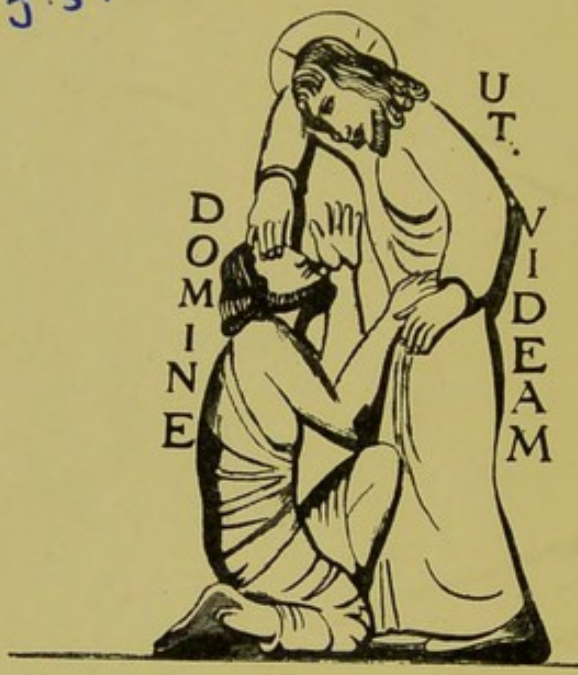
Ophthalmia : the various inflammations of the conjunctiva or mucous membrane of the eye / by J. Slade.



OPHTHALMIA.

THE VARIOUS INFLAMMATIONS

OF THE

CONJUNCTIVA

OR

MUCOUS MEMBRANE OF THE EYE.

By J. SLADE, M.D. F.G.S. M.P.S.L.

Lately Physician to the North Devon Hospital.
Formerly of the Sussex Eye Infirmary.

THIS TREATISE WILL BE FOUND USEFUL TO COUNTRY FAMILIES, AND PARTICULARLY TO THOSE PERSONS WHO PRESCRIBE FOR THE SICK POOR IN THE ABSENCE OF MEDICAL ASSISTANCE.

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TO

SIR MATTHEW JOHN TIERNEY, BART. M.D.

&c. &c. &c.

DEAR SIR MATTHEW,

It is with gratitude I remember the kindness and patronage received from you, and the efforts you made to get me appointed to a medical Charity, some years ago. These things, in connection with your urbanity of manners, talents, and liberality, and the exalted station to which they have deservedly brought you, induce me to embrace this opportunity of acknowledging my obligation and respect.

I am, dear Sir Matthew,

With every feeling of attachment,

Your very devoted Servant,

J. SLADE.

BATH, December 7, 1837.

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PREFACE.

THE different inflammations of the conjunctiva have never been considered upon the plan pursued in the present Treatise. My object in adopting this course is, to simplify the subject, and to follow that system which professes to assign diseases to their proper organ or tissue—a system that appears to have a manifest advantage over others.

What has been said in the first seven Chapters respecting the nature, the causes predisposing and exciting, the acute and chronic stages, the results and the treatment of simple inflammation of the conjunctiva or *conjunctivitis*, applies so strictly to the other forms, that less, in consequence, remains to be said on them. I have deemed it necessary to allude to this more than once in the course of this Treatise, lest the reader should consider my notices of these forms superficial; which may be regarded as mere differences of the same disease.

I have not thought it necessary to devote any Chapters to the consideration of conjunctivitis in

measles and scarlet fever. No danger attends it. Beyond the treatment employed for the eradication of the disease of which it is a concomitant, the simplest plan of treatment laid down in the Sixth Chapter is recommended. In proportion to the violence of the inflammation, the measures must be active; but the inflammation is scarcely ever such as to require any thing more than the most simple remedies.

J. S.

BATH, December, 1837.

CHAPTER I.

Remarks on the Structure of the Conjunctiva.

The *Conjunctiva* is usually considered as an appendage of the eye, instead of one of those tunics which constitute the eyeball. It is, perhaps, better that we should regard it as one of the proper membranes, and not as a mere appendage. It is strictly a mucous coat, presenting a polished surface, secreting a mucous fluid, and covering the anterior surface of the ball, or globe, to which it is united in one part very closely. Extending over about two-thirds of the globe, and covering, as far as it extends, two of the proper tunics, the *Sclerotica* and the *Cornea*, it is reflected back upon the whole internal surface of both lids, upper and lower. At the point or angle of reflection there are many folds, in which serous effusions often take place under violent inflammatory attacks of the eye. These folds allow of an uninterrupted motion, not only of the ball itself, but of the lids, or *palpebræ*. The reflection prevents extraneous bodies finding their way behind the eye, the consequence of which would be irreparable mischief.

The conjunctiva forms a covering to the anterior part of the eye in a similar way as the skin forms one to the body. It is united to the skin at the edge of the eyelids, and may be almost looked upon as a continuation of the cutis, or true skin. It is subject to diseases similar to those of the skin, and is exposed to the atmosphere in a like manner. The extreme edge of the eyelid, which is called the tarsal margin, and from whence the eyelashes, or cilia, spring, is the part at which it

may be considered to arise. To this edge it is closely united, more so than to any other part of the lids. It has been called adnata, owing to its close contiguity to the eye. The whole membrane serves to unite the eye itself with the lids. At the margin the conjunctiva is perforated by ducts, called ciliary ducts. It is also pierced by the excretory ducts of the lachrymal gland, amounting to about seven in number, situated at the superior external angle of the eye.

The Sclerotica, a term of Greek derivation, is the white, opaque, spherical coat perceptible to us. The term is simply meant to denote hardness. By its firmness and cartilaginous character it forms an ample protection and defence to the more internal parts, preserving, without change, the globular or spherical figure of the eyeball. Its principal use rests in this, and nothing could be more admirably contrived for the occasion. With the exception of the space occupied by the cornea, and that at the back of the eye by the optic nerve, which passes from the internal part of the globe through an aperture to the brain, it forms a complete sphere. The relation it bears to the internal parts is similar to that which the skull bears to the brain, as a covering and defence. It does not lose its form when separated from its contents.

The Cornea, the other membrane directly covered by the conjunctiva, is that transparent circular body situated in the front of the eye, lying before the pupil and Iris.* It consists of two compact hard layers, fibro-cartilaginous in character. It might almost be regarded as a continuation of the sclerotic coat. It differs in no essential respect, except that it is laminated and transparent, which the other is not. It was called by former anatomists cornea lucida, the sclerotica being, meantime, designated cornea opaca. Both these tunics are convex externally, and concave internally, and united by a

* The Iris is a contractile body. It forms the coloured portion of the eye, known by the name of grey, hazel, black, or blue. The pupil is large or small, in proportion as it is contracted or dilated.

circular ligament. Together they form a case wherein the internal and more essential parts are lodged. The corneal laminæ are covered anteriorly by the conjunctiva, and posteriorly by a thin transparent membrane, which spreads itself over other parts of the cavity containing the aqueous humour.

So far we discover there is a palpebral conjunctiva, *i. e. conjunctiva palpebralis*, the conjunctiva lining the internal surface of the lids—a sclerotic conjunctiva, *i. e. conjunctiva scleroticæ*, the conjunctiva covering the sclerotic coat—and a corneal conjunctiva, *i. e. conjunctiva corneæ*, the conjunctiva running over the cornea. In each of these connections it differs somewhat in character

The Conjunctiva Palpebralis is the most vascular of the three divisions. By everting the lid, some of the vessels will be seen, more or less distinctly, carrying red blood. It thus presents a comparatively red colour in health, which is common to neither of the other forms. It is, hence, that in Conjunctivitis the inflammatory process is soonest perceptible in this part of the conjunctival membrane. Being more vascular, it takes on inflammation more readily. It is said to be doubtful whether every form of Conjunctivitis does not commence here. The vessels that are spread over the conjunctiva sclerotica charged with blood, as in inflammation, evidently take their rise in the conjunctiva palpebralis. They first make their appearance here, pass on to the angle of reflection, and gradually push forward towards the cornea. That part of the palpebral conjunctiva lying nearest the ciliary margin, or edge of the lid, is usually the most vascular. This vascularity, consisting of most minute capillary ramifications, decreases as it proceeds towards the conjunctiva of the globe, where, in health, it is entirely lost. The intervening spaces of the thin palpebral membrane which are not covered by the vascular plexus, or net-work of vessels, are transparent. From the extreme tenuity of the membrane, the meibomian glands, lying under it, may be often seen, and also the cartilage of the lids.

The Conjunctiva Sclerotica is less firmly attached to the sclerotic coat than the palpebral conjunctiva is to the lids. It is, likewise, less thin, less transparent, and less vascular: it is therefore whiter. Here and there a line of vascularity may be seen traversing it. This line is a prolongated vessel of the palpebral surface. Were it not for this, and the vascularity it is liable to in disease, we should have little reason to suspect it constituted of blood-vessels. The conjunctiva is loosely connected with the sclerotica, by means of a texture very common to the body, called cellular texture. It is in consequence of this that we see its overcharged vessels standing so prominently forward in inflammation or congestion, and are able to move them with a pointed instrument, backwards and forwards. This looseness of connection enables the inflammation of the sclerotic coat to exist comparatively isolated, or independently of the sclerotica. The conjunctiva scleroticæ being less vascular, is less sensitive, the nerves distributed about it being fewer in number.

The Conjunctiva Corneæ is more intimately connected with its proper tunic than either of the other divisions is with its tunic. The connection is so firm, that maceration, dissection some time after death, and disease only, are capable of apprizing us that the membrane is extended over the cornea. So close a proximity renders it almost impossible for the conjunctiva to be inflamed without the structure of the cornea participating. This division is, however, the least vascular. No ramification of vessels is seen spreading themselves over it in health, and vascularity is with more difficulty induced in disease. Yet it is not without that common degree of sensitivity which belongs to the membrane in general. It is said to be more sensitive even than either the palpebral or sclerotic conjunctiva. Experience scarcely affords us an opportunity of deciding this matter: it would, perhaps, be impossible to arrive with truth and accuracy at such a conclusion. For what reason, or upon what principle, should its sensibility be

increased? More nerves certainly have not been detected in it. The part adjacent to it, the cornea, is apparently insensible. It appears to possess no nerves, and therefore the sensitivity of the covering could not be derived from that. Its vascularity being, besides, evidently less, the probability is, that the quantum of nervous matter belonging to it is also less. Be this as it may, there is a conjunctival covering to the cornea. If they could be proved to be equally insensible, they yet could not be shewn to be identified in structure. When inflammation of the sclerotic conjunctiva has become extended to the corneal, the continuation of the membrane is then readily perceived, the vessels of one division passing uninterruptedly into the other. Its tenuity is very great, exceeding that belonging to either the palpebral or sclerotic, and yet capable of considerable thickening in disease. Between it and the cornea there is no cellular membrane so detectable as in the other connections.

We hence perceive a difference in structure between these three divisions of the same membrane; and it is natural to suppose that some corresponding difference should be perceived in the inflammatory actions to which they are respectively liable. The shades of difference, however, are of no consequence in a pathological point of view. The intimate alliance that subsists between the cornea and its covering, and the small degree of vitality belonging to the former, render ulceration here more frequent.

The uses of the conjunctiva are most important. We have seen that it connects the eyelids with the globe, and that the folds, at the point of reflection, help to facilitate the motion of the eye in its socket or orbit. One of the great uses of the membrane is, to secrete a mucous to lubricate the surface, and protect the eye from injuries which might otherwise be inflicted from extraneous and adventitious bodies. On some occasions the secretion from this membrane is increased, as in inflammation, where there is likewise a saline fluid poured out from the

lachrymal gland, called tears, which irritate the membrane when freely secreted, as in the act of crying. That inflammation of the conjunctiva which is produced from an irritant immediately applied to the eye, produces the most copious supply of this fluid. Acrid applications, in particular, excite the gland. All healthy secretions, whether from the conjunctiva or lachrymal gland, pass off by means of lachrymal canals into the nose, any obstruction of which, by preventing a continuous flow of the natural secretions, often occasions considerable irritation of the conjunctiva, which cannot be cured until the mechanical impediment itself is removed.

CHAPTER II.

General Observations on the Nature of Conjunctivitis.

Inflammation of the Conjunctiva is technically called *conjunctivitis*, and may with equal propriety be termed *conjunctival Ophthalmia*. It presents different forms, being different in kind, according to the nature of the cause in operation. It is distinguished in these different forms by different appellations.

These kinds some persons have considered as *degrees* only; but degrees apply rather to the different stages or states to which any one kind of inflammation is liable in its progress. The essential symptoms that are said to characterize inflammation, are redness, pain, heat, and swelling; but there are other concomitant signs attending this disease, which vary under different circumstances. Even the essential symptoms themselves are modified according to circumstances—to the texture that is affected—to the constitution in which the disease is induced—to the local cause which has brought it into operation. These symptoms vary in degree in different inflammations, one being stronger, another weaker; and, occasionally, there is an absence of one or more of the symptoms which are said to constitute inflammation, and yet inflammation is said to exist. So far the term *inflammation* has no definite meaning, and it would, perhaps, be difficult to define what it is, often as it presents itself to our notice. In conjunctival inflammation there is often a redness proceeding from a set of vessels being charged with red blood, without either swelling, pain, or heat. In corneal inflammation there is frequently an apparent absence of all the conceived essential symptoms, and

yet the tunic undergoes a change of structure terminating in either ulceration, sloughing, opacity, or suppuration, the ordinary results of inflammatory action. We differ even about the pathological condition of the blood-vessels themselves. Some say there is an increased, others a diminished action—two extremes which cannot meet. Now the state of the vessels is the most important point in the disease, and yet we can come to no positive conclusion respecting it. The greatest number of pathologists is now inclined to believe that, in all inflammations, there is rather a diminished than an increased action. The pain and heat are the common consequences of the vessels being too freely injected, and not of an increased action in the circulating medium. We pretend not to say that the capillaries are *never* subject, under inflammation, to increased action; but it may be inferred, from experiment, reasoning, and observation, that where there is inflammation, attack what organ soever it may, there is commonly diminished action in the vessel, and consequent obstruction in the circulation. It is hardly possible for a capillary vessel to be increased in action while it is distended with blood; nor, on the other hand, is it likely for a vessel to be fully injected while there is an augmented action, and consequent tone and power of circulation in the coats of the vessels. The proximate cause of the disease rests in the arteries themselves; and if their tone were not diminished, why do they not continue to propel the blood as usual? To discuss the subject further here would be irrelevant. The reader is referred to the various controversies that have from time to time prevailed on this subject, as well as to the Author's own cursory observations in a paper published in the Medical Gazette in the course of the last year.

The above remarks on the state of the vessels in inflammation yet apply particularly to conjunctivitis. Here is most evidently a turgescence, a fulness of the capillary tubes, with an insufficiency of tone, or circulating power. Here we find the tubes gorged or overloaded with those red particles of blood

which they are not destined to carry in health ; and the great reason there is no swelling, except in the vessels themselves, whose dimensions are evidently increased, and often no heat nor pain, is because the engorgement meets with no resistance from surrounding parts. The conjunctiva being loosely attached to the sclerotica by cellular membrane, the swelling of the vessels encounters no impediment, nor does it disturb the functions of the adjacent parts by its pressure, which is one of the chief sources of pain and heat in more unyielding parts. The most ordinary and essential characteristic of inflammation is an increased momentum, weight, or quantity of blood in the circulating vessels. Without this we could have no idea of inflammation. This one condition, be it occasioned by what it may, may be looked upon as productive of all the concomitant symptoms which attend the disease, and by which it is commonly known. Now, agreeably to the cause which has produced this, so is the nature of the attendant symptoms, in intenseness, in variety, and relative violence.

Some persons have been in the habit of dividing inflammation into the simple, true, or idiopathic and specific, without reference to the modifications which ensue from peculiarity and diversity of structure, and, indeed, without any subdivision of the idiopathic and specific varieties, which are many. The simplest and best plan to be adopted, is evidently to consider one tunic in particular, taking all the diversities of inflammation to which it is subject. In this way we neither neglect the modifications of inflammation which the structure itself may occasion, nor the varieties of inflammation to which that structure is liable. Mr. Wardrop, one of the most eminent of British surgeons, has pursued a similar plan in his Treatise on the Anatomy of the Eye. He has considered each structure separately, and the particular diseases and modifications of disease to which it may happen to be subject. When inflammation attacks two or more tunics at one time, those tunics being different in structure, it amounts to a kind of compound

disease, each structure presenting, if we were able to recognize them, different modifications. The inflammation is of but one kind, yet it assumes various shades in the different textures, because the economy of each is different.

