion of the Ophthalmia, and a *cause* of its secondary consequences.) 3rdly—The principles of treatment.

SIMPLE INFLAMMATION OF THE CONJUNCTIVA.

Simple Inflammation of the Conjunctiva—or the first degree of the acute form—is characterized by a bloodshot appearance of the eye, which is caused by a slight injection of the Conjunctival vessels, which, in the normal condition of that membrane, were not apparent; the Conjunctiva lining the lids, and inferior palpebral sinus, presents a deeper shade of redness than the Conjunctiva of the

Globe. On close inspection the congestion will be found to be produced by the anastomosis of the minute branches of the Conjunctival vessels, forming a loose vascular network; which is interwoven into an exceedingly fine wreath, round the margin of the Cornea. The amount of constitutional disturbance attending this degree of conjunctival inflammation, is, generally, inconsiderable; the lachrymal secretion is somewhat increased; and more or less intolerance of light, with a peculiar sensation experienced by the patient, as if a minute particle of sand were in the eye,—which is caused by the over distension of some vessel—are the only symptoms complained of.

This degree of inflammation, which may arise from atmospherical influences—exposure to a current of air generally—or direct violence; (it might also occur in conjunction with the exanthematous diseases,) may pass into the second degree, or what more frequently takes place, in the class of whom I write, assume the chronic form, with a granular condition of the lids. In the Irish poor, even this form of conjunctival inflammation exhibits no tendency to terminate in resolution; if not interfered with by art. In those classes, inattention to cleanliness, debility of constitution, and derangement of the general health, induced by excessive privation; for example, want both of food and clothing, (I must particularise the want of covering for the feet which I regard as the most common cause of ophthalmia) prevail, to such an extent, as to completely obviate the influence of the “vis medicatrix naturæ.”

This form of conjunctival inflammation, usually, accompanies the earliest symptoms of the exanthe-

matous diseases. If it do not subside with the axanthem, it is often modified by the strumous diathesis, which, hitherto, lay dormant, but is now waked into action. In the latter case it proves a very obstinate affection.

Conjunctival vascularity, must be carefully distinguished from the injection of the sclerotic, in a state of inflammation; the vessels of the latter are straight, and exceedingly minute, and form a *pink zone*—deep in the fibrous texture of the sclerotic—round the margin of the cornea, over which the *deep red* vascular *network* of the superficial conjunctival vessels, may be made to slide.

PURE CATARRHAL OPHTHALMIA.

In the second degree of acute inflammation of the conjunctiva,—or “Pure Catarrhal Ophthalmia,”—the conjunctival injection is much more intense, and the vascular network advances to the margin of the cornea; in this form, minute spots of extravasated blood, may be noticed in the sclerotic conjunctiva,—the conjunctiva itself becoming villous, thickened, and infiltrated with serum; and although that peculiar appearance, termed *Chemosis*, is not fully produced, still the conjunctiva is somewhat raised above the plain of the cornea. In the early stage of this degree of inflammation, the flow of tears is increased, but, as the disease advances, there is a copious sero-mucous secretion, which accumulates in the angles of the lids, and the inferior palpebral sinus, and spreads like a film, over the surface of the cornea, thereby obscuring vision. The meibomian secretion, also, is

augmented, and glues the tarsal borders together.

In severe cases, the eyelids themselves become œdematous, and give rise to an unpleasant sensation of tension and weight.

The constitutional disturbance, is not, in general, of great amount. Some intolerance of light is experienced, and, likewise, the sensation as if a particle of sand were in the eye; but no decided pain is complained of, unless the sclerotic be implicated, when the usual circum-orbital pain, in nocturnal paroxysms, teases the patient.

This degree of inflammation, evinces a greater tendency than either of the other two,—viz., the simple conjunctival inflammation, or the purulent ophthalmia,—to pass into the chronic form, with the granular condition of the lids; but it also may—from the persistence of the exciting cause, or other modifying influences,—pass into the third degree of inflammation, or purulent ophthalmia, when a few hours will suffice, for the full development of all the phenomena, that constitute the latter disease.

The ophthalmic affections, with which catarrhal ophthalmia is most frequently to be seen in combination, are the Rheumatic, and Strumous or Phlyctenular; those combinations are, severally, termed, the Catarrho-Rheumatic; and Scrofulo-Catarrhal Ophthalmia.

CATARRHO-RHEUMATIC OPHTHALMIA.

In the Catarrho-Rheumatic form, the index of Sclerotic inflammation,—viz., the pink circumcorneal zone,—is apparent beneath the vascular network of conjunctival vessels. The distinctness with

which this zone can be seen, may be regarded as indicative of the degree of Sclerotic inflammation. In this disease, the Sclerotic is implicated to a greater extent than the Conjunctiva.

In pure Catarrhal ophthalmia, the Epithelial lamina of the cornea may be clouded, but the cornea itself, rarely is injured. In this disease, however, the cornea is quickly affected; its epithelial lamina becomes opaque, and elevated by serous exudation, either in the form of minute points or Phlyctenulæ, or larger vesicles,—which may assume the character of pustules,—burst, and leave ulcerated surfaces; or lymph may be effused, between the lamellæ, and into the tubular spaces of the cornea proper—when onyx, abscess, superficial ulceration, or deep ulceration penetrating into the anterior chamber, may ensue; in the former case, the contents of the abscess are discharged externally, in the latter, the matter falls to the bottom of the anterior aqueous chamber, constituting spurious “Hypopyon.” In this disease, the state of the iris and pupil must be carefully observed, as changes in both are of frequent occurrence.

The constitutional symptoms,—as in inflammatory conditions of fibrous textures generally,—are of a severe character; a considerable amount of fever is present, in which the function of nutrition, and the nervous, are, principally, engaged.

SCROFULO CATARRHAL OPHTHALMIA.

In this form of disease, to the usual symptoms of catarrhal ophthalmia, those which characterize the strumous form, are superadded. The

vascularity is chiefly conjunctival, and of a fascicular arrangement; but the pink zone in the sclerotic may also be present. In pure Strumous, or Phlyctenular Ophthalmia, the disease is chiefly seated in the cornea; a very slight amount of conjunctival vascularity, with phlyctenulæ, pustules or small ulcers on the surface of the cornea, marks this affection; but its chief distinguishing characteristic, is, the great amount of intolerance of light; the lids are kept spasmodically closed, to prevent its admission, and a gush of hot tears, and sneezing take place, on forcibly opening them to expose the globe.

Pure Strumous Ophthalmia is a disease of early life.

In the Scrofulo Catarrhal form, a modification of all the above symptoms occurs. The tarsal borders are red, and thickened, the eye-lids themselves are kept half shut, but the amount of intolerance of light is inconsiderable. The whole conjunctival investment is very vascular, and, in severe cases, the lining of the lids is villous, and pours out a copious secretion of sero-mucous, which, with the augmented discharge from the meibomian follicles, adheres to the cilia, and tarsal borders, glueing the latter together.

The surface of the cornea may present small and isolated opaque patches, which, when grouped, and vascular, cover the whole cornea, and constitute what is termed *pannus*.

Phlyctenulæ, pustules, or ulcers may be seen at its margin, or on its centre, with fasciculi of vessels extending to them.

In this disease, as in the Catarrho-Rheumatic form, the state of the iris and pupil must be

carefully attended to, as inflammation of the former, or other changes, in severe cases, may ensue.

The constitutional symptoms are generally inconsiderable; but, (as in the purely strumous form,) the distinctive characteristics of the scrofulous diathesis are usually present.

PURULENT OPHTHALMIA.

Of this conjunctival inflammation, two forms, (viz: mild, and severe,) may be recognised.

The mild form of this disease prevailed epidemically, throughout the workhouses of Ireland, in 1849, and 1850; and, in some instances, passed into the severe form, which rivalled the Ophthalmia of Egypt in severity. This, probably, was the form of Epidemic Ophthalmia, which, from its frequent occurrence in Ireland, during the last century, attracted the attention of Power.

The early occurrence of a granular condition of the conjunctiva, and the infectious nature of the conjunctival secretion, may be regarded as characteristic of this disease.

In the mild form, except a slight haziness of its epithelial lamina, the cornea may otherwise escape injury; but in the severe form, the inflammation may extend to all the tunics of the eye, and total disorganization take place.

In Purulent Ophthalmia, the eyelids, which are of a deep purple hue, are excessively swollen, and œdematous, and cause an unpleasant sensation, of tension and weight; they are always closed, and, in severe cases, the upper overlaps the lower. The entire conjunctival investment,

which is intensely red, is swollen, pulpy, and villous, and, from serous infiltration, is raised above the level of the cornea; constituting *chemosis*. In consequence of the intimate connexion that exists between the conjunctiva and the margin of the cornea, the infiltration cannot extend beyond the latter; hence the cornea appears to be sunk beneath this chemotic ridge—in some cases, the conjunctiva is swollen to such an extent, that it protrudes through the palpebral fissure, causing eversion of the lids, and preventing the cornea from being seen; on making any attempt to expose the latter, complete eversion of the lids takes place.

The conjunctival secretion is now distinctly puriform, and of a highly infectious character. It fills the canthi, and sinuses, and forms a thick film over the surface of the cornea, which may be mistaken for opacity of the latter. It is secreted in such quantities, that every movement of the lids causes it to trickle down the cheek in copious streams; the meibomian secretion also is augmented, and adheres to the cilia, and tarsal borders, glueing the latter together. In purulent ophthalmia, the texture most liable to injury, is, the cornea, which exhibits a tendency to ulceration, slough, or abscess, from the infiltration of its tissues, and the pressure caused by the thickened, and overlapping conjunctiva.

In favourable cases, opacity of the epithelial lamina is the only immediate injury the cornea sustains; a subsidence of all the acute symptoms takes place, and a chronic inflammation is persistent with a granular condition of the lids; the conjunctival secretion remains unaltered, for a greater, or less period, and, ultimately, assumes a gleet character.

If the inflammation pass into the severe form,

the cornea is sure to suffer extensive injury; its epithelial lamina becomes nebulous, thickened, and vascular, or it may present small, elevated points, or vesicles, on its surface which, afterwards, burst and leave superficial ulcers. In other cases, although the central portion of the cornea appear clear, ulceration may have, insidiously, penetrated through its entire substance, into the anterior aqueous chamber, at its extreme margin, but *hidden* by the overlapping, chemosed, conjunctiva. In some rare instances, this ulcerated trench extends all round the margin of the cornea, and isolates its central portion, which is detached as a slough—in other cases *rupture* of the cornea takes place.