The above reflections necessarily call for some animadversions on the term *Ophthalmia* in its unlimited signification, or agreeably to its common application. Its etymology is such as allows us to include all inflammations of the eye, of whatever kind, and of whatever structure. It is, however, frequently made to apply to those inflammations only which affect the external tunics of the eye; such as the conjunctiva, the cornea, and the sclerotica. Scarpa makes the term comprehend all inflammations of the eye; nor is it, strictly speaking, improper, though it is capable of leading to considerable confusion. We may say retinal ophthalmia and choroid ophthalmia, signifying inflammation of the retina and choroid coat, as well as conjunctival ophthalmia*. Recent classifiers have been in the habit of designating the several inflammations of the different structures of the eye by terms derivable from the names given to the structures, parts, or tunics themselves. Thus we have conjunctivitis, sclerotitis, corneitis, choroiditis, retinitis, iritis, which are the ophthalmiæ or inflammations of the respective coats of the eye. This is a more particular and, at the same time, more comprehensible classification, and espe cially if we are allowed to subdivide according to the diversities of inflammation to which each or either coat is liable—the plan adopted in the present Treatise. Inflammation of the Iris is as different in character from inflammation of the conjunctiva as can well be supposed; so is that of the retina different from that of the sclerotica. Thus may we proceed until all the coats have been considered.

* The retina is an expansion of the optic nerve, extending itself over a great portion of the internal, concave part of the globe; the choroid is a coat lying immediately upon, and external to it. The retina receives the impressions of external objects, and is, properly speaking, the organ of vision.

By classifying diseases in the manner proposed, we certainly arrive at more definable limits, and render ourselves better acquainted with the real nature of disease, in its vast variety of shades.

The conjunctiva is liable to as many different kinds of inflammation as any tunic of the body, except the skin, yet partaking in common with the skin of many of its diseases. Being a mucous membrane, it is also subject to the affections, inflammatory or not, that other mucous tissues are. It is, therefore, the seat of numerous diseases, and liable to be frequently affected. Being in close connection with the subjacent tissues, it is impossible for inflammation to attack it violently without one or the other, if not all, of these tissues participating. Yet such is the situation of this membrane—such the facility we possess in being able to reach it—such the advantages we enjoy in distinguishing its different affections—such the structure of the whole part, that we have seldom occasion to fear any great severity and consequent extension of its inflammations, on proper and prompt treatment being resorted to. Without this treatment, the consequences are often irreparable, the inflammation extending itself to parts which are more vitally important.

The several kinds of conjunctivitis take their peculiar and respective characters from the nature of the cause which might happen to have produced them. Thus, a scrofulous constitution will produce a scrofulous ophthalmia or conjunctivitis; moist and cold atmosphere a catarrhal; syphilis, a syphilitic; discharges from the vagina of women in childbirth, a purulent form in the infant, commonly called purulent ophthalmia of new-born infants; while a constitution inclined to that peculiar kind of inflammation called erysipelous, will occasion an erysipelatous form of conjunctivitis. Hence we see that an inflammation is different, agreeably to the character of the exciting cause; and it is the peculiar set of features which presents itself on the operation of these respective causes, that

we are allowed to pronounce a diversity in kind of the inflammatory process that takes place. These several species of conjunctival ophthalmia are modified in character by age, diet, seasons, sex, &c.

When we consider how varied the causes are that produce diseases of the eye—when, rather, we reflect upon the variety of functions the eye is destined to serve, and the injurious effects that result from some of its occupations—when we think how exposed this organ is to both external and internal influences, from the offices it fills, the prominent situation it occupies, the delicacy of its members, and the sympathetic influence that is kept up between it and other parts of the body, we cannot fail to wonder at the frequency and variety of its inflammatory affections.

There are two states of conjunctivitis in particular yet unnoticed; these are the active and passive conditions, of which so much is said. They affect materially the opinions that exist concerning the actual state of the capillary vessels in time of inflammation. In active or acute inflammation, the vessels have usually been considered in a condition directly opposed to that in passive inflammation, being increased in action, as the designation would signify, while in the other state they are decreased. The actual condition of the vessel is, doubtless, the same in both cases; the manifestation of heat, pain, and excitation in the former, which indicate, but do not prove, an increased action, being occasioned by the enlargement of the vessels incommoding the adjacent parts, and irritating the nerves. These nerves eventually becoming accommodated to the pressure newly produced, and to the effusions which are, through their irritation, poured out, suspending the healthy functions of the part more or less, pain, heat, and the general excitement subside, leaving the vessels injected as before, and, as is said, passive; which means, in fact, nothing more than a subsidence of irritation in the nerves, and not of action in the vessels. If the engorgement of these

vessels, and the redness which it necessarily occasions, will constitute inflammation in the absence of all other symptoms, we see upon what an insufficient authority our notions rest of the nature of inflammation. We may call this disorder, or deviation from health, inflammation; for it is not a disease, there being no absolute lesion of any part*; but it does not correspond with the general notions entertained of inflammation. Each conjunctivitis is, however, subject to both states, though not to an equal degree. Either may be, at first, active and then passive, *i. e.* the congestion of blood in the part may be at first attended with considerable irritation, and ultimately with little or none. The greater the accompanying irritation is, the farther does the affection recede from what is called a passive stage; and the less it is, so much greater is the distance from the active stage. Scrofulous conjunctivitis is commonly less active than other kinds, sluggish in character, slow in its progress. Between the most recently acute, and the most chronic stage of ophthalmia, for all chronic forms are passive forms, there are several shades of difference; and with these several shades many different processes are apt to accrue in the way of deposition, opacity, sloughing, ulceration. Hence, these results, or terminations of conjunctivitis, are common to both the active and passive, the acute and chronic forms. Most chronic inflammations are attended with some palpable lesion, or change of structure, whether they have proceeded from an active form or not. It is not, however, necessarily so. The same results happen in all kinds of conjunctivitis, though some are more prone to them than others. They likewise occur in all habits of body, yet not with equal readiness and violence. The tendency of the constitution has much to do with the liability of the inflammation to terminate unfavourably. It is seldom that simple conjunctivitis, the

* That state is alluded to wherein no effusion, nor ulceration, nor change of structure of any kind exists.

nature of which will be presently defined, assumes any thing like a troublesome character. But though an ophthalmia may be strictly simple at its onset, being produced from a simple cause, unaccompanied by any thing of a specific character, it may become otherwise, struma or syphilis especially prevailing in the system. In a very debilitated frame, in a dyspeptic habit, in a body constitutionally irritable, simple conjunctivitis is apt to take on a more troublesome form, often more violent, but in general indolent, and comparatively difficult to remove. These states of the body are, indeed, usually predisposing causes. Simple inflammation is not so common as may be imagined. There are few systems ummixed with scrofula, scurvy, or syphilis, and the whole host of hereditary and specific diseases, in some shape or another; and wherever inflammation exists in habits thus affected, through external violence, it is almost certain to partake of the constitutional diathesis, the participation being greater in proportion to the degree in which the system is affected. External causes, in particular, are here mentioned; for, without such causes, in such habits, it would be most uncommon, if not impossible, for simple conjunctivitis to exist. We have hence reason to suspect that ophthalmia, produced by some externally exciting cause, is likely to take upon itself a character in agreement with the prevailing habit of body in which it is induced. Nor can we err in suspecting likewise, that, with such habits, there is a greater predisposition to disease, and a greater liability, therefore, to be affected by any cause that may have a tendency to excite and irritate. How often do we not see the slightest accident produce inflammatory action in one subject which would have no effect in another?

A specific inflammation, such as the strumous, may be considered sympathetic, as it is only by sympathy with the habit of body that such an ophthalmia can prevail. From the various causes which induce conjunctivitis in general—from the different modifications to which each inflammation is liable

from change of atmosphere, age, sex, mode of living, temperament—from the diversities that occur through differences of structure, which, in the eye, are numerous, we see a catalogue of ophthalmiæ great in variety. Even the list of conjunctival inflammations alone swells to a considerable length; and were we to include the other diseases to which it is subject, it would become much longer still. This membrane is liable to more kinds of ophthalmia than any other tunic of the eye, and hence more frequently the subject of inflammation; the reason of which is obvious—it is more exposed. But there are other reasons already adduced why it is oftener inflamed.

The different species of conjunctivitis are comprised in those considered in the present Treatise. A greater division still may be made, but to no advantage. Indeed, it is not suspected that the table could be enlarged without reducing particular species into modifications, in which there would be no essential utility. The conjunctival inflammations are, above all others, most easily understood, the least dangerous, and the easiest managed. They are, meantime, as already affirmed, the most general. The facility we acquire in gaining an accurate knowledge of them in their respective characters, and in the treatment required for their removal, is owing to their being thus general, and, at the same time, so superficial. It is thus we so easily learn what diseases are peculiar to the conjunctival structure, and what are not. We discover that the respective forms of catarrhal, gonorrhœal, erysipelatous, purulent, contagious conjunctivitis, so understood, are essentially diseases of the conjunctiva, but likely, nevertheless, to spread and include other parts.

The greatest evil we have to dread in conjunctivitis is opacity and ulceration of the cornea—the transparent segment through which light passes to the internal organs. When once this tunic is wholly opaque, so as to prevent the admission of light, there is no remedy for its removal; and sound as the visual organs are, and capable as they may be of exercising

their functions, they must lie inactive by necessity. The liability of the cornea to participate in the inflammation of its mucous covering, and thence become altered in structure, is in proportion to the violence and kind of inflammation which may happen to affect the conjunctiva. Thus gonorrhœal, strumous, and neglected purulent ophthalmiæ are very apt to induce some physical change in the structure of the cornea. There is no danger in any species of conjunctivitis if the cornea remain unaffected, or if, rather, no opacity be left in the centre of this tunic, which is rarely the case, as it is usually here that the opacity takes place. If it should not be in the immediate axis of vision, the rays of light still find their way to the visual apparatus, and no impediment to perfect vision occurs. It may occupy a very small spot immediately in the centre of the pupil, in which case light would be admitted at the sides, and vision, though imperfectly, be preserved. If it cover the whole pupil, embracing nearly the entire surface of the cornea, we have no remedy, save an operation for artificial pupil, which may be made whenever there is a transparent segment of cornea remaining. These serious results are especially to be avoided in conjunctivitis, and little else than gross inattention or ignorance on the part of the patient, nurse, or medical attendant, is likely to lead to them; prompt and proper remedies being generally equal to prevent their occurrence.

The causes of conjunctivitis are numerous, and generally external or local. The treatment to be pursued is not complicated, nor very different in the different kinds. The curability of the disease depends much on the kind of predisposing or exciting cause that might have induced it, or according to the violence of the degree in which either species may exist—to the redness being more or less diffuse, to the pain being more or less acute, to the lachrymal and mucous discharges being more or less extensive, to the heat and pricking sensation being more or less urgent, and the glueing together

of the lids and concretions after sleep being more or less troublesome. These symptoms exist, in a greater or less degree, according to the species of inflammation that prevails; and often vary in extent in the same species.

The most dangerous ophthalmia scarcely ever gives us reason to apprehend the loss of life. The danger consists rather in the deprivation of some of its most blessed enjoyments—those derived from sight.

CHAPTER III.

Diagnostic Symptoms of Conjunctivitis.

The body is not likely to be so much affected in conjunctivitis as in most other inflammatory disorders of the eye. There is not so much irritative fever, not so much constitutional disturbance; and this comparative absence of irritation is one symptom, though a negative one, of the inflammation being merely conjunctival. The symptoms, constitutional and local, which attend isolated conjunctivitis, are rarely ever more than slight, if we except that common one which is so peculiar to itself—a muco-purulent discharge. This symptom, as it exists in the gonorrhœal kind, and the ophthalmia of newborn infants, is not only violent, but one of the most characteristic features of conjunctivitis in these forms. Intolerance of light is not so extreme in this as it is in the other ophthalmiæ; not so intense, for instance, as in Iritis or Retinitis. As, however, there are exceptions to every rule, there is one in this; for when the inflammation is occasioned by some extraneous substance lodged in the eye, the intolerance is usually extreme. A pricking sensation, as though dust were in the eye, is another marked sign of conjunctivitis. It occurs at the commencement of every kind of this disease; and the patient can scarcely be prevailed upon to believe that some foreign body is not lodged there. This feeling arises from the blood-vessels being overcharged, and rubbing against the soft, delicate, and sensitive membrane of the lid, which is unaccustomed to so irregular a surface as the conjunctival net-work of vessels presents on this occasion, being now filled with red blood,

which is more globular than the colourless fluid they carry in health for the purpose of nutrition, and the performance of those functions connected with it. Pain is more intense in inflammation of the internal coats than in that of the conjunctiva. A throbbing pain is an indication of the whole globe being affected, particularly if there be an accompanying feeling of the ball of the eye being swoln, or too large for the orbit or socket that contains it. Whenever, likewise, pain is experienced at the back of the eye, as well as in the front, extending itself to the surrounding parts, and especially behind the head, we may be always sure that the inflammation is not confined to the conjunctiva, but affects some one or more of the internal tunics. If these symptoms exist from the commencement, coeval with conjunctival inflammation, in unison with irritative fever, and other marked signs of general disturbance of the system, there can be no doubt that the mucous membrane is merely affected in common with others; but if they transpire after the full development of conjunctivitis, we are left to conclude that the inflammation commenced in the conjunctiva, but afterwards spread itself to the other membranes, creating thus the unpleasant and distinguishing features enumerated. If sight be unimpaired, and the pain confined chiefly to an uneasiness like pricking, the constitutional irritation and intolerance of light being, in the meantime, slight, we have the best authority for believing the inflammation superficial. The converse of this indicates more general disease, particularly if any change of colour be discovered in the cavity of the eye, or in the Iris, which denotes inflammation of the Retina and Iris, wherein the pain is always severe, affecting the cheeks as well as the head. Internal inflammation may be always distinguished from that which is external, from the violence of the symptoms which attend it; but it is not so easy to distinguish sclerotitis or corneitis from conjunctivitis. One of the most characteristic features of sclerotitis is the pink zone formed by a congeries of red vessels surrounding

the outer margin of the cornea. This zone is produced from the termination of the various vascular ramifications which spring from larger vessels behind. The cornea presents several signs of inflammation, yet without that decidedness of character which marks the inflammation of most other parts. Its vessels, which are derived mainly from the sclerotica, are but seldom injected, and therefore but seldom inflamed. It would still appear that corneal inflammation can exist without this injection necessarily existing, it being evident that the ordinary changes of structure which follow inflammation, take place in the cornea without any manifest appearance of red blood being thrown into its vessels. Usually, however, the vessels present a brownish red hue. The cloudy appearance it assumes under inflammation, is not always a criterion of corneitis, as this may proceed from conjunctivitis alone. It is difficult, if not impossible, to discover when it is primarily the seat of inflammation. Ophthalmia may commence there, but it is to be suspected that corneitis is rather a secondary than a primary affection in general. We seldom, perhaps never, know of its being inflamed till we discover, not only one or other of the consequences of inflammations, which are suppuration, ulceration, sloughing, and opacity, but actual inflammation of other tunics. In sclerotitis it is always inflamed, and rarely escapes in inflammation of its conjunctival covering.

The other distinguishing features between conjunctivitis and sclerotitis are these. The injected vessels in the former are larger, more prominent, and lighter in colour. While the redness of the vessels in one is scarlet, the redness in those of the other is dark rose or pink red, often approaching to blueness. There are, however, great modifications of colour in conjunctivitis: it varies considerably with the nature of the inflammation. The vessels, too, in conjunctivitis are found to proceed from that part of the conjunctiva which covers the lids, while those in sclerotitis are confined to the globe. Yet whenever the latter form of ophthalmia exists, it is

almost certain to be attended by the former, in which case vessels would be seen running from the lids; but they are not the direct sclerotic vessels. In a very early stage of sclerotitis it is possible to see the conjunctival vessels free from all engorgement. In isolated conjunctivitis the sclerotica is seen to preserve its white-bluish colour unchanged. In sclerotitis the vessels, though superficially situated in this coat, are seen by the eye of an experienced person lying under the mucous covering. The redness of the conjunctiva is, moreover, less diffused—less general. The sclerotic vessels are more numerous and smaller. Endless minute ramifications, injected with the coloured matter of the blood, are perceived. There is, hence, an uniform redness, not cognizable in conjunctivitis. The naked, superficial, and bright-coloured vessels of conjunctivitis present a strong contrast when compared with the condition of the vessels in sclerotitis. In recent inflammation of both tunics, coeval in the time of commencement, the respective differences may even yet be traced. The exceedingly minute and multiplied ramifications diffused over the whole surface of the sclerotica cannot be mistaken for conjunctival inflammation by those familiar with the subject. On looking at these two tunics in health, we have but little suspicion of their complicated characters, of the exquisitely fine and beautiful net-work of vessels they severally possess. Sclerotitis is commonly accompanied by an aching pain, not confined to the anterior portion of the globe:—this is particularly the case as the inflammation makes progress, when another symptom arises, not unlike that which attends general inflammation of the globe; this is a feeling of tension. These are symptoms never experienced in conjunctivitis. The pain is, moreover, often attended by a sensation of heat, highly distressing to the patient.

In primary sclerotitis, the conjunctiva of the lids is the division that is last affected; whereas in primary conjunctivitis, it is the soonest. Sclerotitis is, besides, usually attended by

considerably more sensibility, the eyelids shutting convulsively, and the pupil contracting momentarily on the admission of light. This is rather the consequence of the sympathy subsisting between the sclerotica and the iris and retina. Between the conjunctiva and these more sensitive coats there is not so great a nervous communication; the sympathy is, therefore, less, and the inconvenience in the admission of light comparatively inconsiderable. Intolerance of light is yet not a feature on which we can rely to distinguish that form from conjunctivitis. In the latter form, and especially when it proceeds from mechanical injury, or acrid substances applied to the mucous surface, the admission of light is often followed by intense pain. This is owing to the nervous sympathies between the conjunctiva and retina being increased under the peculiarity of the circumstances. The constitutional disturbance is greater in sclerotitis, and the cornea sooner affected and discoloured, if not more or less destroyed. The discolouration is first somewhat grey, then of a nebulous whiteness, then yellow. These changes are rapid in succession according to the violence of the inflammation.

In the early stage of sclerotitis, the secretions of the eye are checked. This occasions a sensation of stiffness and dryness. In conjunctivitis this is not the case. No sooner, however, are the sympathetic influences set up, which occur very soon, than the lachrymal organs are excited, and an abundant secretion ensues. This discharge is often painfully hot, and copiously poured out on the eye being exposed to the light—a symptom by no means common to conjunctivitis. Nor does the patient in conjunctivitis experience that pain on moving the eye which he does in sclerotitis. Though the lachrymal discharge in conjunctivitis is less, the mucous discharge is greater.

CHAPTER IV.

Simple Inflammation of the Conjunctiva.

Every form of ophthalmia may be, in its first stage, slight in degree, but not simple in kind. That species to which reference is made in this Chapter is simple in character in every respect, *i. e.* not violent in its symptoms, nor attended by any specific taint. It has been called idiopathic, or common inflammation, and may be included in that definition which Beer has given to inflammation of the external tunics, *Ophthalmitis externa idiopathica*. He, however, intended this to comprise inflammation of the sclerotic and corneal coats as well. It may yet be made, with equal propriety, to refer to simple conjunctivitis alone.

The symptoms of this form of conjunctivitis are mitigated much by circumstances; though they can never exist with any great degree of violence. If they did, other and adjoining tunics would be implicated, and the disease remain no longer conjunctivitis. This, above all things, would be likely, while so intimate a connection subsists between the conjunctiva and the other coats through the medium of nerves and blood-vessels. Simple inflammation of this membrane is, hence, one of no great importance, and commonly very easy to be recognized by the experienced practitioner. The bright scarlet colour and healthy aspect of the inflamed vessels, lying superficially on the eyeball, is one of the most characteristic symptoms of this kind. A healthy appearance is not readily distinguished from an unhealthy one by persons unaccustomed to see much of ophthalmia in its various forms; and the colour,

so characteristic, is better understood than described. Should any thing occur to retard the cure, the colour grows less bright and less healthy in aspect. The further, in fact, the colour of the inflamed vessels recedes from a scarlet, the more tedious does the case generally prove, and the stronger is the indication of some unhealthy state of system existing, of which the conjunctiva, in its diseased state, partakes. When it assumes a chronic form, which it seldom does under proper treatment, the vessels become of a deep red, frequently approaching a mahogany hue; and we have reason to apprehend, particularly if there be ulceration accompanying it, and the treatment has been prompt and proper from the commencement, and the chronic stage is very obstinate, that the inflammation has passed from a simple to a specific character, in all probability strumous. It may not be so necessarily, as a disordered state of system, free from any hereditary affection, or any specific disease, may alone protract the cure, and thus occasion a chronic form, one comparatively difficult of removal.

At the beginning of simple ophthalmia there is but little pain and intolerance of light, except when it is produced, as was before intimated, from some local, mechanical, or chemical injury. Acrid applications cause a considerable augmentation of these symptoms over and above the degree which attends the forms occasioned by simpler means, such as some unhealthiness of system. The symptoms that generally attend simple conjunctivitis are not essentially different from those which attend the other forms. The differences, however, such as they are, will be perceived as we proceed to explain each kind separately. They consist, in general, not in any multiplication of the symptoms, from the simplest form to the most violent, but rather in the shades of difference which the symptoms individually undergo. For the sake of explanation it might be observed, that the same letters of the alphabet, differently arranged, will form different words. The same symptoms, one or more of which, by differing in intensity under different

circumstances, will constitute a different disease, or, at least, make up a whole of a peculiar and distinct character. If, for a further instance, all the symptoms of conjunctivitis except one existed in two distinct individuals, that one symptom being mitigated in the one case, and violent in the other, we should have a different form of inflammation in the two cases. Supposing this exception symptom to be the discharge which commonly supervenes in every kind of conjunctivitis, in one instance being slight, in the other great, we have immediately a variety at once evident. It is, then, rather the degree in which the symptoms relatively stand to each other that constitutes diversity of species in conjunctivitis.

The ordinary symptoms of simple conjunctivitis are a pricking sensation as though sand were in the eye—a slight mucous discharge—a glueing together of the lids on their being closed any great length of time, as in sleeping—some intolerance of light—a little heat of an acute or smarting rather than an obtuse or dull character—a fulness of the blood-vessels, which are bright in colour, and so superficial as to be moveable with the nail of the finger, or any other instrument of a like nature. In a chronic stage of it, the symptoms, generally, undergo some mitigation, with the exception of the discharge that is poured out, and the concretions which take place. Occasionally the intolerance of light is increased, which is always an unfavourable symptom. The chronic form is, moreover, accompanied by a change in the colour of the vessels, as before noticed, though this change is not always very palpable. It is seldom that simple conjunctivitis runs into a chronic stage, and if it does, the stage is usually of too short duration for any very material alterations to be set up in the nature of the disease.

Similar features are presented in Catarrhal Ophthalmia, which may, so far as it is mild in its character, and unconnected with any specific disorder, be considered as simple conjunctivitis; but there is simple conjunctivitis not produced

from cold, and this is the chief distinguishing mark between the two diseases. It is difficult, nay, almost impossible, to ascertain, at all times, whether cold is or is not the cause of simple inflammation of the conjunctiva. If there be no evident constitutional cause, and no known local injury, we have reason to suspect the inflammatory action to be catarrhal. A catarrhal inflammation is certainly distinguishable from what might be termed the simple by the experienced practitioner, though it is a difference not easily described. Catarrhal ophthalmia is generally accompanied by more or less fever, and by the common symptoms of cold, and is usually preceded by these symptoms. The discharge from the membrane itself is greater, and the whole eye presents an appearance of languor, which is not perceived in a purely simple form. The concretions about the eye-lashes and angles of the lids are also more abundant and troublesome. Cold is commonly the exciting cause of strumous ophthalmia, and catarrhal conjunctivitis often ends in that which is scrofulous, so that what at first may present every sign of simplicity, terminates in a decidedly specific affection.

To enumerate all the causes of simple conjunctivitis would be a work of supererogation. Those which first come under notice are of a mechanical and chemical kind, and these are numerous. They invariably excite inflammation, and are apt to induce the highest degree of inflammatory action to which this species of ophthalmia is liable. Small extraneous bodies, such as sand, iron-filings, particles of flint, lime, dust, snuff, and a host of other irritating substances, lodge on the conjunctiva, irritate, and then inflame it. The effects of pure lime are suddenly violent, especially on the cornea, which turns, almost momentarily, of a deathlike white, presenting a marble appearance: its texture is destroyed, and it seems to crumble away. There is a perfect decomposition of the parts, and all transparency for a time is lost, which may be more or less recovered, though the

change undergone by the cornea is often quite irreparable. Lime appears to coagulate the sclerotic and palpebral divisions of the conjunctiva. The membrane, at least, becomes pulpy and soft, loses its vitality, and assumes, as in the instance already recorded, a marble-like or deathly white appearance. These effects are confined chiefly to the part touched.

Whatever may act as an irritant is, of course, likely to produce inflammation of the conjunctiva. It may do so independently of any predisposing cause prevailing in the system, or it may act as a mere excitant to some such cause, the character of the inflammation which it excites partaking of the predisposing influence of the body. Inverted eyelashes are frequent excitants. Persons suffer from this inversion for many weeks together, without the cause being detected; and from the frequency with which such cases occur, there can be no doubt a large proportion of ophthalmic affections is of this character; and the neglect of searching for the inverted cilia, as a cause, has entailed upon the patient most serious results. Every remedy which the art of a modern Æsculapius could devise has been adopted, except the right one, without the slightest alleviation of the symptoms following. One person in particular we recollect had become emaciated and reduced to an alarming extent, by the active depleting measures that had been resorted to. In such a case it unfortunately happens that the exciting cause, not being removed, continues to keep up active inflammation, and the undiscerning attendant is led on, unconscious of his error, to persist in his depleting system. The inflammation seems to call for such treatment, and would continue so to do while there was life, and the cause remained in operation. The eyelash at last, perhaps, is by accident either removed entirely, or replaced, and the patient of a sudden restored, the practitioner attributing the restoration to the last thought of remedy that he administered.

The situation and uses of the eye expose it, not only to

the causes enumerated, but to intense application, often to minute bright objects, and to brilliant and great lights. These are severally apt to produce inflammation. Its close connection with the skin, and its liability to partake of its diseases, render it subject to inflammation in measles, in small-pox, in scarlet fever, and in skin affections from teething. Its proximity to the head exposes it to the influence of any increased action in the circulating medium of the brain. All these things may excite inflammation of a simple nature. Persons employed in iron-foundries, glass-manufactories, in any occupation where heat is accompanied by reflected light, which is always worse than direct light, such as might proceed from the sun or lightning, are frequent promoters of conjunctivitis, though more frequently of retinitis. Painters often get simple ophthalmia; so, likewise, do workwomen, and those persons whose eyes are much exposed to white objects, such as snow, chalky roads, and freestone houses. The reflection of light from the sea, from the sand on its shore in hot climates especially, induces ophthalmia. The act of looking intently and habitually at objects of various colours grouped together, is not an unfrequent cause: the act has at all times a tendency to aggravate the symptoms of an inflammation already developed, and should be, in consequence, particularly avoided at such periods. Besides these causes we may mention suppressed discharges, teething, repelled eruptions. If, therefore, in the absence of all other palpable or probable causes, the body should be exposed to impure and unwholesome air, or any accustomed discharge or eruption should be known to have been suppressed and repelled, or teething to exist, these may rationally be looked upon as direct causes. Impure atmosphere, such as exists in workhouses, manufactories, hospitals, and the like receptacles, is often known to retard the cure of conjunctivitis when it does not act as a cause. The remedy is an easy one —the removal of the patient to a purer air.

These causes, though frequent, are not so apt to occasion conjunctivitis as mechanical injuries, or chemical applications. They have each a more ready effect on some persons than others. This, indeed, is the case with all causes. They operate speedily and vehemently, according to the predisposition of the body to disease, and the consequent susceptibility of the conjunctiva. One cause is yet more likely to occasion inflammation than another; exposure to white surfaces and bright lights, for instance, more than the application of the eye in reading or needlework. But all these causes may severally act as exciting causes of some form of specific conjunctivitis: they may set up a specific inflammation that would not else have existed, but they are not equally liable to effect this. An impelling power only is wanted to induce that disease to which there is already a predisposition, and it signifies little what that impelling power is. A strumous habit is a highly susceptible habit. If such prevail, there is no doubt of the inflammation induced by either of these causes developing itself in a strumous form, the distinguishing signs and nature of which, arise from what exciting cause they may, will be mentioned in the Chapter on Strumous Ophthalmia. As the states of the system which predispose to, and favour the development of, inflammation are numerous, varying considerably in the extent of their predisposing influence, the habit of the patient must not hence be overlooked, not even if the exciting cause can be traced to some external agent. The rapidity and successfulness of the cure depend greatly on the improvement of the system in such a case, or on the removal of that state of system which has thus predisposed to the disease. We may be assured of such a tendency existing when the same exciting or local cause is unable to produce the same effects in any individual who may, in like manner, happen to be exposed to it. For instance, if dyspepsia, or intestinal irritation, or suppression of any habitual discharge, or fulness of habit, or its reverse,

an impoverished habit, prevail, the usually prescribed remedies for these several irregularities must be resorted to in combination with local measures. Whatever deviation from health may exist, and whatever may be the nature of that deviation, it must be regarded as a preventive to the recovery of the patient, and be, hence, if possible, removed. If they should not have acted as predisposing causes in the development of the inflammation, they may yet assist in retarding the cure. An impoverished system is a frequent predisposing cause. This may appear paradoxical to those who are apt to think that the predisposition of the system to inflammation is occasioned by plethora and fulness of habit *alone*. It is not so. Whatever engenders irritability is likely to engender inflammation, at least a tendency to it. This is a natural consequence when the nerves, the sources of irritation, are the chief instruments concerned in the development of inflammation. Yet the inflammatory action, under a debilitated constitution and spare habit, is commonly different in degree from that which takes place in the robust system, where the vital energies are great, the circulation is powerful, and the quantity of the circulating fluid abundant, its quality inflamed and rich. The remedies in the two cases are usually opposite, if, at least, the cases are very extreme, or decidedly marked. One runs through its stages more actively than the other, and is attended by those symptoms which denote active inflammation; the other being more of a passive character, indolent, and often more difficult of removal. When fulness of habit is a predisposing cause, conjunctivitis is commonly simple in kind. An habitually enervated and weakened system often indicates the presence of a strumous disposition, when no evident cause for that enervation can be traced. A full habit of body is, rather, a token of health, provided there is proportionate stamina and vigour of system: it shews that the nutritive processes are regularly and healthily performed, which is seldom the case in a body enfeebled by scrofula, or

some other latent constitutional malady. For which reasons we usually get simple conjunctivitis in a full habit, and specific inflammations in an enervated and debilitated habit, such habit being constitutional, as some temporary circumstance may enfeeble a system previously robust and healthy, and without any constitutional evil absolutely prevailing.

When acute ophthalmia exists to any given extent, lymph often becomes deposited about the cellular membrane which connects the sclerotica with the conjunctiva, and even into the texture of the conjunctiva itself, which is often so raised above the surrounding level as to overlap the cornea, frequently to a great degree. In violent cases the whole of the cornea may be excluded from sight. This is called *chemosis*. It may be deemed a tumefaction of the parts under inflammation. It is very sensible, and presents a pale red colour. It is not a common attendant upon simple conjunctivitis, nor is it confined to any particular species of ophthalmia. Any thing capable of producing active inflammation of the conjunctiva and its adjacent cellular membrane is apt to occasion it. It frequently accompanies the gonorrhœal and purulent kinds of ophthalmia, and takes place in the second rather than in the first stage of the inflammatory process. It generally proves obstinate and dangerous; and is, therefore, one of the most troublesome consequences that we have to encounter.