When the lamellated layer—or the cornea proper, becomes the seat of exudation, which takes place between its lamellæ, or into the tubular spaces, Dr. Mackenzie graphically describes the progress of the disorganization that occurs, “The surface of the cornea is seen to be first dull and hazy, then whitish, and at last, from matter infiltrated into its substance it becomes yellow. Its lamellæ are, no doubt, by this infiltration detached from one another. The cornea swells, and advances gradually out of the pit formed around it by the chemosed conjunctiva, its surface becomes ulcerated in one or more points. The ulcers rapidly deepen and spread, and at last the cornea gives way; through the opening, or openings thus formed, we may sometimes see the clear lens lying in its capsule. It rarely happens that there is any formation of pus, or deposition of coagulable lymph in the chambers of the eye in this disease; and hence, when the cornea is destroyed the internal parts of the eye appear natural. The patient is sometimes able to see objects pretty

distinctly after the cornea has given way, and is apt to believe his eye to be nearly cured." Through these openings, prolapsus of the iris takes place, the latter becomes united to the cornea, and *partial staphyloma* is the result; when complete slough of the cornea takes place, the iris falls forward, and is covered by a new fibrous tissue or pseudo-cornea. In the latter case, *total staphyloma* is the result.

Sometimes—even after the destruction of the cornea,—the inflammation extends to the other tunics of the eye-ball, evacuation of the lens, and vitreous humour takes place, and the globe shrinks, the eye-lids fall in and remain permanently closed.

The symptoms complained of in this disease, are, a burning sensation experienced in the eye, with nocturnal paroxysms of circumorbital pain. The constitutional disturbance, which in general is not very severe, is accompanied by great mental depression.

Although the form of epidemic ophthalmia, which prevailed in Ireland in 1849 and 1850, was of an asthenic nature, it was in many instances, attended with the most disastrous results. Owing to the illconditioned state of those, who were the subjects of the disease, frequent relapses took place, and blindness of one, or both eyes, ensued, either immediately, or at a remote period, from the persistence of the inflammatory action.

From the experiments of Guillie, Müller, Piringer, and Jæger of Vienna, absolute certainty has been arrived at, as to the infectious nature of the conjunctival secretion, both in the mild, and severe form of purulent ophthalmia.

THE OPHTHALMIA OF IRELAND.

CHAP. III.

INFLAMMATION OF THE CONJUNCTIVA.

CHRONIC FORM WITH GRANULAR LIDS.

This form of conjunctival inflammation may be regarded as peculiar to the more destitute classes of the peasantry of Ireland. It prevails to so great an extent throughout the workhouses of that country as to be popularly designated "workhouse ophthalmia," and proves more slowly, yet, as surely, destructive to vision, as purulent ophthalmia itself.

This disease must not be confounded with that chronic form of ophthalmia, which is of so frequent occurrence, in those classes of artisans, who are exposed to injury of the eyes, from chips of stone, metal, glass, &c., from the chemical nature of the solid particles, such as lime, or potash, &c., which get into the oculo-palpebral space, or from an excess, or deficiency, of light in their occupations. Compositors, and those, who are engaged in working at minute objects by artificial light, such as that of gas, suffer much from its flickering character.

The chronic ophthalmia of artisans is characterized by redness of the angles of the lids, caruncle, semilunar fold, and tarsal borders. The lachrymal, and meibomian secretion, are increased, and the patient complains of an itching, and tenderness in the eyes, with epiphora. The conjunctiva of the lids also exhibits some vascularity and villosity; but no hypertrophy of its papillæ can be said to have taken place. The mucous secretion overspreads the surface of the cornea, and intercepts vision. In this form of ophthalmia, the state of the lachrymal apparatus should be carefully examined when watering of the eyes is complained of.

Chronic inflammation of the conjunctiva with "granular lids," may arise from many, and diverse causes. It may result from simple, but persistent irritation of the conjunctival mucous membrane; from any of the acute forms of inflammation, before alluded to, or from the puro-mucous ophthalmiæ generally; also from chemical or mechanical injury; (in the former case a permanent *white* cicatrix is left in the conjunctiva;) and from scrofulous ophthalmia tarsi, &c. But, more frequently, it assumes a chronic character from its commencement,—when *wet feet*, inattention to cleanliness, an ill-conditioned state of the constitution—arising from inadequate food and clothing,—exposure to cold and wet, smoky and ill-ventilated dwellings, crowding together in workhouses, &c., &c., may be regarded as its predisposing, and proximate causes. It must, however, be remarked, that a thickened condition of the palpebral conjunctiva, with hypertrophy of its villi, may be *fully established*, with the co-existence of so trivial an amount of inflammation, as to lead many to suppose, "granulations"

may be developed, independently of *any* inflammatory action. In this opinion, I do not concur; I believe, some degree of inflammation, or persistent irritation, always precedes the development of "granulations," which then act as a cause, in keeping up the state of chronic inflammatory action. The symptoms, by which the most simple form of this disease is characterized, are, more or less vascularity of the conjunctiva, with a gleet discharge from its papillæ; increase of the meibomian secretion, and some intolerance of light.

The morbid changes in this disease are of a progressive character. From the persistence of the inflammatory action, the conjunctiva becomes thickened, and sarcomatous, and fungous elevations of this membrane spring from the angles of the lids, (particularly, the outer,) and the sinuses. In the lower sinus, those elevations assume a wave like appearance, rise above the level of the tarsal border,—which in consequence is displaced from its normal situation—and from exposure to atmospherical influences, and lack of the proper mucous secretion, become altered in structure, and covered with a distinct cuticle, which is dry, and devoid of sensibility.

With respect to the nature of that peculiar granular condition of the conjunctival investment of the lids, and sinuses, to which the conjunctiva of the globe does not appear to be liable, I have to remark, that the elevations, on the free surface of that membrane, are, simply, its papillæ, and follicles in a hypertrophied state.