Hitherto we have been considering that state of simple conjunctivitis which is called acute. We now refer to that called chronic. The latter state, it has been already said, is one that ought seldom to exist in any kind of conjunctivitis, much less in that of a simple kind, where the same disposition to a passive and chronic stage does not prevail. Neglect on the part of the patient, or mismanagement on that of the medical attendant, may generally be regarded as the cause of

any form assuming this character. There are, nevertheless, some states of system which predispose to it more than others, and in which the acute stage is short in duration. There are some kinds of inflammation less likely to yield quickly to remedies, and such as are, from the commencement, of a character of which the chronic stage partakes, which is passive and sluggish, the acute inflammatory stage having subsided, leaving the parts in a debilitated, and more or less permanently disordered state. Chronic ophthalmia is not, as some have supposed, a necessary result of acute ophthalmia. If a subsidence of the acute state in the curative process may be called a chronic state, however short the duration is from the termination of the active symptoms to the completion of the cure, a chronic stage must needs follow an acute one. If the interval elapsing between these two periods be long—if the recovery be tardy and protracted, the disease may be called chronic; for it will present the chief features of such a state as it is understood by us, which is passiveness of action, with length of period in continuance. Every chronic inflammation is understood to be passive, but every passive inflammation is not chronic; while that passiveness of character may be merely the existence of a day or so, inflammatory action, from the subsidence of its active form, proceeding rapidly to a recovery. When, in fact, an inflammation has continued beyond a certain period—a period which limits the duration of an active stage, it then becomes chronic in character. It is scarcely possible for active inflammation to continue long in the same organ without terminating in either ulceration or death of the part; but chronic inflammation may subsist for a long time without these events following. Preternatural distension of the conjunctival vessels, with a slight irritability of the part, little pain, and little mucous discharge, in connection with the eye presenting a languid appearance and inert expression, constitute the chief pathognomial or pathological signs of the chronic stage of conjunctivitis. Every passive

inflammation need not necessarily have been preceded by active inflammation. Strumous ophthalmia often begins and exists without any signs of activity or acuteness. The early stage of an inflammatory action cannot be chronic; it may yet be passive, which is the same in effect, except that it requires to have existed a longer time.

When chronic ophthalmia exists in persons of impaired and scrofulous constitutions, it often shews itself extremely obstinate. The great object is to cut short the period of the acute stage as quickly as possible. The vessels, in this case, sooner recover their tone, and return to a healthy condition. The more protracted the disease, the more permanent will be the debility into which they fall, and the less recoverable is the health of the whole membrane. But in our aim to prevent this permanent debility of parts by quickly subduing the active stage, which would occasion exhaustion in proportion to the length of time active measures are persisted in, we must guard against the use of such an extent of depletion as might be unfavourable to the speedy restoration of tone and vigour; as much so, indeed, as the protraction of the disease itself. The proximate cause of passive inflammation is, essentially, debility —loss of tone of the capillary vessels—be the remote or exciting cause what it may. This debility it is therefore the design of the physician, or surgeon, to prevent when it is likely to succeed acute inflammation; and this is, doubtless, best accomplished by giving as short a life as possible to the active stage, when it can be done, without occasioning such an expenditure of vital power in the system itself, and in the vessels of the part, as shall frustrate the object in view. The restorative processes carried on in the eye are not independent of the system at large. Local, stimulant applications may produce a state which the constitution would fail to yield. This teaches us the advantage of art when the reparative powers of nature are slow, weak, and inefficient.

CHAPTER V.

Results of Conjunctivitis.

It now remains to be shewn what the ordinary results of conjunctivitis are; and we lament much that they should ever occur, seeing the sad and often irreparable consequences attending them. Three of these results are the common terminations of all kinds of inflammation wherever situated, though they are not equally common to all. With those inflammations wherein they are most likely to occur, we should be at all times more especially on our guard.

There are in conjunctivitis five different forms of these inflammatory *terminations*, for such are they called, as they follow and do not commence with inflammation. Either species of conjunctivitis is liable to them, and even, though rarely, the simplest.

These results are a nebulosity of the transparent tunic, a deposition of lymph, an ulceration, a sloughing, and an opacity. In corneitis we have an additional result. This is called hypopyum. It differs from other deposits of matter only in the peculiarity of its situation, which is behind the cornea, in the anterior chamber of the eye. The matter of which it consists is extremely viscid, and supplied by the cornea through an ulcerous aperture of the posterior layer. Unless of considerable magnitude, it is no impediment to sight, and becomes, in time, entirely removed, as is the lens of the eye in a case of dislocation or dislodgment from its tunic. Being specifically heavier than the aqueous humour, it sinks, and being extremely viscid, it requires the solvent properties of the humour to

render it soluble, and thence removeable. We remember to have seen a curious instance of deposition in this chamber, assuming the appearance of that which arises from inflammation of the cornea. A cataract had been depressed some weeks previously, part of which not having been absorbed, was jerked from its abiding place into the anterior chamber, where it lay at the bottom in the character and form of a decided hypopyum.

The results of conjunctivitis are rarely of consequence, unless they attack the corneal conjunctiva, when, by extending to the cornea itself, the transparency of those parts, which, for the sake of vision, it is necessary to preserve transparent, is rendered opaque, preventing the inlet of light. They more frequently follow purulent, gonorrhœal, and scrofulous ophthalmia than either of the other species. They present the same features, and require the same treatment under every form of conjunctivitis, and for that reason will not require noticing under the other heads in which it is proposed to view conjunctivitis.

Nebula.—This is the natural consequence of inflammation of the corneal conjunctiva. By the term, we mean to convey an idea of an alteration in the natural secretions and circulating fluids, rather than of any actual deposit of lymph. It is yet, in general, the forerunner of deposition, of ulceration, and of sloughing. The cloudiness is usually general. It may be circumscribed. In this case it indicates partial inflammation only: the inflammation, at least, is not uniformly violent throughout the whole extent of the membrane. The discolouration may pass away with the inflammatory action, and leave all parts perfectly transparent. It is supposed by some pathologists that nebula is owing to interstitial deposits of lymph; but there is much reason to doubt whether the change which would naturally transpire in the ordinary circulating fluids of the transparent membrane from inflammation, will not suffice to account for the phenomenon. These remarks apply equally

to the cornea under the change, as to the conjunctiva. When the discolouration assumes a yellow cast, being first grey or white, and that discolouration is circumscribed, we have reason to suspect some interstitial deposit of lymph. But this is not so much a feature of conjunctivitis as corneitis. The consequence of deposition is a permanent opacity, more or less dense, which opacity is called albugo or leucoma. It would, perhaps, be going too far to say that a greyish or white nebula was never attended by deposition; but there can be little doubt that it may exist, and in fact generally does exist, without any kind of deposition. We are led, in part to this conclusion, from the speediness of its removal after the inflammation is known to have subsided—from its actually disappearing as inflammatory action is removed. We can easily conceive that either an obstruction, or an inordinate supply of the fluids of the parts, would occasion some difference in the appearance of the membrane, and particularly if some change is made to take place in the chemical qualities of such fluids, all of which circumstances would be most likely to transpire under inflammation. If there were any actual deposition of lymph more or less turbid, the absorption would not be rapid enough to produce its disappearance as soon as inflammation had subsided. The vitality of both conjunctiva and cornea is low, and the process of absorption would be proportionately tardy; but if there were a mere disorder in the fluids, giving the nebula, it requires no strength of the reason to perceive that the disorder would be removed with the cause on which its existence depended.

A *deposition of matter*, the seat of which in conjuntival inflammation is between the mucous membrane and the cornea, in the cellular tissue, amounts, when circumscribed, to a kind of abscess. It indicates inflammation at all times, and is generally removed by ulceration alone. It is occasionally absorbed. This, however, is a rare occurrence. It is yet more rare to see it in mere conjunctivitis. The deposits commonly seen are between the laminæ of the cornea. We have seen cases, and one

in particular, wherein considerable deposition existed between the corneal layers, and of which nearly every trace became lost in a few hours. The particular case referred to was one attended by considerable inflammation of the conjunctiva, cornea, and sclerotica. The subject was a lad about twelve years old, admitted under the care of the senior surgeon of the North Devon Hospital. The deposition was great, covering the whole space of the pupil, and most decidedly marked in character. The inflammation being strumous, the intolerance of light extreme, the whole eye so inflamed as to present scarcely a discoloured or transparent speck, it was unhesitatingly pronounced to be a case in which it was scarcely possible for even partial vision to be restored. But the following morning found the patient with an entire removal of the deposited matter, and a subsidence of the inflammation. It was at first conceived that the matter had found its way into the anterior chamber, and been thus removed with the aqueous humour. No appearance of turbidness whatever was perceived here, and no relic whatever left, except a minute speck, which occupied, as near as possible, the centre of the site occupied by the matter before its disappearance. The boy soon recovered, leaving the hospital with a minute opacity, which was likely to continue permanent. This case is worthy of notice, inasmuch as it is unusual, and particularly as no sign of ulceration either of the cornea or conjunctiva, save the speck, existed. The matter was absorbed, and that in the unusually short space of about twenty hours. Had the deposition been slight, it would have excited little or no surprise; but it covered one half of the space of the cornea, and the attendant inflammation was intense.

The deposition that takes place between the transparency and the layers of the cornea is a thick viscid substance, unlike that which attends the suppuration of other tunics, and not so easily absorbed; the consistence is not that of pus; its colour is yellow; the edges are generally very defined, and it is so far unlike a common abscess, that it never points as though nature was

making an effort, or establishing some process to remove it. If an incision be made down to its bed, it does not escape; it is only removed by absorption or ulceration. It invariably leaves an opacity more or less dense and diffuse; and should it be removed by ulceration, and that ulceration should extend through the whole cornea, the most destructive consequences ensue.

Ulceration.—So far as the conjunctiva is concerned, this is usually of little moment compared with that of the cornea. It leaves an opacity always limited in extent; and we have such a command over it by local remedies, that there is seldom reason to dread any considerable loss of transparency. But it rarely happens that the cornea is not implicated in an ulcerous state of the conjunctiva, and in its complicated form it is here alluded to.

The evils which ulceration in these parts entail, are in proportion to its extent, its situation, and depth. The greater proportion of the corneal surface it embraces, the greater is the size of the opacity it leaves; and the nearer that opacity is to the centre of the cornea, the greater is the quantity of light excluded from the eye. If it extend through the whole thickness of the cornea, the results are even worse: the aqueous humour escapes, and the iris, which was formerly kept separated from the cornea by means of this fluid, now loses its mechanical support, and falls upon the cornea, part of it protruding through the aperture formed by the ulcerative process. This state of the iris is called *Prolapsus Iridis*. It ultimately adheres to the corneal opening, the eye is disfigured, and vision becomes partly, if not entirely, lost. This formidable result often occurs in neglected and badly treated conjunctivitis, when inflammation is suffered to communicate itself with the corneal layers, and ulceration, as an almost necessary consequence of that neglect, to take place. It yet may occur under the ablest management in those species of conjunctivitis which are least manageable, but it is by no means often. The result is quite

irremediable, and sometimes not discovered till long after the subsidence of inflammation, owing to the dense opacity and discolouration of the cornea which accompany the ulcerative process and the violent inflammation.

When the ulcer has healed, on the iris having prolapsed, a dark spot is left in the centre of the cicatrix or healed part. An opaque circle surrounds it. The prolapsed part of the iris disappears sooner or later, leaving this spot as a relic of its former existence. The iris, in the simplest case of prolapsus, is drawn to one side, when the pupil becomes oblong in form rather than circular; one part, that which becomes connected with the ulcer, being fixed and rendered immoveable, unable to either contract or dilate. It sometimes happens, on the iris falling against the internal surface of the cornea, and becoming adherent to it, that the cornea itself projects, constituting a phenomenon called *staphyloma*. The adhesion of the iris to the cornea from inflammation is termed *synechia anterior*. The ulcerative process is often very tedious. The edges of the ulcer are generally ragged, and the surface irregular. In the developing process there is a yellow, but in the healing process a bluish, colour of the ulcered parts. That which at first had lost its transparency and polish, now gradually regains them to a greater or less extent. The newly deposited matter in the healing process is a viscid, glutinous substance, unlike any other. It is readily distinguished from a change of structure that denotes disease. It becomes organized, but never entirely transparent. The capsule of the aqueous humour generally gets inflamed and often opaque under corneitis.

Sloughing of the conjunctiva from inflammation is seldom unattended with disease of the cornea, and the first layer of the latter tunic is more apt to be affected by it than the other; not because the second is more able to resist the destructive consequences of inflammation, but because it is the least frequently affected, and because the inflammation which occasions sloughing is generally communicated to the cornea through conjunc-

tivitis, where the first layer is necessarily the first participator. The nature of these textures is such as to dispose them to sloughing. The consequences to vision are, as in ulceration, in exact proportion to the extent of the slough, which is always preceded by nebula of a white rather than a yellow cast. The parts next lose their transparency and polish, and then their firmness and compactness of structure. These appearances denote a complete, an entire loss of nervous and sanguiferous energy. The life of the parts is gone; the slough partakes of a brownish character or dark grey; a boundary is perceptible between the living and the dead tunic; and the diseased portion is gradually separated and thrown off from the eye. The ulcer left on this occasion is irregular and flocculent in character, often destroying the remaining cornea, and thus producing a train of concomitant evils too long to enumerate here. It occasionally happens that the sloughing is general, when the whole substance of the cornea and its covering is lost, and the contents of the eye escape, the ball becoming collapsed and reduced in size to less than one-half its ordinary dimensions. The only possible means by which this serious result can be prevented to the humours of the eye, is by the membrane lining the internal surface of the cornea not being implicated. This membrane is called the membrane of the aqueous humour, and by covering the whole aperture formed by the slough, prevents, for a time at least, the escape of the contents. The tunic is, however, very thin, and seldom able to resist the pressure of the parts behind.

The consideration of this important subject is scarcely within the limits which we have laid down for ourselves in this Treatise; or some very interesting and useful particulars may be referred to. The disease, in all its consequences, is yet connected with corneal conjunctivitis. Sloughing of the conjunctiva alone, or unconnected with the cornea, is, we have said, of rare occurrence. It yet does exist without any very perceptible implication. When it does, the case is compara-

tively harmless, the process less tedious, the desight and injury to vision of no material consequence. The whole tunic will generally be restored in all its transparency.

Opacity is the common and invariable result of ulceration and sloughing. If it be, as already intimated, in the axis of vision, or in the centre of the cornea, it is serious according to its extent. If near the edge of the cornea, and does not pass beyond the limits of an ordinarily contracted iris, thus leaving the part before the pupil transparent, it is no inconvenience, though a desight. It is never entirely removed. In young children it decreases in size as they grow in years, passing almost entirely away. Interstitial deposits produce opacity, which is commonly dense if between the layers of the cornea. If more superficial, being between the conjunctiva and first corneal layer, it is less dense, presenting the appearance of an additional thin, greyish membrane or film.

CHAPTER VI.

Treatment of the acute Form.

We have now given an account of the nature and symptoms of simple conjunctivitis, of the causes, exciting and predisposing, local and general, which induce it, and of the consequences to which it is liable. And it is to be understood that the observations embraced in this general account, apply forcibly to every species of conjunctivitis. It now remains to be shewn what course is to be pursued to cure the disease when it is developed, to prevent and remove the serious results which are likely to follow. But let us here pause to press upon the reader again the necessity of his observing that these results are common to every form of conjunctivitis, and more so to some than to others—more to strumous than to simple, more to purulent and gonorrhœal than to catarrhal and erysipelatous; and that the local treatment, and likewise the general, are often the same in the respective forms. One exception in particular we are called upon to make here, and this is, that, in plethoric habits, we should refrain from administering a generous diet and stimulants, while in emaciated and debilitated constitutions we are generally called upon to be lavish in their use. In the former case, too, we are usually inclined to bleed, but in the latter to rigidly abstain from it. Where we see one robust constitution subject to conjunctivitis, we see at least five the reverse, and absolutely predisposing to the disease. For this simple reason constitutional remedies prove of more essential service than is generally conceived, rendering ophthalmia a medical rather than a surgical disease; at least, one that comes

within the province of the physician instead of the surgeon. Topical remedies will often succeed in removing conjunctivitis, even when the predisposing cause is to be found in the system; but the cure is not so speedily performed, nor so permanent. The efficacy of general remedies can be fully appreciated by him only who views, with a sagacious eye, all local diseases as seldom more than types of some general disorder, when, at least, such diseases cannot be traced to a local external cause; and even if they can be thus traced, we have, at all times, room to suspect, while such an universal tendency to disease is to be found in the family of man, and especially the civilized part of it, that some predisposing inclination to that disease, be it of what character it will, prevails in the body. The great object is to remove the disease as soon as possible, not more for the parts themselves than for the system at large; as the continuance of any disease in an already enfeebled frame must necessarily conduce to the general disorder, and thus increase the predisposition. Experience should teach us to place more implicit trust in general remedies for conjunctivitis than is commonly done; yet it is quite evident that they alone are incapable of effecting a cure in most cases, but they are most valuable in combination with local means, and the best able to prevent a recurrence of the inflammation when it can be proved to have any connection with a radical defect of system. It would be akin to madness to trust alone to them in any instance, except when all local measures have completely failed. But they are auxiliaries, and powerful ones too, in the hands of the discreet practitioner. The simpler the local treatment is, the better it is, generally speaking. It should be the object of every man to reduce rather than increase the scale of remedies—to simplify rather than complicate. The art of prescribing will be in the greatest perfection when we shall have discovered that a little will be as efficacious as much —when the laws of the human body shall be better known, and all deviations from health be treated upon the principle which

this addition to our stock of knowledge would suggest. We are as much novices in the perfect art of prescribing as Hippocrates was in that state of the art which pertains to us of the present day. The gradual improvements, all tending towards a simple and simpler system, which are daily made, shew how far short we have hitherto fallen of perfection, and still how much we have to learn. We know not enough of the economy of the human frame, not enough of its laws of action, not enough of its communications and sympathies, and, therefore, not enough of the effectual measures which may be adopted to correct its deviations from health. When, too, we have become better acquainted with the *modus operandi* of medicines, we shall have reason to boast of our having made a still greater progress towards that system of comparative perfection at which we are by slow degrees arriving.

The preceding remarks apply with equal force to every kind of conjunctivitis; so indeed do the following details with regard to the remedies that are to be employed. It thus follows that the course of treatment prescribed in the subsequent Chapter for active and chronic simple conjunctivitis may be pursued with safety, very little variation only being required in the other forms.

There is one particular in treatment of which we should never lose sight—this is, that Nature herself is both willing and able to do much towards repairing any mischief that disease may incur. The Æsculapian art is strictly an assisting art; and we are not to check the operations of Nature, nor attempt to do more for her than she needs. Her process of restoration is commonly the best; but there can be no doubt she is often frustrated by the officiousness of some one of her assistants, who thinks himself the most skilful of the two artists, or is, at least, but little inclined to pay sufficient regard to so powerful an agent, so kind an auxiliary.

One of the commonest causes of simple conjunctivitis is the lodgment of some extraneous body on the membrane, and exciting, by its continuance, first, irritation, and then inflammation. Such a cause existing, its removal is our first object. Though the patient may not be conscious of any such body being present, a careful inspection should be always made. From the sensation produced by the inflamed vessels of the conjunctiva, even when the cause is a remote one, we seldom find him backward to believe that the inflammation is caused by the immediate presence of a body of this kind. We are thus often prompted to make the inspection when there is no absolute necessity. The inspection is made by first opening the lids to their utmost extent, and accurately, minutely, and carefully examining every part of the membranous covering of the globe, the patient being directed, meanwhile, to look on all sides alternately, that not a spot may pass unnoticed. This exceeding care is called for when we reflect that the body may be imbedded in either part, and that it may be of so small a size as to be easily overlooked by a hasty glance. If nothing be found in the conjunctiva of the globe, that of the lids must be next carefully examined. This is done most effectually by eversion, a process not to be recommended if there be ample reason to suspect that an extraneous lodgment is not the cause. It is prudent to inspect the internal surface of the lids, even though a cause may be detected in the membrane of the globe, as there is frequently an extraneous substance lodged in both divisions. We have known the most evil consequences ensue from this neglect—this partial examination, a sufficient cause for the inflammation being supposed to be found in one portion of the tunic only, another cause yet remaining, keeping up the inflammation. The pain from an extraneous body lodged in the membrane is always great, but it is magnified when the lodgment is in the palpebral conjunctiva. This is a situation where friction cannot be so easily prevented; independently of which, this division is most sensitive, being more

vascular and copiously supplied with nerves. If the eye and lids are kept perfectly at rest, pain is avoided. The patient generally directs us to the site of the extraneous lodger when it exists in the palpebral division.

The situation of the eye necessarily exposes it to causes of this character: but it is not always that foreign bodies, such as we have named in a former Chapter, lodging in the eye, produce inflammation. If, however, those of a mechanical nature become absolutely imbedded in the membrane, they never fail to produce the whole train of inflammatory symptoms. Occasionally they are mere temporary sojourners, unfixed, and become washed away by the plentiful supply of tears they occasion. It is not exactly so with acrid and other substances that act chemically. Though suddenly removed, they leave inflammation behind, producing, according to their nature, more or less disorganization of the parts they touch. The effects of pure lime have been already noticed. Mortar has a similar, though less violent effect. If nature has not removed these irritating and caustic substances by the time the patient is seen, they must be wiped away by means of a fine and clean towel or handkerchief, or washed by syringing the eye with tepid water, or an acid solution consisting of vinegar and water. The effects of the caustic are yet soon destroyed, more or less, by the neutralizing properties of the secretions which they excite. This step being taken, and the irritant removed, the next is, to resort to the general remedies prescribed for conjunctivitis in common, or for simple inflammation.

All foreign bodies will be, sooner or later, removed from the eye by the means adopted by Nature herself, even those which are strictly imbedded. This she does by ulceration, if her other means have failed. The decomposing properties of the lachrymal secretion destroy the specific qualities of some substances, and hence modify their results. They often act as solvents, removing by slow degrees the irritating substance. These bodies, upon which the tears are thus capable of operat-

ing, are, of course, such only as will admit of solution by the chemical properties of the secretion. Thus far we see that Nature herself is armed with remedies against intruders. Though we seldom possess any thing better than Nature for destroying or counteracting the effects of chemical stimuli and irritants, which is usually effected before we see the eye, we are not to leave her to herself in the removal of those irritants which are of a mechanical description. She is not to be suffered to set up an ulcerative process, lest the consequences entailed by it should be destructive to vision, to say nothing of the protractedness and painfulness of the inflammation which the omission would produce.

Mechanical irritants imbedded in the conjunctiva are sometimes so exceedingly minute as to elude detection. They are, however, generally to be perceived. From the difficulty which occasionally attends the detection, the eye should be always viewed in a strong light, unpleasant and painful as it may be to the patient. The ordinary situation of these mechanical bodies is the corneal conjunctiva, and they usually penetrate the cornea to some extent. When not too minute, they may be removed by a small pointed instrument placed as far behind as possible without injuring the contiguous parts. The extraneous body is known by the darkness of the speck; but this darkness often remains after the body has been detached, particularly if that body were an iron filing. The inexperienced practitioner cannot be too cautious in drawing his diagnosis from these circumstances. It has frequently happened that such a person has been poking about for a substance already removed. The instrument best adapted for this purpose is a cataract needle. Sometimes the body is large enough to allow us to grasp it by a small pair of forceps. The use of forceps is not practicable in general, or if the least doubt exist of the substance being easily laid hold of. The practitioner had much better trust to the dexterity of his hand, and to the acuteness of his touch, for the removal of almost every

body which is likely to become lodged in the conjunctival covering; nor do I know of any implement of which we have such perfect command, and on which we can more fully rely for assistance, than the common couching needle. Various instruments are in use for the removal of the same cause; but there is one in general that supersedes the utility of others. In different hands, however, different implements are more or less useful. These bodies are often difficult to remove, from the corneal surface especially, owing to the firmness with which they are fixed. By a clumsy operator, the parts surrounding are frequently torn so much in the operation as to occasion an ulcerous sore and a permanent opacity. Another difficulty is presented in the removal by the unsteadiness of the eye. Owing to its extreme irritability, it cannot easily be fixed. If this should occur to any great extent, it is often prudent to desist in the attempt, and leave the body to be displaced by ulceration. The more skilful and experienced the practitioner, however, the less likely is he to meet with this difficulty. His preparations are comparatively trifling, and his dexterity and quickness remove the offending body before it is often suspected. The eye is thus saved from that increased irritability which the preparations and tediousness of a less experienced operator would unquestionably occasion. It is not at all times that an imbedded substance in the cornea produces a great degree of inflammation. If the external surface be smooth, suffering the lids to glide over it without producing friction, it may remain in the cornea without any very perceptible alteration for weeks together. It is not so much from the sensibility of the cornea that the inflammation is induced, as from the friction which takes place upon the more delicate membrane—that lining the lids.

The mode of operation for the detachment of these bodies may be thus described. The operator may either stand before or behind the patient. The latter position is generally the best, the patient sitting before a window. The head being drawn a little back by the operator, who, to prevent too great

an inclination of the head backwards, that he may have full view of the eye, must be elevated above his patient. The head being commanded, the lids must be separated by the fingers of one hand, the patient requested to keep his eye fixed intently upon some object that is conveniently situated for the operator, and with that hand which is not engaged in fixing and separating the lids, the body must be removed. The advantage derived in placing ourselves behind the patient is, in the fuller command we have over the head, and in not obstructing the light, which would necessarily be the case by standing between the patient and the window. These minute details of a comparatively trifling operation will be uninteresting and useless to him who is perhaps better acquainted with the method than the detailer himself; but to those for whom the Author more particularly writes, they will not fall short of importance and utility.

Inversion of the eyelashes is, doubtless, a very frequent cause of simple conjunctivitis, and as often the exciting one of other forms. The remedy is easy and effectual. The inverted hairs must be plucked out by a small pair of tweezers or forceps. From the frequency of this occurrence, it is incumbent on every medical attendant to examine the state of the eyelashes: nor is it to be hastily or carelessly done. The inversion commonly happens at the internal canthus or angle of the eye, and the lash, often a single one, is frequently so small and colourless as to escape notice. One inspection should not be deemed sufficient; and it often happens that at a remoter period, the inflammation having existed for a long time, the inversion takes place, acting as a new exciting cause, and keeping up a continuance of inflammatory action. Concretions about the tarsal margins will sometimes give the lashes an inverted direction.

These several bodies, various indeed in character, being removed, the treatment to be employed will vary according to the violence of the inflammation which has been set up, and

the temperament and habit of the individual who is the subject of it.

When impure air has acted as a cause, the patient must be removed. When suppressed discharge or repelled eruptions are causes, they should be reproduced, if of less importance than the conjunctivitis itself, or else some counter irritation must be set up in a distant part, tantamount to that which has subsided. If this be not done, chronic ophthalmia, of a very obstinate character, will generally ensue. In case teething is a cause, we can do little else, in a *general* way, than keep the bowels and skin active, and attend to the health. The gums may be lanced, and the commonly prescribed local measures resorted to—such measures as shall be compatible with the age of the child.

We have now to speak of other remedies; such as are more particularly applicable to conjunctivitis in its several forms.

Bleeding is a most useful auxiliary. It is a common practice with some practitioners to divide the distended vessels one by one, to discharge their contents. This is a measure which ought seldom to be resorted to. In irritable systems it may be followed by serious consequences; indeed, it seldom answers a desirable end under any circumstance. If the inflammation be healthy, it will be removed by the ordinary means; if unhealthy, the plan will often induce ulceration. The time, if there be any, in which it may be employed, is when the passive or chronic form exists; but this is much sooner and more effectually removed by proper stimulating applications, or by proper general remedies. The idea of a knife going near the eye is, to most persons, highly injurious, producing, in irritable habits, a still greater amount of inflammatory action. Experience teaches us, if common sense did not point it out, that the course is generally impracticable.

Bleeding, we have said, is one of the most useful remedies in the hands of the practitioner. If the habit be full, it is generally prudent to resort to it, locally or generally, whether

the inflammation be violent or not. If not violent, it is used as a precautionary step to prevent the inflammation spreading and increasing, which would probably occur in a habit of this nature. The modes of abstracting blood are various. Bleeding from the arm, and leeches to the parts adjacent to the eye, are those most commonly in use. Cupping at the temples, or behind the neck, scarifications of the part affected, opening the temple artery and jugular vein, and division of the vessels, as alluded to, are the other methods. They are more or less generally in use according to the notions or fancy of the practitioner. The plan of bleeding through the temporal artery and jugular vein is seldom adopted—never should be except the inflammation be of a violent nature, or attended by some determination of blood to the head. Cupping is a favourite mode of abstracting blood with some, as is scarification with others. As local methods, they fall short both in utility and convenience of leeches, by which as much blood may be abstracted locally as is commonly required.

General bleeding from the arm is not usually necessary in simple conjunctivitis. It should be employed rather as a precautionary means than otherwise. Its utility cannot be questioned if the system is plethoric. If the reverse, and especially if strumous, it should be avoided, even if the inflammation is very active, which is not often so in a constitution of this order.

The application of leeches is a safe remedy under every form of *acute* conjunctivitis, and in general the only method of abstraction we require when the inflammation is confined to the conjunctiva. The number to be applied, and the frequency of the application, are regulated by circumstances, the extent of inflammation, the activity and acuteness of its character, the temperament, age, and constitution of the person affected. The site at which they should be applied has long formed a subject of dispute with the medical world. Some prefer the lids, external and internal; others object to these localities, and

select the temples, brow, and cheek. The objection offered to the application being made to the lids is not to be disregarded. The tendency it has to produce erysipelas, or puffiness and swelling of the lids, is a reason we should avoid it when it is possible to foretell that such a result will happen. Owing to the quantity of loose cellular texture of which the lids are composed, there is very great danger of the application being followed by erysipelas, if such a tendency prevail in the system. If the practitioner could be sure of neither of these events happening, the external surface of the lids certainly forms a desirable part, being nearer the seat of disease, and more directly in connection with the vessels of the palpebral conjunctiva. There is no objection to leeches being applied to the internal surface, except for the inconvenience and irritation occasioned by it. Blood by this means is taken more immediately from the affected part; but we much doubt whether the object is not often frustrated by the irritation produced. The worst consequences have followed this plan, and the most experienced cannot recommend it with prudence in irritable patients, and when there is much pain and sensibility of the parts. The principle is simple and plain, the design being to take blood immediately from the part affected. Upon this principle scarification has been recommended. The parts surrounding the lids are to be preferred for the application.

Scarification is a common practice with some men. It is not so generally in use now as it was formerly. In acute conjunctivitis we should seldom venture to employ it, unless it is by making one deep incision the length of the palpebra, from which the flow of blood is usually copious. In this way the distended and congested vessels are considerably relieved. We have seen them so emptied after the operation, as to leave no doubt of the efficacy of the plan. Superficial scarifications do little or no good. They produce but a moderate discharge, and leave incised parts, which have to be healed, and which, in healing, occasion a degree of inflammation more or less active.

A similar objection follows the one deep and extensive scarification; but it is trifling in comparison, considering the advantage derived from the great disgorgement that ensues. By this method we also divide the course of the vessels, and cut off the communication between the tarsal part of the conjunctiva and the sclerotic part, which must be advantageous, while the former is more vascular by nature, and when the inflammatory action in conjunctiva commonly proceeds from it. In chronic ophthalmia, which threatens permanent inflammation and induration about the tarsal edge, this mode of scarification is much to be recommended. If time and circumstances permitted, we could enumerate numberless cases in proof of its efficacy. Scarifications give considerable pain. They ought to be avoided in the gonorrhœal and purulent ophthalmiæ. The specific virus coming in contact with denuded surfaces produces ulceration, and a kind of fungoid excrescence, often difficult to remove.