Granulations are *never* formed without breach of surface, hence the term is improperly applied to the hypertrophied mucous villi. However, *real granulations* sometimes spring from the bottom of encysted

tumours of the eyelids,—which have burst internally,—and give rise to the same symptoms, as the so called granulations, for which they may be mistaken.

The hypertrophied papillæ are occasionally disposed in a row, immediately behind the posterior edge of the tarsal border; or they may occur, large, distinct, and pendulous from the superior palpebral sinus, which is a favourite retreat for them, and where they frequently remain, undiscovered,—I fear in some instances, unsought for.

The entire palpebral investment may present a uniformly florid, and granular appearance—like the surface of a granulating ulcer—and, in this case, the granulations, which do not present a very irregular surface, are disposed in groups, or packets.

As the disease advances, the shape, elasticity, and position of the palpebræ are altered; the tarsal cartilages become transversely shortened, or elongated, assume a false position, and complete, or incomplete entropion, or ectropion is the result.

Entropion or inversion of the lid, which may be acute or chronic, and, result from acute inflammation, injury, or irregular action of the orbicular muscle, is, in this affection, chiefly caused by alteration of structure. The tarsal border is thickened, indurated, and transversely shortened, and either *completely* curls inward on itself,—in which case the cilia are not in contact with the surface of the eye,—or, slight inversion takes place; and constant irritation is kept up by the misdirected eyelashes. In *Ectropion* or eversion of the lid, the most frequent cause of the deformity, is excoriation, or ulceration, of the tarsal border, and cheek,—changes of structure also ensue, the tarsal cartilages

become transversely elongated, but, the lid is vertically shortened; the everted conjunctiva, from exposure to atmospherical influences, becomes, first, red and pulpy, then, indurated, and covered with a distinct cuticle. The globe, from the same cause, and the admission of foreign particles, is kept in a state of irritation.

The changes that take place, with respect to the free borders of the tarsi in chronic ophthalmia, are three-fold—viz., alteration in position, shape, and structure. The puncta lachrymalia, as before remarked, are, in their normal position, directed towards the surface of the eye ball with which they are in apposition, therefore, any deviation from this position is calculated to disturb the nice adjustment which exists between the several parts of the lachrymal apparatus; hence, when displaced by the thickened and indurated conjunctiva, they are incapable of drawing off the tears, and “epiphora” is the result; but the same result may take place from constriction, or total obliteration of these orifices, caused by the pressure of the thickened and indurated membrane. *Dilatation* of the puncta with change of position may also ensue.

The tarsal borders soon lose their abrupt, *square* appearance, and become rounded off. In the lower classes, inattention to cleanliness is a frequent source of this change; the orifices of the meibomian follicles and the cilia become incrustated with dried secretion, which is seldom, or perhaps never removed, and irritation and enlargement of these glands is the result; they are finally destroyed, and become covered with a distinct cuticle; the natural line of demarcation between the skin and conjunctiva is thus obliterated.

As the disease advances the bulbs of the cilia become diseased, abscess and ulceration take place, and the latter fall out: the skin of the lid assumes a red and glazed appearance, and, incurable ophthalmia tarsi results.

In some cases the palpebral fissure is contracted, owing to the adhesion of the tarsal borders, most commonly at the outer canthus. In other cases, the whole row of cilia becomes misdirected, constituting what is termed "Trichiasis," or supernumerary lashes may be seen, disposed either in a second row, or in tufts. In either case, they are a constant source of irritation.

I shall next proceed to consider the various affections of the cornea that result from the acute and chronic form of the ophthalmia of this country.

THE OPHTHALMIA OF IRELAND.

CHAP. IV.

AFFECTIONS OF THE CORNEA.

A slightly vascular and nebulous condition of its epithelial, or conjunctival lamina, may be regarded as the most simple form of disease, to which, the cornea appears to be liable; extension of the conjunctival inflammation, or the friction, caused by the rubbing of a roughened and granular lid, over the smooth and brilliant surface of the cornea, are, the chief causes of this affection. A nebulous condition of the cornea is often seen, in combination with other diseases, and, as a result of other causes, but it must be remembered, that my remarks are confined to the consequences of the acute and chronic form of the disease under consideration.

If there be a persistence of the exciting cause, the conjunctiva corneæ soon becomes decidedly opaque, and thickened, and the vessels of the sclerotic conjunctiva are prolonged upon its surface, where they anastomose freely; to this opaque, thickened, and vascular condition of the conjunctiva, which

in some cases of "granular lid," is confined to the upper half of the cornea, the term "*Pannus*" is applied. Although, the rays of light cannot be transmitted through this impenetrable veil, to the interior of the globe, and blindness is necessarily the result, yet, this opaque, and thickened tunic shields the transparent cornea, not only from the effects, which otherwise would ensue from the friction of the granular lids, but also, from the effects of acute inflammation, which, from various causes, is frequently superadded to the chronic form of disease.

"*Pannus*" must be carefully distinguished from *Corneitis*, or inflammation of the proper substance of the cornea, as, the treatment necessary in the former disease, would prove most destructive in the latter. In *Pannus* the conjunctiva corneæ is thickened, opaque, and vascular; the vascularity is caused by the free anastomosis, on the surface of the latter, of the superficial conjunctival vessels. In *Corneitis* the pink sclerotic zone is present, and a *crescentic plexus of distinct, brownish vessels*, prolonged from this zone into the substance of the corneæ,—where they terminate in loops,—will be seen, generally, at its upper or lower margin—in some rare cases, this plexus of vessels completely surrounds the margin of the corneæ. The surface of the latter presents the appearance of *ground glass*, and frequently a few superficial vessels may be seen, coursing over it; there is also a great amount of intolerance of light with lachrymation, and circumorbital pain.