The advantages of bleeding are evident. The effect upon the inflamed membrane is often so great as to be immediately perceptible. The congestion is relieved, the redness diminished, the irritability and pain subdued, and there is every appearance for a time of returning health, and, particularly, if the abstraction has been sufficiently copious or sudden to produce fainting, which is always desirable in more extensive inflammation than that affecting the conjunctiva alone. By bleeding there can be no doubt we keep active inflammation subdued, and the vessels empty. But we may weaken the system, and prevent the return of health to the part in this way, when, for want of tone, the vessels would become more permanently and decidedly congested. We are now without a remedy in bleeding, having already carried the depleting system far enough; whence is often induced a chronic form, requiring stimulants, and an opposite plan of treatment, for its removal. That is the wisest physician who subdues the disease he aims to remove without producing an evil, general or local, almost tantamount

to it in effect. The indiscreet practitioner will often remove what he aims at; but his treatment may entail consequences upon the patient of greater magnitude. So it is not the person who can get rid of a disease in the speediest manner that is always the best physician, but he who can do it best without endangering the life and health, but in another way, of the individual who is the subject of it. The indiscriminate use of bleeding has done more, perhaps, for the development of scrofula, and the degeneration of the English nation, than any other remedial course within the range of the medical artist. General bleeding is a remedy in the use of which we cannot be too cautious in elderly, debilitated, and strumous subjects. The same caution is not required in local bleeding. Whenever conjunctivitis is active, leeches may, without danger, be applied; reservation being made in the number agreeably to the extent of the inflammatory action, and the constitution and age of the patient.

It is not necessary we should resort to cupping of the temples in conjunctivitis, nor is opening the temporal artery or jugular vein, at one time common practices, more called for.

The other local remedies for the removal of conjunctivitis are collyriums, fomentations, poultices, ointments, drops, blisters, setons, and issues. These are more or less useful according to their character, and the nature of the inflammatory action. Some collyriums have been looked upon as nostrums: they have, however, very few specific virtues in general. Their chief utility consists in reducing the temperature, and subduing the pain of the eye, unless they are employed as stimulants, which had better, when occasion is required for such applications, be used in the form of drops, which are dropped into the eye. The lotion most commonly in use is goulard water, which may be applied to the eye by means of a compress of rag kept constantly wetted. If the object be to wash the internal surface, the membrane itself, it may be done by a syringe, which is essentially useful when an acrid

body is irritating and inflaming the conjunctiva:—this is an useful measure in some other forms of conjunctivitis, but never necessary in the simple kind, except in the case mentioned. To recommend a long list of lotions, such as have been employed, and such as are still employed, would be inconsistent, while we see no great advantage derivable from any—certainly none superseding the common wash just named, and the following, of an evaporating nature, consisting of sulphuric æther, spirit of wine, and distilled water. This may be applied to the lids, temples, and eyebrows: we have known it essentially serviceable when the inflammatory action occasioned much sensibility and heat. Brandy and water have a similar effect.

Fomentations of warm water, or made of poppy-heads, have the effect of allaying pain, and thus affording relief. They may be used at all times with safety, and, in general, with some effect. The steam arising from them, if suffered to go into the eye, often affords some slight relief.

Poultices have been much employed. They are now falling into disuse. The pressure they occasion to an inflamed and tender part can scarcely be compensated for by the continued moisture they are supposed to keep up in the skin, in which their use mainly, if not wholly, consists. They are the applications of old women, and not of discerning and scientific medical practitioners.

Ointments for the eye are made to consist of various articles. Those of a stimulating nature are some of the most essential and useful auxiliaries in the hands of the practitioner. They are remedies for a chronic rather than an acute inflammation. We shall defer any mention of them until we speak of the chronic form, and those kinds of inflammation in which they are more particularly required. The simplest form of ointment, such as the goulard, the spermaceti, and the oxyd of zinc, may be applied to the lids at night in all stages and kinds of conjunctivitis with advantage. They prevent the lids

sticking together during sleep, which ought to be avoided at all times. Serious mischief often happens in consequence of this agglutination when care is not taken in separating the adherent parts. On such an event occurring, ointments are especially serviceable; but warm water fomentations answer best. An abrupt and sudden separation will often increase the inflammation—perhaps, indeed, uproot some of the eyelashes, and lay the foundation of more or less ulceration.

Drops are the best medicinal applications we possess. They are seldom proper in any acute stage, and more seldom still necessary in simple acute conjunctivitis. We shall refer to their relative uses, and specify them in particular when noticing the treatment of chronic ophthalmia. The drops are, like the ointments, stimulants, and employed rather to bring health to an impaired and weakened membrane. The wine of opium is, however, used with much less reserve. Its efficacy has been insisted on in all stages of inflammation. It is a favourite remedy with Alexander, and was indiscriminately employed by Mr. Ware, who introduced it to the notice of the medical public. In superficial forms of ophthalmia we feel no hesitation in using it in any stage, and have generally found its sedative properties produce considerable relief. In deep-seated inflammation, when the internal parts are mostly common participators, it cannot be used with safety. Its stimulant properties, though modified by its sedative, operate injuriously in all acute inflammations affecting either of the internal coats. As a stimulant, it falls short in utility of a solution of caustic; and when the inflammation is obstinate, or ulceration has ensued, it will often fail altogether. If we wish to relieve pain, superficially seated, and give energy to vessels which require it slightly, it forms a good topical remedy; being milder in its operation than most other forms, it constitutes a safe remedy, and is rendered one of more general use.

Blisters, setons, and issues are respectively employed. The object of their application is to produce counter irritation.

Different parts in the neighbourhood of the eye are selected for them. Blisters are customarily applied either to the temple, or behind the ear, or neck. This is the best form of gaining the end in view. Setons and issues occasion more trouble; but they are more desirable than a blister when a perpetual discharge is required to be kept up for any length of time. They are seldom used unless the inflammation threatens to be of long duration. It is a common practice to apply a blister to the temple. In acute inflammation we have known an application at this part increase the disease; nor are we always sure of the same effect not following when it is farther removed from the seat of inflammation. We could relate cases in which a blister behind the ear was followed by an exacerbation of all the symptoms. Counter irritation of any form at a still more remote part would be, doubtless, of eminent service in every stage and kind of ophthalmia which promised to terminate unfavourably. In simple conjunctivitis it is rare that either of these remedies is required. A blister after the acute symptoms have subsided, may, with propriety, be applied behind the ear; in more violent cases at the back of the neck, which is the situation commonly chosen for issues and setons. These are very serviceable remedies when simple ophthalmia is attended by any congestion about the vessels of the brain, which is likely to assist in the production of conjunctivitis.

During the period we are carrying on these preventive and restorative measures, we must not neglect the alimentary canal, the skin, the liver, and kidneys, particularly if any disorder here has acted as a cause exciting or predisposing. Health can alone be preserved by taking care that the excretory and secretory functions are kept active. Simple conjunctivitis is but little in need of any active measures of this kind, unless it should proceed from disorder of some one or other of these functions. Whenever active inflammation exists, saline draughts, composed of citric acid, carbonate of soda, nitre, and antimony, in their usual proportions, may be given thrice or oftener in the

course of the day. This medicine is highly useful, because it serves to keep up a degree of activity in the several functions. It is not, however, enough. Calomel combined with rhubarb, scammony, or jalap, should be given if an active purge is required. The common black draught is also one of the most useful aperients that can be given. It is appropriate alike to most constitutions when an active purge is needed. If the liver should be inactive, bile flowing in too moderate a quantity, the common blue pill may be administered. The doses of each, and frequency of their administration, will of course vary according to circumstances. Antimony given in such doses as to occasion nausea, and repeatedly to keep up that nausea, is, perhaps, one of the most useful auxiliaries we possess in arresting conjunctivitis. It is yet seldom resorted to unless the inflammation involves more than one texture, and is violent in character. Its action upon the system is to lessen the force of the heart's action, and thus to reduce the momentum of blood in the capillary system. We have seen the most decidedly good effects proceed from this mode of treatment. It is, however, one that would disturb, in no inconsiderable degree, the system of some persons, especially delicate females. If adopted with them, the doses should be modified, and the effect kept up a shorter time: vomiting should be avoided. It may be of use in promoting the secretions, and carrying off, by the mouth and bowels, any redundancies that may happen to exist; but the act prevents the free return of blood from the head, producing a temporary congestion, which is injurious in ophthalmia. A mere nausea may have the effect of promoting visceral secretions, and carrying off redundancies by the bowels, without causing any such congestion. The utility of the plan is most evident when the cause of ophthalmia can be traced to the state of the stomach and bowels. Active aperients may be given in combination with antimony, if the antimony itself does not occasion sufficient action in the bowels.

The avoidance of all kinds of food of a stimulating, indigestible, and irritating quality, is a restriction which must be imposed on the patient. These, of themselves, may feed the disease to which the remedies of the physician are directed. Bread puddings, indeed all kinds of farinaceous food, with rice, sago, arrow-root, tapioca, in the simplest form in which they are used, together with mild broth, tea, and every other such light article of food, form a diet which ought to be rigidly enjoined, to the exclusion of other kinds, in *acute* ophthalmia.

With respect to the management of an inflamed eye, in regard to its being excluded from the light, much has been said, and many things proposed. The custom of placing a bandage round it for this purpose is one of the most barbarous practices that can be resorted to. Even shades have been objected to. The best covering for the eye, if a covering must be used, is a gauze handkerchief thrown over the head so as to cover both eyes. It is necessary that the degree of light which would pain the unsound eye, should be excluded from the one that is sound. The sympathy between the two is great, and what stimulates one would have an indirect effect upon the other. The degree of light admitted to the inflamed eye should be regulated according to the feelings of the patient. This is best effected by keeping the rooms in which he sits and sleeps darkened. In this case the eye is not excluded from the benefit of a free circulation of air, which is necessary to its restoration to health. Upon the same principle that we would exclude the light of the sun, we must avoid any brilliant light from the fire and candles. Lamp-light is the most pleasant to the eye. It is soft and subdued, and may be regulated to suit the feelings of the individual. Reading, working, or any other act requiring the application of the eye should be abstained from, particularly by candle-light. These precautionary steps must be pursued more or less rigidly, according to the extent and nature of the inflam-

mation, and the irritability of the parts affected. The eye in acute inflammation should always be kept at rest, and from all things apt to excite it. Common sense points out what ought to be avoided.

Exercise in the open air should not be altogether abstained from when the weather will permit of it. Intense cold and heat, rain and damp, are states to which the patient cannot prudently expose himself. During this exercise, the eyes may be covered with a gauze handkerchief, which may be doubled, or consist of a colour more or less dark, as circumstances may require. Green is usually the best and most agreeable colour. Any substance of variegated colours will stimulate and irritate.

The remedies here prescribed are not very vigorous, complicated, or powerful, because it is not anticipated that the case will require them. It is very possible to add to the catalogue, but to no great advantage. If the inflammation should embrace other tunics, which it is not our object in this Treatise to comment upon other than cursorily, a more complicated and vigorous treatment would, in all probability, be required. Still, what has been already said in regard to the treatment of simple conjunctivitis, will not only apply, in a great measure, to all species of conjunctivitis, but greatly to every other inflammation of which the eye may be the subject. The treatment for the different ophthalmia, whether of the internal or external tunics, does not essentially differ. With a few exceptions, the treatment hitherto laid down, together with what is to follow, is such as may be safely trusted to in most inflammatory affections of the globe.

CHAPTER VII.

Treatment of the chronic Form.

Though chronic conjunctivitis is a difference merely in degree from the acute stage, a mere modification, it requires something more than a modification of the same treatment. In fact, it is usually necessary to dispense with the former system, and adopt one that is quite opposite. The farther the passive state is removed from the active, the more diametrically different do the remedies become.

Some of the most obstinate cases of chronic conjunctivitis the medical practitioner has to encounter, are those which have been neglected in the acute stage. Here Nature has been left too much to herself, and called upon to repair an evil which she could not prevent. In cases of this character, so great a change of texture will have generally taken place as to render the cure tedious. The long-lost healthy functions of the capillary system are with difficulty brought back to their original condition; while the subjacent tissues become thick, and altogether materially altered. The calibre of the blood-vessels, so long distended with blood, becomes accommodated to the change, and often remains permanently large, do what we will.

In all chronic forms, the proximate cause may be traced to a want of power or tone in the overloaded or congested vessels. The remote causes are various—almost invariably to be found in the constitution. But whatever they are, the same or similar remedies are required—generous diet, exercise, travelling, tonic medicines, every thing, indeed, that can

be suggested to recover the general health, on the loss of which the chronic state frequently depends. The extent to which they are prescribed is in proportion to the requirements of the patient, and the ability of those patients to bear them. The deviations from health which are capable of inducing a chronic stage are so multiplied, and the diversities of treatment so great by which those deviations are rectified, that we can lay down no other than general rules to be followed in the mode of treatment. By entering minutely into the subject, we should be necessarily called upon to consider in full every predisposing cause, and the measures required for its removal. Whatever this cause may be, it is to that, in particular, and not to the eye, to which we have to direct our *especial* attention. Local remedies must yet not be neglected. The stimulating system is here most effectual. General treatment is an auxiliary; and by restoring health we prevent a recurrence of the evil, and cut short its existence. But as the predisposing cause differs, so will the treatment to a given extent: for instance, if we aimed at giving tone, vigour, and renewed health to the weakened and disordered conjunctiva by tonic medicines, we may fail in the attempt; because the patient may be ill able to bear them, while the health of an individual of a different temperament may profit by the remedy, and the ophthalmia be thence cured.

That debility of system which often favours the development and persistence of the chronic stage, is frequently produced, not from any radical defect in the system itself, but from the active measures which have been used with the view of reducing the acute stage. The course to be pursued in this case is obvious. We must look upon the primary disease to have been subdued, and the secondary one to be the result of the adoption of a course which was deemed necessary to remove the first. Every thing that can be done here to recruit the health, repair the wastes of the body, and give that stamina which has been lost, and that strength which

is now suspended, must be promptly enforced, and rigidly employed. Air, exercise, nutritious diet, salutary excitement, the most wholesome malt liquors, and a moderate use of wine, are the best restoratives in such a case. Bring health back to the body, and the local disease will speedily vanish. These strengthening means may be assisted by medicines, such as quinine, mineral acids, and other tonic remedies, to which preference should usually be given to those of the vegetable class. Mercurials in small doses are often found exceedingly efficacious in both stages, and in most species of conjunctivitis. They act as stimulants, rouse the inert and languid absorbents, frequently prevent new formations, and remove any positive change of structure that might have been induced. Depositions of lymph often speedily disappear under their administration, and ulcers are brought to a healing process, which were disposed to continue open for a long period. Aperients in the chronic stage should not be neglected. They require to be used as often as the patient may need them, or any irregularity of the alimentary secretions is perceived. Having a depleting effect, they must be given with caution while the object is to prevent greater depletion. Bleeding, either general or local, is scarcely ever necessary. The former is dangerous in debilitated subjects, and retards the cure of the local disease. Care must be taken to avoid all extremes of heat, cold, or moisture. They may have a sensible effect upon the secretions of the skin, and thus affect the eye. If the skin should be dry and harsh, and if biliary obstructions prevail, the ordinarily prescribed means for such irregularities are called for.

We now come to a class of remedies of a different, though not less useful, character : these are local applications. The propriety of applying stimulants and astringents to the eye under chronic inflammation was, at one period, much questioned. It now remains no longer doubtful by the majority of the medical profession. The whole state of the

affected parts indicates a sluggishness of the vital powers—an inability to recover, by their own sole efforts, a healthy condition. So far we are called upon to assist, by artificial stimulants, in the recovery of the weakened membrane. The same kind of stimulants is required whatever the cause might have been. Those persons who object to them in passive or chronic inflammation, would yet object to the depleting or antiphlogistic system being employed, or, at all events, so actively kept up. We may enumerate many instances wherein the chronic stage was materially protracted by stimulants not being freely and timely applied; and countless are the instances in which this plan of treatment has succeeded, in an inconceivably short space of time, in removing every trace of disorder. It is, doubtless, in the power of those who have persisted in this plan, to affirm that a chronic ophthalmia, unattended by infiltration, ulceration, or sloughing, scarcely ever remains uncured by this treatment properly directed. In general, a few days will suffice to remove all traces of its existence. These local stimuli are usually of such a nature as to occasion inflammation in a sound eye; and it has, hence, been asked, are we to pursue a treatment in disease which, in health, will produce that disease? However contrary and paradoxical it may appear, experience teaches us that we are to answer in the affirmative. These applications have, nevertheless, done considerable mischief in the hands of the inexperienced: they may act as irritants, and increase inflammation; but this is when the inflammatory action is not decidedly passive—when the nerves have not lost their extreme irritability—when the sensitivity of the system is unusually great. The eye, under their use, must not be painful, nor irritable, nor affected readily by light. These are indications of the nerves being yet too excitable, of the inflammation being yet more or less acute.