Chronic inflammation of the cornea,—which, when modified by the strumous diathesis, proves a most inveterate disease,—very frequently occurs with

granular lids and pannus. The whole, or part, of the cornea becomes softened, thinned, and permanently prominent, presenting a conical appearance. The ciliary body and iris are apt to be implicated in this disease.

The characteristic symptoms which mark inflammation of the ciliary body (when implicated) are—the occurrence of a blueish elevated ridge, at a line's distance behind, generally, the upper margin of the cornea. The conjunctiva over this ridge is thickened, vascular, and studded with vesicles, and large, subconjunctival vessels may be seen starting from the blueish ridge, and coursing backwards over the globe; frequently the choroidal vessels become varicose, and enlarged; absorption of the sclerotic takes place, from the pressure exerted by those vessels, and prominence of the upper part of the eyeball is the result.

Generally, the iris when implicated in this form of chronic corneitis cannot be seen, in consequence of pannus; but when, as the result of treatment, or otherwise, its condition can be ascertained (treatment sometimes entirely dissipates the opacities of the cornea) the objective symptoms of "Aquo Capsulitis" are, usually, present,—viz: mottled opacities behind the cornea,—which is abnormally prominent, from a super secretion of aqueous fluid.—The iris itself is altered in colour; *lymph certainly is effused* on its surface, and into the pupil which is irregular, and adhesions take place between the iris, and the capsule of the lens, but I do allow, that this effusion of lymph is of very limited amount. (In simple Iritis, this effusion, as is well known, takes place to a considerable extent.) True hypopyon may be seen in the anterior aqueous chamber, and,

to the conjunctival vascularity, the pink sclerotic zone is superadded. In this affection, is frequently seen, the blueish white ring round the margin of the cornea.

The next affection of the cornea I shall allude to, is effusion of lymph beneath its epithelial lamina. This affection is of frequent occurrence in the scrofulo-catarrhal, or catarrho-rheumatic ophthalmia. When lymph is effused beneath this lamina simple nebula may result; or minute, elevated points, termed Phlyctenulæ, or vesicles,—filled with a clear fluid—are seen on the surface of the cornea. The effused fluid may be absorbed, or assume a puriform character. The seat and size of vesicles, and pustules vary. The margin of the cornea is a favourite situation for vesicles, but, its surface also may be studded with them. Pustules are generally to be seen either on its nasal, or outer edge. Pustules sometimes attain a large size. I have seen a pustule on the nasal edge of the cornea, nearly a quarter of an inch in diameter.

Pustule of the cornea must not be mistaken for slough of the latter. The diagnostic marks between them may be briefly stated. Pustule of the cornea, is of a dusky white colour, and *elevated* above its surface; while slough of the cornea is greyish, and is, as in all other situations, *depressed*.

The next seat for the effusion of lymph is the cornea proper. Between the lamellæ, and into the tubuli, which exist in this lamina, lymph is frequently effused,—producing, in some cases, merely cloudy specs,—which may afterwards be removed by absorption. In other cases, this effused lymph may present a perfectly opaque and dusky white appearance; when rapid effusion of lymph takes place

into the cornea proper, it quickly becomes puriform, and either falls to the inferior part of the lamina, where it assumes the appearance termed onyx; or abscess takes place, which is discharged externally by ulceration; or penetration into the anterior chamber occurs, the contents of the abscess fall to the bottom of it, and spurious hypopyon is the result.

When lymph is effused to any extent into the cornea proper, softening of its tissue takes place; this is well seen in that form of scrofulous corneitis in combination with catarrhal ophthalmia. In this disease the cornea, which is of a dirty yellow, or greenish yellow, colour, is softened, thinned by absorption, and yields from the pressure of the aqueous fluid—when it assumes an irregularly conical appearance.

Finally, lymph may be effused between the posterior elastic lamina, and the membrane of the aqueous humour. In this situation, it causes those mottled opacities, which are so characteristic of “Aquo Capsulitis.”

ULCERS OF THE CORNEA.

The next affection of the cornea I shall speak of, is, ulceration—which may be limited to some of its tissues, or extend through its entire substance; in the latter case, penetration into the anterior aqueous chamber takes place, followed by the escape of aqueous fluid; although, changes in the position of the iris and pupil ensue, it does not, necessarily, follow that those changes should be permanent.

Ulceration of the corneal texture is either acute, or chronic, and may be confined to its superficial laminae, or penetrate more deeply into its substance. Hence, ulcers of the cornea may be divided into two classes, viz:—Superficial, and deep.

The epithelial, or conjunctival lamina of the cornea, is the frequent seat of ulceration.

Ulcers of this tissue are very generally the result of rupture of vesicles, or pustules, and, consequently, are of common occurrence in scrofulous, scrofulo-catarrhal, and catarrho-rheumatic ophthalmia.

In scrofulous corneitis, the irregularities on the surface of the cornea, prove to be minute ulcers of the conjunctival epithelium, and an extensively spreading ulcer of this tissue, is frequently to be met, with a granular condition of the palpebral conjunctiva.

Ulcers of the conjunctiva corneae, are calculated to mislead the practitioner by their deceptive appearance. In reality, they are very superficial, but, their thickened, and irregular margin, adds to their apparent depth;—These ulcers readily heal, and leave no opacity, if, judiciously treated; but, the ulcerative process may extend deeper, when, the second layer or anterior elastic lamina of the cornea becomes implicated.

Ulcers of the anterior elastic lamina, present—while the ulcerative process is still active—sharp, and well defined, transparent edges, with a smooth, clear surface; this form of ulcer is of constant occurrence in pure strumous, and purulent ophthalmia,—when it presents the appearance, as, if a small portion of the corneal texture had been chipped, or gouged out. In these cases, the usual fasciculus of vessels which extends from the conjunctiva

scleroticæ to the ulcer is wanting, wherefore, we may conclude that a great deficiency in the vital action of the part exists. The use of this fasciculus seems to be for the restoration of the breach in the corneal tissue, the loss of substance being replaced by the lymph laid down by those vessels;—as the healing process is being established, the sharp, and transparent edges of the ulcer, assume an opaque appearance, and, are rounded off; ultimately, a *clear* distinct depression, or facet, is left in the cornea. Ulcers of this lamina heal without leaving opacity; and it may be taken as a general rule, that, under careful and judicious treatment, corneal ulcers, of what form soever, *which have not penetrated into the intra-lamellar spaces of the cornea proper*, heal without an opaque cicatrix.

If the ulcerative process extend deeper, the cornea proper becomes implicated; ulceration of this tissue may be the result of the extension of a superficial ulcer, but it, also may be an effort of nature, to get rid of fluid effused between its lamellæ, and, into the tubuli. Hence, ulcers of this texture, are of frequent occurrence, in severe catarrhal, purulent, and catarrho-rheumatic ophthalmia, and likewise, in all those ophthalmiæ, where the superficial ulceration, which results from the rupture of vesicles, and pustules, has been neglected, or improperly treated. Ulcers of the cornea proper present a marked contrast to ulcers of the anterior elastic lamina. In the former, the edges are irregular, and *opaque*; the surface rough, and, generally, covered with greyish flocculi, or slough. A distinct fasciculus of vessels may be seen extending to the ulcer from the sclerotic conjunctiva,

which is thickened, and vascular. If the ulceration do not penetrate into the anterior chamber, the slough is detached, and the surface of the ulcer appears convex, and *transparent*; this appearance is caused by the yielding of the posterior elastic lamina, which is capable of great resistance to the ulcerative process, and, which must be regarded, as an admirable provision of nature, as, if complete penetration into the anterior chamber occurred, an escape of aqueous fluid would instantly take place, followed by, changes, in the iris, and pupil.

A dense leucoma is left, after the healing of an ulcer which affects the entire substance of the cornea proper.

Ulcers of the cornea heal by granulation; lymph is laid down, and organized, by the fasciculus of vessels, which extends to the ulcer; when the process of healing is fully accomplished, these vessels dwindle, and, finally, disappear.

In some cases of chronic ulcers of the cornea, large, tortuous vessels run in from the periphery of the cornea, and cross the ulcerated surface. These vessels intercept vision, and are not designed for the restoration of the breach of corneal texture, as the fasciculus before alluded to.

When an ulcer has fairly penetrated into the anterior chamber, the aqueous fluid escapes, and the iris advances to the cornea; in favourable cases, the ulcer closes, and the iris resumes its normal position; but, in other cases, prolapse of the iris occurs, the latter becomes permanently adherent to the cornea, and the pupil is completely, or incompletely obscured; sometimes, it happens that a sufficiently large pupillary aperture is left for

useful vision, but, the rays of light are intercepted by the dense leucoma which is left after the ulcer has healed.

Complete death or slough of the cornea is a frequent result of severe purulent ophthalmia. It appears to be caused by the intensity of the inflammatory action, and, by pressure.

I entirely agree with Dr. Jacob in questioning our power to prevent it.

THE OPHTHALMIA OF IRELAND.

CHAP. V.

TREATMENT.

In strict accordance with the division of my subject, I shall, briefly, consider, the principles of treatment. I must, however, first, premise, that if the cause, or peculiar influence, whether constitutional, or otherwise, whereby the disease may be modified, remain undiscovered, the whole routine of ophthalmic treatment may be gone through without avail; wherefore, the discovery of the cause, or modifying influence of the affection of the eye may be regarded as its fundamental principle.

To illustrate these remarks I might adduce the many instances that exist, in which, collyria, leeches, blisters,—perhaps more active measures—have been employed, to remove a chronic conjunctival inflammation, with a nebulous condition of the cornea, which is being kept up by undiscovered granulations in the superior palpebral sinus.

Simple inflammation of the conjunctiva, usually, yields to one, or two, active purgatives, followed

by a few saline diaphoretic draughts. The application of leeches is seldom necessary ; but the nitrate of silver solution will be found in this, as well as in all other forms, of pure conjunctival inflammation, a remedy of sovereign utility. Four grains of the nitrate to the ounce of distilled water, is the strength usually employed. A little simple ointment applied to the tarsal borders, at night, will prevent the latter from adhering. Exposure to currents of air should be avoided. In the catarrhal form of inflammation, local depletion is called for ; four, or five leeches should be applied over the malar bone. A leech or two may be, directly, applied, to the inflamed membrane itself ; midway, between the free border of the lower lid, and the inferior palpebral sinus, is the best situation ; if applied to the tarsal border, or angle of conjunctival reflection, troublesome ulcers may ensue ; the cicatrices left after the bites have been considered, by some, an objection to their application to the inside of the eye-lid. In some robust constitutions more active depletion might be necessary ; but, in the poorer classes, it may rarely be resorted to. In pure catarrhal Ophthalmia, (even in the stage of active inflammation) the local application of the nitrate of silver solution will be attended with the most beneficial results ; but, it must not be continued too long, as the conjunctiva would, ultimately, become, indelibly stained. With respect to the employment of lotions, I generally consult the wishes of the patient. Tepid applications are, however, to be preferred to cold. When the inflammation appears to wane, blisters to the temples, or behind the ears, will materially hasten the cure ; but, in the *early* stage of this disease, I consider

blisters injurious. If, the conjunctival vascularity exhibit a tardiness in disappearing, Tonics should be freely given, and, a change made in the local application.