Scarpa was very particular in noticing that period in which active inflammation terminates, and when the chronic

begins—when the boundary between the active and passive conditions was decided. It was then, and not till then, that he ventured to employ his stimulants, in the use of which he was almost as bold as Guthrie. The latter gentleman is a good authority: his great talents and experience give weight to the opinions he entertains with regard to the use of stimulants, in which he is unsparing. They are of various kinds, and consist of different degrees of strength, in the preparations of nitrate of silver, oxymuriate of mercury, nitric acid, calomel, zinc, red precipitate, opium, alum, copper, powdered glass and sugar, different stimulating vapours, electricity, and others which either the experience or caprice of the practitioner may suggest, or lead him to employ. Each of these applications is used in different forms.

The object the practitioner has in view in applying local astringents or stimulants to the eye is to reduce the calibre or dimensions of the distended vessels. These applications have a decided effect in causing this contraction, and reducing the vessels to their original size, from which they gather tone and power. When there is irritability of the eye, conjoined with weakness and passiveness, some of these applications are useful on account of the sedative properties they possess, such as the nitrate of silver and opium. The former is now in pretty general use, in the character of an ointment. It is the ointment of Guthrie, consisting of nitrate of silver, finely levigated, simple cerate, and extract of goulard. In very indolent inflammations of the conjunctiva it is a most useful application. If there be ulceration, it assists the healing process; and if irritability, it often lessens that; yet not if the conjunctivitis is in its acute stage. There is a solution of caustic, varying in strength from one to eight or ten grains of the substance, to an ounce of distilled water, that is often used instead of the ointment. It is a milder and safer form, though not more efficacious in some states of inflammation, when, for instance, there is great congestion and exceeding sluggishness. The weaker solutions are used as

collyriums, the stronger as drops. The former are applied twice or thrice a-day to the eye, the latter only once, and then dropped into one of the angles of the lids. A common director charged with the liquid, and introduced at the inner canthus, is, perhaps, the best way of inserting it. Weak solutions of this metallic preparation will often increase inflammation, while the stronger will remove it. The former is not sufficiently sedative, and thus irritates. A gentleman with chronic ophthalmia, confined to the conjunctiva, used the weaker solution. The application reproduced the active stage; and it was not till some days had elapsed that the stimulating plan could be again resorted to. The eye at this lapse of time assumed, as near as possible, the same appearance it had presented when it was first seen. A strong solution, consisting of eight grains to the ounce, being now applied, the eye almost immediately recovered. This case is quoted as one of those instances of which it would be possible to record many, in proof of the above assertion. We have frequently witnessed the greatest evils from the employment of the solution in two, three, or four grains to the ounce, when irritability has accompanied the weakened and congested vessels.

The ointment may be introduced between the lids by means of any small, flat, blunt instrument—one in the form of a curved spatula, about an inch in length, and the fifth of an inch in width, fixed in a handle like a common cataract needle handle. The wine of opium is a remedy much used by the celebrated Mr. Alexander. It is supposed to have been introduced by Mr. Ware, the father of the present surgeon and oculist of that name, who had an idea, founded on more than presumption, that it possesses most specific qualities:—for example, as we write, a young woman has called with strumous conjunctivitis, to whose eye the wine has been applied once, two mornings ago, and in whom nearly every trace of inflammation has since passed away, though the disease had existed for upwards of ten weeks, and, according to her account, in an

unmitigated form, except at two or three different intervals, when there was a slight abatement of the inflammation, which returned again with renewed violence. Much had been done; perhaps too much. Leeches at the onset were applied; but they rather increased than diminished the inflammation, as is usually the case when the disorder is strumous. The wine is in more general use as a drop than in any other form. It may often be used, as we have stated, in the acute stage with benefit. It is a milder remedy than the nitrate of silver, and requires less discrimination and caution in its use.

The application of these and all other local remedies of an astringent nature, particularly those which possess any thing acrid and spirituous, produce a smarting, pricking sensation, with an increased flow of the lachrymal secretion. The pain and inconvenience are of short duration. The intolerance of light, and increased redness they occasion, soon pass off, the eye becoming quiet and easy. At first, a new inflammation would seem to have been developed; but the result proves that this excitation, thus artificially induced, is followed by the happiest consequences. The vessels have grown narrower in their dimensions; the congestion is, consequently, relieved or diminished; the eye is strengthened, and the irritability, such as remained, altogether dissipated. The advantages of these local applications, *i. e.* those enumerated, over and above all others, are great; yet calomel, mixed with white sugar, in powder, or with white precipitate, blown into the eye through a hollow tube, one end of which is charged with the preparation, will often be found a very efficacious remedy, particularly if the conjunctiva should have become thickened, or any change of structure taken place. Goulard extract—*Liquor Plumbi Acetatis*—is frequently employed with a like effect, dropped, in its pure state, into the eye. The other remedies are to be preferred, and especially the nitrate of silver preparations, when there is ulceration.

In the form of a collyrium we may use a very weak solution

of the nitrate of silver, one or two grains to the ounce of distilled water; also oxymuriate of mercury in the same relative proportion; sulphate of zinc or copper, and alum, in three or four grains to the ounce. To either of these solutions may be added a dram of the tincture or the wine of opium; and either may be used twice or three times a-day, the solution each time being suffered to go into the eye, and not, as is common, upon the outer parts of the lids only. Brandy and water have often been used upon the same principle. An evaporating lotion may be applied to the internal parts, the lids, temples, and eyebrows, with some advantage. The parts are merely to be wetted or bathed with it occasionally. Dr. Seeds' lotion, the formula of which is found in an early number of the London Medical and Surgical Journal, and which on its first discovery was sent to us by a particular friend of Dr. Seeds, may be considered one of the best forms of an evaporating lotion that can be used. It may be even allowed to come in contact with the inflamed membrane. It acts upon a similar principle to other stimulants.

These are the only collyriums thought worthy of notice. The vulgar are in the habit of applying many things as nostrums in the way of washes and poultices. It need not be said they are to be abandoned. What the profession does not use, or has rejected, cannot be supposed to possess any intrinsic virtues.

Blisters, issues, and setons are generally more useful in the chronic than in the acute form of conjunctivitis. They are applied to produce counter-irritation—to set up a disease in an immaterial part, to relieve that which is situated in one more essential. The principle is good, and the remedy safe. The situations commonly chosen for these remedies are the temples, behind the ear, and at the back of the neck. Blisters are first to be applied; and if a more protracted or continued discharge from the artificial wound be required, a seton or issue may be substituted, or resorted to afterwards.

Ointments are frequent remedies; the red and white precipi-

tate forms are the most common. The oxyd of zinc and goulard ointments are occasionally used. They may be introduced between the palpebræ; but their chief use consists in being rubbed upon the edges of the lids at night, to prevent agglutinations, and to check or remove any inflammatory action which might have developed itself about the margins. This inflammation of the tarsal edges is a frequent occurrence in chronic conjunctivitis. Either of the above unctuous preparations is inferior in efficacy to the nitrate of silver ointment, if we wish to stimulate the membrane. Of these, as stimulants, the red precipitate is the most preferable. They should be applied by means of a camel's-hair pencil, drawn along the surface of the conjunctiva, not omitting any part that is inflamed. They yet may be applied in the manner before directed. If the inflammation about the palpebral conjunctiva should be extensive and troublesome, scarifications, deep and extensive, immediately behind the tarsal edges, will often have a most decided effect in checking inflammation, and also in preventing ulceration about these edges—a very common occurrence, with which the roots of the eyelashes are often removed, and never again replaced. The lids, too, will sometimes become everted, and the eye made to present a most awkward and unsightly appearance. From such an event the greatest possible inconvenience arises, owing to the exposure of the delicate surface of the palpebral conjunctiva to the air, sun, and extraneous bodies floating in the atmosphere. These keep up the inflammation, and ultimately produce permanent induration of the parts.

Through every stage, and under every form, cleanliness is especially to be enjoined. The eye must be washed frequently with tepid water, after which the lotions and ointments should be applied. Neglect on this head is a fruitful source of mischief in some shape or another.

The remedial means, both general and local, here mentioned, may be multiplied; but there is no wisdom in swelling

the catalogue of remedies to no purpose. Others may be noticed which are possessed of properties equally efficacious; but unless they could be made to supersede these in usefulness, no object could be gained in enumerating them, or in recommending their application.

CHAPTER VIII.

Purulent Ophthalmia of Infants.*

There is no species of ophthalmia more common than this, and none more destructive. It unfortunately happens especially among that class of infants the least likely to benefit by good medical advice—those who are badly fed, badly clothed, exposed to close and confined apartments, or cold, and every kind of vicissitude and rough treatment, and who are the offsprings of diseased and debilitated parents. Infants born under these disadvantages are, of course, from parents of the lowest class in life. The number of children taken to Eye Infirmaries labouring under the disease is great; this, together with the frequency of its occurrence in asylums designed for the reception of infants exclusively, is such as to confirm the opinion expressed above, of the poorer orders being the most frequent victims of the disease itself, to say nothing of the greater probability of fatal terminations taking place.

This disease may very properly be divided into three stages. In the first the inflammation is confined to the palpebral conjunctiva, at which part the disease always commences;—in the second it has become extended to the sclerotic covering;—in the third it is accompanied by one or other of the results mentioned in a preceding chapter.

The first stage usually commences soon after birth. The reason of this is evident, while the most common direct cause is inoculation, if we may so speak. It has long been well understood that leucorrhœal or gonorrhœal affections of the

* Ophthalmia purulenta recipatorum.

mother at the time of parturition lead to purulent ophthalmia in the infant. The discharges which attend these affections are introduced into the eye, irritate, and inflame it. If gonorrhœal, the disease, though infantile, becomes strictly gonorrhœal ophthalmia, which is more violent and dangerous. When these are the causes, it is natural to conceive that the inflammation is beginning its progress directly after birth, though it is not perceived, in general, before the third or fourth day, or even later. The tardiness with which the inflammation, under these causes, is developed, is in proportion to the virulence of the morbid matter, to the predisposition of the child, to the care it experiences, and the comforts it possesses. It is not always that this discharge becomes introduced into the eye, nor always, indeed, we may perhaps add, that it occasions ophthalmia, even if it be introduced. But this is mere conjecture, as the only means we have of judging of its introduction is by the event which follows. A series of experiments may settle this point. If we inoculated the eyes of twenty infants born of parents perfectly free from any discharge, and all became affected, there would be reason to conclude that the conjecture was ill-grounded; but if one of the twenty escaped, it would be otherwise. The experiment itself would be cruel and impracticable, and could not, therefore, be adopted; and nothing certain can thence be ascertained.

In case purulent ophthalmia should not occur for many days after birth, say from ten to twenty, we may suspect it to be the result of some other cause, though it will be manifestly developed even at this late period, under inoculation, the length of time it has remained thus incipient being accounted for from the mildness of the morbid virus, or from some other circumstances (such as are above referred to) unfavourable to the rapid development of the disease. Should the mother be subject to no discharge at the period of parturition, we must impute the ophthalmia to some other cause, happen as soon as it may. Mothers will sometimes deny the existence of the dis-

charge; and if the disease occur within four or five days of birth, and the infant has experienced every care, and the best of management, we may begin to doubt whether the scruples of the parent have not induced her to conceal the circumstance. The delicacy of some children, however, and the unavoidable exposure of their persons in washing, and to the continual inlet of cold and, perhaps, damp air into the apartment, from the egress and ingress of attendants and visitors, are often enough to occasion purulent ophthalmia; and these are evils against which the most cautious cannot provide. But it matters little what the cause is, while the measures for the removal of the disease are the same. So far as the infant is concerned, it is an important affair; for as the cause is violent, so will be the results. We are apprehensive of an unfavourable issue when, as we said before, it is gonorrhœal; so are we when the mother or child is delicate, which increases the predisposition to disease; and when the infant is unfavourably situated in regard to external circumstances.

There can be no doubt, from what we have seen of this kind of ophthalmia, that it may be occasioned by any of those causes which produce conjunctivitis in general. There seems to be a peculiar tendency in inflammation of the eyes of infants to put on those concomitant appearances which are particularly referable to this form. It yet does not follow that such appearances as occur in purulent ophthalmia are invariable attendants on every inflammation of the eye to which infants are liable. They often get what nurses call a cold in the eye, which is attended with a little mucous discharge, increased lachrymal secretion, and some trifling thickness about the lids. This is, strictly speaking, in general catarrhal; and if it proceed no farther, may be regarded as the first stage of purulent ophthalmia; for the very same cause that produces inflammation of the eye in this modified manner, may occasion all those symptoms which belong to an augmented form of the disease, but which, for some reason or other, does not pass into the second stage: regarding

it as a mere cold in this modified state, it is often neglected, and the second stage sets in with fearful violence. Nurses, and even the medical attendant, often consider the incipient ophthalmia arising from the contact of morbid matter, to be a mere cold in the eye; and it is not till the second stage has made its appearance that the cause is suspected, and measures for removal are had recourse to.

The manner in which purulent ophthalmia commences or goes through its first stage is very deceptive. The palpebral membrane throws off a little mucous for a few days till the lids almost suddenly swell, and the disease is communicated to the sclerotic conjunctiva. The swelling of the lids in the second stage prevents the eye being easily seen, or the matter secreted by the conjunctiva escaping. No sooner does the swelling commence than the lids begin to close, and usually so firmly as to appear as if it were partly effected by spasmodic action of the orbicularis muscle. By examining the internal surface of the lids in the first stage, in the way proposed in a former chapter, the conjunctiva will be found highly inflamed, somewhat villous and swoln, the sclerotic conjunctiva being yet healthy or sound. The inflamed membrane is of a bright red colour. A mucous secretion is generally perceived lying on some parts of the lining, which, by the motion of the eye, is often thrown over the globe, appearing as a loose film. Part becomes deposited at the inner corner of the eye especially, and, during sleep, between the edges of the lids, where it gets dry, producing an adhesion. It is seldom, even in the first stage, that we can see the state of the eyes without artificial means, owing to the child keeping them closed, the admission of light occasioning pain and inconvenience. In addition to these symptoms there is perceived a redness along the edge of the lids, and particularly about the corners of the eye.

We have now to consider the second stage. What before appeared of little consequence, has now become highly important. The inflammation has extended itself to the covering of the

globe, from which either of those dreadful results will occur which we have before mentioned, on proper measures being neglected. Till now there was no danger as far as vision is concerned. The lids themselves may become permanently affected, but ulceration, or sloughing, or infiltration, or opacity could not happen in the first stage. The intolerance of light, the tendency to keep the eyes continually closed, the swelling, the mucous discharge, the redness, are all increased. The tumefaction is generally intense. This arises, partly from the swelling of the inflamed conjunctiva itself—partly from serous effusions into the subjacent cellular membrane—partly from the matter pent up in the eye—partly, indeed, from more or less inflammation of the whole lid itself. The conjunctiva of the palpebræ swells less than those of the globe, because it is more firmly attached. The folds of the conjunctiva about the point of reflection and the globe often form irregular red villi, having a granulated appearance.

In this state of the disease the eyes are constantly closed. They are necessarily so from the swelling, in the first place, and from the intolerance of light, in the second. The pain given by the admission of this stimulus prevents the eyes being examined so easily as they would otherwise be. It both excites the orbicularis muscle to contract, and occasions the child to cry. The latter is injurious, as it increases the tumefaction and the redness. In crying the lid is often everted: the same effect will follow an attempt to separate the palpebræ, and particularly if it be not done skilfully. The common practice of seizing a fold of the lid, trying to lift it up, will generally produce eversion, when the object is usually frustrated. By this eversion we see a part of the inflamed membrane, but not that which it is most necessary we should see. The method of opening the lids is to press the lower lid downwards and backwards, the upper lid upwards and backwards, placing the fingers on the tarsal margins, if both can be reached, which is not always the case, as the tumefaction of the upper one is often so great as to hide part

of the lower by hanging over it. In very severe cases it assumes an erysipelatous appearance, red, shining, convex, somewhat transparent. The eversion of the lid is sometimes produced without either of these causes. It must not be suffered to remain everted. It may be always replaced by drawing down the edge when it exists in the upper lid, in which it generally happens. This eversion is called ectropium.