Eversion of the lid should *never* be omitted, and the least disposition to a granular condition checked,—if the free surface of the conjunctiva appear villous, light scarification will be necessary.

When the sclerotic is implicated in the disease, which is recognised by the presence of the characteristic pink zone round the margin of the cornea, and, the circumorbital pain, which occurs in nocturnal paroxysms, blood must be taken, by cupping the temples or nape of the neck—venesection is seldom called for in any ophthalmic affection—and calomel with opium must be given, until the gums become slightly affected. When the sclerotic is implicated, the employment of the nitrate of silver solution is contra-indicated, and, as in pure catarrhal ophthalmia, and I think I am right in adding, every other form of inflammation of the eye-ball, counter irritation ought not to be employed during the stage of active inflammation. In those cases, where the conjunctival inflammation is persistent, owing to the modifying influence of the scrofulous diathesis,—as is frequently seen after the exanthematous diseases,—and where relapses are apt to take place, an alterative and tonic course of treatment will prove most beneficial. Of late years the Sulphate of Quina has been considered a specific in pure strumous ophthalmia; but, I must admit, I am a far greater advocate for its administration, in combination with iron, in every case where a strumous taint exists; the preparation I usually employ, is, the Citrate of Iron and Quinine, which is soluble

in water; it can therefore, in all cases, be readily administered, and may, with safety, be given to the youngest child.

Where tumefaction of the eye-lids exists, the occasional application of one, or two leeches, will prove useful.

The great object of treatment in the third degree of conjunctival inflammation, or purulent ophthalmia, should be, the prevention—if that be possible—of the destruction of the cornea, by ulceration, abscess, or slough.

As a general rule, active depletion should never be employed: in this disease, venesection and mercury,—those potent remedies, in many inflammatory affections,—are not only useless, but prove, actually, injurious; and, I record it as my decided opinion, that many eyes have been *destroyed*, by excessive depletion, which now, happily, seems to be less frequently insisted on.

The subjects of purulent ophthalmia, generally, exhibit great physical and mental depression, but in the poorer classes, debility of constitution, with a previously impaired state of the general health, is superadded; hence, a tonic line of treatment, is what I usually pursue; local depletion proves useful in reducing the tumefaction of the lids; and, the ecchymosed conjunctiva may be freely scarified.

The excessive purulent discharge should be wiped away, with a soft sponge: but, I cordially agree with Dr. Jacob, in forbidding the forcible injection with a syringe, of fluid beneath the lids, with a view to its complete removal: the lids may be gently moved up and down, and the discharge, which has collected beneath them, will thus escape.

With respect to local applications, the ten grain

solution of the nitrate of silver is what I generally employ at first; afterwards, a more astringent but less stimulating local application will prove more beneficial—viz., a solution of alum of the same strength—as the discharge diminishes, the strength of the nitrate of silver solution must be reduced to two, or three grains to the ounce of distilled water. Immediately after the nitrate of silver, or alum solution has been employed, I would recommend the solution of Atropine—one grain to the drachm—to be dropped into the eye; or, the extract of Belladonna to be smeared on the brow. Some persons object to the smarting caused by the atropine solution, but, this may be obviated, by adding a proportion of laurel water to the former. Four drachms of cherry laurel water, with one drachm of the two grain solution of atropine, will be found, a useful formula.

As, in the less acute forms of conjunctival inflammation, I do not employ blisters in the early stage of purulent ophthalmia; they are, always, attended with more permanently beneficial results, when the application of them is deferred till a late period. Indeed, there are *few* inflammatory affections, in which, counter irritation does not prove injurious, in the acute stage.

When purulent ophthalmia prevails epidemically, various modifications in the treatment must, of necessity, be resorted to, and care taken in using every precaution towards the prevention of the spread of the disorder.

The granular condition of the lids, left after the several forms of conjunctival inflammation, proves most difficult to eradicate. Although, in this disease, local applications cannot be dispensed with,

I consider the employment of them very secondary to well directed constitutional treatment. In addition, acute inflammation of the conjunctiva,—which must be met with suitable measures—frequently supervenes on the chronic form; and again, acute, and chronic corneitis, with various affections of the other textures of the eyeball, may be super-added to granular conjunctiva and pannus.

In those chronic cases of pure conjunctival inflammation, bark, with oxy-muriate of Mercury, may be employed with advantage: prolonged counter irritation, is, absolutely, necessary; and, escharotics, or astringents, must be carefully applied to the granulations; the latter, if pendulous, may be snipped off with a scissors, but I do not approve of the practice, frequently employed, viz., shaving off, with a lancet, the entire granular surface. Sulphate of Copper is a favourite remedy, but, its use, is, too often injuriously prolonged; the hard cicatrices left by it, prove, equally irritating to the surface of the eye, as the granulations: various other stimulating, and astringent ointments, and lotions may be employed, but, their use must not be persevered in too long. Finely levigated acetate of lead has been, by some, applied with advantage to the granulations. On the abuse of stimulating applications to the eye, Mr. Travers remarks, that by their continued application, an anomalous or pseudo-ophthalmia, is produced, which differs as much from the real disease, and from which, it may, as readily, be recognized, as, an artificial from a natural flower; he is also, apprehensive, lest this abnormal condition may be the prototype of internal disease. When the granular condition of the lids has been completely cured,

there can be no return of the disease; the conjunctival villi have been destroyed, and replaced by cicatrices, from which villi never spring.

Rather a novel plan of treatment, which, it seems, had been suggested by Walker, so long ago as 1811, for the cure of pannus, has, of late years, been practised, by Dr. Piringer of Gratz, and Jæger of Vienna—viz., the production of acute suppurative inflammation in the eye, by means of inoculation with gonorrhœal matter, or the mucus of the ophthalmia neonatorum.

This practice, which forcibly reminds me of an old adage is somewhat too absurd to find many advocates in this country; in *some* cases, it has proved successful; the pannus has been cured; “Scylla” and “Charybdis” have been, safely, sailed by; ulceration, abscess, and total disorganization of the cornea escaped: *but, the granular conjunctiva, the chief source of the original mischief, remains as it was.*

If the strumous diathesis seem to exert a modifying influence on the disease, iodine, applied externally to the lids, and administered internally with bark, will prove serviceable. If the tarsal borders present a red appearance, with abscesses, or ulcers, at the roots of the cilia, the disease will prove more difficult to manage: attention to cleanliness must be insisted on; the edges of the tarsi should be smeared with some mild ointment; the crusts removed, and the ulcers touched with the solid nitrate of silver; Janin’s ointment, or the nitrate of mercury, or red precipitate salve, may afterwards be applied.

In *all* cases of ophthalmia tarsi, the state of the lachrymal apparatus should be carefully examined.

With respect to the treatment of inflammation, and ulcers of the cornea, which are frequently to be met in combination with catarrhal ophthalmia, local depletion is, rarely, called for in those affections: in the *early stage* of acute inflammation of the cornea, a few leeches may be applied with advantage; my chief reliance, however, in this affection, is on bark and other tonics. I must express my strong disapproval of active depletory measures, and mercurialization, as also of local stimulating applications in acute corneitis; with respect to the abstraction of blood, the same rule holds, in, *almost*, every case, where the iris is affected. I say *almost*, from the very general disposition, which prevails to abstract blood in *all* cases of iritis. Now, in *syphilitic iritis*, the abstraction of blood, whether by local depletion, or general blood-letting, is, decidedly injurious; in this disease, blood should *never* be abstracted; the *quick* introduction of mercury into the system, and, in the latter stage, counter irritation, usually restore the normal colour of the iris and the shape of the pupil, and cause the speedy absorption of the granules, or tubercles of effused lymph.

In almost every case, of ulceration of the cornea, —even, where it threatens to penetrate into the anterior chamber,—my chief reliance is, on a tonic line of treatment: it is amazing with what rapidity destructive ulceration of the cornea is checked by the sulphate of quinine. In ulcers of the cornea with loss of substance, the extension of vessels from its periphery, should, rather, be encouraged; lymph is laid down and organised by them, for the restoration of the breach: when the healing process is once established,—which may be known

by the gradually increasing opacity of the edges of the ulcer, a careful application of the solid nitrate of silver, will, in most instances, expedite the cure.

Atropine is a remedy of sovereign utility in the treatment of corneal ulcers; except in those cases, where the ulcer is situated near the margin of the cornea, the pupil should be kept dilated; for common use, a drachm of the one grain solution may be added to three drachms of laurel water.

Even where penetration has occurred, and the iris advanced to the cornea,—if adhesion have not taken place,—the former may be restored to its normal situation, by the constant use of atropine.

When the iris has been fairly prolapsed, the attempts, which are recommended to be made, to free it with a probe, are, in general useless. In many cases, where the iris and pupil are in their normal condition,—or even in those cases where a portion of the pupillary margin of the iris is adherent to the cornea,—but, a dense leucoma intercepts the rays of light, constant dilatation of the pupil with atropine, may afford a useful amount of vision.

CATALOGUE

REPTILES

IN THE MUSEUM

MEDICAL DEPARTMENT OF THE ARMY

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by the gradually increasing opacity of the edges of the ulcer, a careful application of the solid nitrate of silver, well in most instances, expedite the cure.

Atropine is a remedy of sovereign utility in the treatment of corneal ulcers; except in those cases, where the ulcer is situated near the margin of the cornea, the pupil should be kept dilated; for common use, one drop of the one grain solution may be added to each drop of laural water.

Even when the pupil is contracted, and the iris advanced to the centre, if adhesion have not taken place, the former may be restored to its normal position by the constant use of atropine.

When the iris has been early protruded, the attempts which are recommended to be made, to free it with a probe, are, in general, useless. In many cases, where the iris has protruded, a small portion of it will be found to be adherent to the cornea, and a dense membrane will be formed over the eye.

When the eye is thus affected, the patient should be kept in a dark room, and the eye should be washed with laural water, and a solution of the nitrate of silver should be applied to the edges of the ulcer, and the pupil should be kept dilated with atropine.

The treatment of the eye in these cases, is to be conducted in the same manner as in the preceding cases, and the patient should be kept in a dark room, and the eye should be washed with laural water, and a solution of the nitrate of silver should be applied to the edges of the ulcer, and the pupil should be kept dilated with atropine.