We have now to direct our attention to the puriform secretion. This, in the second stage, is copious. On opening the lids, enough to fill a tea-spoon will be often poured out. The same discharge will frequently follow crying. The small portion that exudes whilst the child is at rest, serves to agglutinate the palpebral edges, in the separation of which there is required much caution. It is desirable that the matter should have vent, and not be confined within the lids; there it will produce the results we have referred to. On examining the eyes after we have effected an opening, the globe will be found hid by the matter; and though some escape, and more is removed by means of a soft cloth, there is yet a deposit often left, covering the surface of the globe, concealing those parts which we are most anxious to inspect, and which nothing will effectually remove but syringing.

The colour of the puriform discharge differs under circumstances. According to the character it assumes in this respect, we are enabled to form a prognosis as to the unfavourable or favourable nature of the disease. The quantity likewise affords us some criterion. If gonorrhœal, the colour will have a yellow cast, and the matter be plentiful in quantity. The same cast will exist in jaundiced and sickly children. This yellowness has a variety of hues, being more or less deep, and often approaching a greenish appearance. A white discharge is the most favourable, and if with this it is small in quantity, we may anticipate a favourable result: if thin and discoloured, and it sometimes is so, even to a great extent, assuming a sanious appearance, we look forward to serious consequences. All the dis-

charges except the white have a dye about them which stains the linen. In this stage the child's health suffers materially. A restless and feverish state supervenes. The tongue is white, the skin dry, the bowels are irregular.

In the first and second stages of this disease the conjunctiva alone is the seat of disease. The irritation and swelling, every sign, in fact, of inflammation, is greater in the second stage than in either of the others. The third is attended by a great subsidence of inflammatory action. We can have no better proof of this than the comparative freedom with which the infant is enabled to open the eye, and endure the light. Light has been so long excluded, that it would be scarcely possible for this stimulus to be borne readily, even though all irritation might have passed away. In forming our prognosis, we should never neglect the consideration of this point. Irritation continues, of course, to some degree. For these reasons the child will be found to open the eyes only in a subdued light.

The third stage may or may not be accompanied by one of the ordinary *results* of inflammation. The violence of the disease might have been checked by proper measures before this stage commenced, or the ophthalmia itself may be of so mild a character as to terminate without any change of the kind taking place. Yet we have often seen such a combination of symptoms as would lead us to expect the most fatal results: the inflammation has been carried on with all imaginable violence, judging, at least, from the swelling, the discharge, the redness, the febrile condition of the child, and yet it has terminated favourably. The subsidence of the inflammatory symptoms in the third stage gives us an opportunity of perceiving more easily than we have been able before, the actual condition of the eye. We may find it in a state of great disorganization, perhaps staphylomatous,* ulcerated, accom-

* Bulging of the anterior part of the eye.

panied by a prolapsed iris, all threatening the escape of the humours, if they have not already continued to drain away. This state of things frequently meets the eye of the medical officers of Eye Infirmaries, whither the children are seldom carried till great disorganization has commenced. Occasionally, however, and perhaps more often, we discover a slight opacity only, which may be confined to the conjunctiva, and of which no relic will be left in a little time. The discharge from the eye in the third stage, though neither of the results has occurred, will be kept up sometimes long after every active symptom has subsided. It is yet in very diminished quantities, thick, and commonly white. In this case a species of chronic inflammation exists, and the period in which it continues is regulated by circumstances. Whatever may be conceived unfavourable to the restoration of health, will cause a protraction of the disease in an indolent form. Mismanagement through the course of the early stages will have the same effect.

In this stage the tendency to ectropium has also passed off, and the child begins to regain that health which had been lost from constitutional irritation, should no further species of inflammation be going on. The health in this case would continue disturbed; the child becomes very enfeebled, and sometimes grows weaker and weaker till death closes the scene.

Before we begin to speak of the treatment, it may be necessary to make one or two remarks on the manner of separating the lids under the difficulties which present themselves in the second stage. This becomes the more important, as we remember how necessary it is that the matter confined within the lids should be released, and that we should understand to what extent the eye is affected. We have also to recollect that the disease is not confined to one eye in general, and that, while nothing material may occur in one, it may be the reverse in the other. The eye first affected, for there is usually a lapse of some days before the second shews any signs of

inflammation, will be generally found the worst. We have particularly noticed this, and it is by no means unworthy of attention. The ectropium occasioned by an attempt to separate the lids must be regarded as an insurmountable barrier to our getting a proper view of the eye; and when, from the irritability of the globe, and the powerful effect made by the orbicularis muscle to keep the lids closed, ectropium cannot be avoided, nor the child prevented crying in the attempt to open the lids, it is prudent to desist. Indeed, the attempt usually fails. It is most impracticable to make any effort in crying. We therefore wait till the child is quiet, when by pushing the lids quickly in the directions mentioned, they are commanded before the orbicularis can contract, and the cornea will be seen; for this is the tunic, the importance of which has been already pointed out, that requires our especial attention. The child will offer less resistance in proportion to the darkness of the chamber; and when we are assured that no destructive consequences are going on, it is well to darken the room when the process of separation is adopted, which will be necessary if only to evacuate the matter. The period at which we shall most readily accomplish our object is during sleep. But gentleness as well as quickness will be required here. Without these requisites the child is awoke, and the muscle brought into play. Force and roughness will not succeed in this operation. The children, too, which are most subject to this disease are generally of the tenderest growth. The susceptibility is increased in those who are prematurely born, as well as those who are deprived of necessaries; and with them the greatest gentleness is needed. It may be said, without fear of contradiction, that the weaker and more enfeebled the system, the greater is the tendency to purulent ophthalmia, the higher the degree of susceptibility. It becomes less frequent in children of a few years old, and less so still in adults: and it is more prevalent among the weak than the strong in these three stages of life. We have also observed that infants deprived of the

mother, and not suckled, are its victims oftener than others. With this increase of susceptibility there is a greater likelihood of the disease terminating unfavourably; the resisting powers of the body being weakened, the discharge from the eye is usually copious and yellowish, as it always is when the inflammation is violent. If sloughing has commenced, it often becomes ichorous and thin. In the absence of our getting a full view of the eye, this forms a criterion by which we judge of the condition of the cornea. From the overloaded state of the conjunctival vessels, a small quantity of blood will be sometimes found mixed up with the discharge. This indicates active inflammation. It excites the fears of the mother, nurse, and friends; but is often attended with the best results. It empties the congested vessels, and thus relieves the inflammatory action. If, on opening the lids, the discharge that follows is thick, white, and small in quantity, we have reason, as was before intimated, to rest satisfied that the disease is of a mild nature.

Purulent ophthalmia of newly-born infants is known from every other form in infants, by the swelling of the lids, and the copiousness of the discharge. These are the grand characteristic signs, and sufficient at all times to distinguish the disease.

Treatment.—This is extremely simple, and in no species of ophthalmia do we see remedial measures so decidedly effectual as here. If the cornea has not suffered when we see the eye, we need not hesitate to declare that the disease will yield to the remedies employed, and that speedily. But if ulceration or sloughing has once commenced, the case is attended with imminent danger. We have the inflammation much at our command; but these processes in infants, with whom the vital powers are necessarily depressed and weak, set all skill and treatment at defiance in general. If cloudiness about the transparent membrane only exist, the prognosis is doubtful,

because it may be exclusively conjunctival, and will be removed with the inflammation. In case the cornea is implicated, we have evidence that ulceration or sloughing has begun, though yet in a very early stage; and as the process can seldom be arrested, we are necessarily bound to anticipate one of the worst results. By checking the inflammation, we, of course, take away the main cause of the ulcerative or sloughing process. But the effect is of such a nature as to have become, when once produced, independent of its cause. Inflammation being subdued, it is no longer fed. We cut off the supply, and thus prevent the processes being carried on with such violence as they otherwise would be; but we cannot easily repair the breach already made.

The first stage of purulent ophthalmia will *never* pass to the second, nor the second to the worst effects of the third, on the adoption of proper treatment. Local remedies are here most useful.

The treatment of the first stage, when the inflammation is confined to the conjunctiva of the lids, wherein the swelling, discharge, and irritability are moderate, consists of this:—A solution of nitrate of silver or alum, four grains of the former and six of the latter to an ounce of distilled water, must be dropped into the corner of the affected eye night and morning, and the edges of the lids smeared with common spermaceti ointment, or even fresh lard. Matter is constantly exuding and settling about the edges and corners of the lids, and must be removed instantly by means of a clean sponge moistened with tepid water. The eye may be bathed for some minutes with water of this warmth. Cleanliness is most necessary in this disease.

The child should be kept in a large and lofty apartment well-aired and warmed, cold air being excluded as much as possible. Impure air, such as will necessarily be generated in close and confined rooms, is, as we have said before, injurious. Every effort should be made to keep the infant from crying;

and for this reason, and a still more obvious one, the necessity of preventing the personal exposure of the child, we have usually prohibited those general ablutions resorted to at this age. It becomes, perhaps, a matter of some importance that the head should not be washed at all, and those parts which are washed must be wiped thoroughly dry. After the use of the towel, it is best to press the washed parts gently with a bit of warm dry flannel: this absorbs whatever moisture might remain. The strictest injunctions must be left with the nurse at the same time, to use no linen which is not warmed and quite dry. The clothing ought to be such as will best promote the secretions of the skin. There is another circumstance, apparently trifling in character, which we would not neglect to notice, it is the buffetings of children in nurseries. If gusts of air are wafted into the eyes of the child, they may increase the inflammation. These comparatively minute particulars are not sufficiently attended to in general. It is desirable to administer either castor oil or magnesia, that the bowels may be cleansed.

The treatment of the second stage is rather more complicated. The same measures which are necessary in the first are required here; with these in addition. We have now considerable tumefaction and inflammation of the lids. Though leeches are to be avoided as much as possible in children of so tender an age, they are called for in this case. One applied immediately in the centre of the upper lid is sufficient. If our little patient grow pale as the leech is sucking, it must be taken off. When both eyes are inflamed, we have usually found it prudent to let some hours, perhaps a day, intervene before the second leech is applied, care being taken, meantime, to select the worst eye for the first operation. We have known the inflammation subdued in both eyes by the application of the one leech, in which case it may be desirable not to apply the second at all, and particularly if the infant be weakly, and every appearance exist of the disease passing away without

leaving either of the results. The swelling and inflammation of the lid are always relieved by this abstraction of blood.

The next thing to which we must attend is the evacuation of the puriform discharge which the swoln, closed, and agglutinated state of the lids prevents escaping. The eye, therefore, must be opened frequently, three or four times in the twenty-four hours, when it can be done with prudence. If any hang about the eye, it must be wiped away; and in case any difficulty in the removal presents itself here, we may syringe the eye with one of the solutions mentioned, but of half the strength; even lukewarm water may be used if the solution be not at hand.

Lotions are more serviceable in the second stage of purulent ophthalmia than in any other kind of conjunctivitis with which we are acquainted. Linen rag wet with weak goulard water should be constantly applied to the tumid lids. The rag must be frequently moistened with the lotion, that it may be kept cold.

In this stage it is advisable to administer calomel. The secretions are not healthy, owing to the general irritation occasioned by the local disease, and calomel is useful in correcting them, and, moreover, in subduing the inflammatory action. Two grains may be given as a purgative the first thing, if the second stage has set in; after this, a grain may be given twice a day.

With this treatment we seldom fail to prevent alarming results. The symptoms gradually subside, leaving, perhaps, a little thickness of the conjunctiva, which is generally temporary, pouring out, meanwhile, a discharge of mucous that diminishes in quantity as the thickening abates, and the tunic regains its healthy condition. But this is rather the state of the third stage. We may here increase the strength of our applications from four to six grains of the nitrate of silver, and from six to nine of the alum.

Blisters are sometimes applied in this stage. They are not

good remedies with infants, and have very little effect in relieving this disease, in general. In strong children, and where the disease is obstinate, they may be applied at the back of the neck; but we should always use them as dernier resorts. Scarifications of the palpebral conjunctiva are still more objectionable. They produce a granulated surface, sometimes difficult to remove.

In the third stage we have to contend in general with one of these results—opacity, infiltration, sloughing, or ulceration, perhaps with a prolapsed iris, and the escape of the contents of the globe. If not either of these, we have the state above mentioned, in which there is no risk except the slight probability of some permanent thickening and congestion. The swelling having subsided, there is no further need of the lotions and leeches. We still persist in the use of stimulants. These will help to check ulceration and sloughing, to heal the ulcerated parts, and lessen opacities. The nitrate of silver solution is the most preferable. The health of the child is to be invigorated. The extract of bark has been strongly recommended, to give tone to the debilitated system. Five grains of this may be mixed with the food, and administered every five hours. The more energy and tone we give to the relaxed fibres, the less will be the ulceration, and the more speedily will it be healed. We continue the use of the ointment smeared along the edges of the lids, and avoid whatever may be likely to renew or add to the inflammation. There is, however, less danger now to be apprehended from ablutions. Purgatives and calomel are to be used with caution. In prolapsed iris we must rest satisfied with doing nothing to the part; nor can the escape of the humours be avoided, if we have not been able to prevent the ulceration extending through the cornea. We must trust to time, and look to the health of the little sufferer. The collapse of the globe and loss of sight are inevitable when once the humours begin to drain away. It unfortunately happens that we are armed with no remedies to

cure the results, except those we have named. Cleanliness is strictly enjoined: concretions must not be suffered to take place, whatever the result may be, as they will often produce inflammation and ulceration about the tarsal edges.

CHAPTER IX.

Pustular Ophthalmia.

In both strumous and catarrhal ophthalmia we, generally, or at least often, meet with little vesicular or phlyctænular bodies about the margin of the cornea; but there is a peculiarity in this form which is usually sufficient to distinguish it from either catarrhal or scrofulous conjunctivitis. In ordinary cases of pustular ophthalmia we find only one pustule: this is commonly on the edge of the cornea, but occasionally on the tunic itself. The inflammation accompanying the pustule is of a singular kind, putting on a conical form, the base being in the corner of the eye, the apex either at the corneal margin or in the centre of the cornea, at the extreme point of which the pustule exists. There may be more than one pustule, and, as they become more numerous, scattered round the edge of the cornea, they decrease in size. We have seen a single pustule exceed the magnitude of a common vetch.

In an early stage of this disease the elevated body is filled with a transparent, thin fluid, constituting rather a vesicle than a pustule. This fluid, however, becomes thicker, and if the inflammation be not arrested, or subdued, suppuration takes place: should the pustule, in this case, be situated on the cornea, ulceration and opacity ensue.

Pustular ophthalmia is attended with no intolerance of light, nor, in fact, any of the ordinary symptoms of conjunctivitis, except the redness and elevations. There is no lachrymal nor mucous discharge—no pricking sensation, as if sand were in the eye—no pain, as in other conjunctival inflam-

mations. These common symptoms may exist, but in a very modified form at all times. It occurs most frequently in children. We do not remember to have seen more than a few cases in persons who had arrived at maturity, and we have seldom known it attended by any serious consequences. This is frequently a concomitant of some eruptive affection of the skin, of which the conjunctiva is a kind of continuation. We have known it accompany a common case of Psoriasis.

Treatment.—In case of the disease being constitutional, which we have usually found it to be, attention must be directed especially to the system at large. The disease seldom requires any very active measures. We have known some persons divide the vessels, by which they hoped to cut off the supply of blood running from the base to the apex. The plan appears plausible, but the effects that arise induce us to prohibit the practice. The active measure we have found most beneficial is a blister applied behind the ear. Leeches are very seldom required. Fomentations of warm water, and cold lotions are, generally, the only local means that are found necessary. Experience has taught us to be more cautious in the use of astringent applications here, than in any other kind of conjunctivitis. We have known them increase the inflammation; and what before was confined to the sclerotic conjunctiva, has become extended over the cornea, inflaming that tunic, and leaving ulceration there, an ulceration that has not shewn a ready disposition to yield to remedies. They have occasioned a decided case of Pterygium, which is a fleshy excrescence, taking the form of the fasciculus of vessels found in pustular ophthalmia, requiring the knife for its removal—a process often painful and tedious.

Unless we find the cornea in danger, and the inflammation spreading, it is best to content ourselves with the simplest

course of treatment, and in most instances that alone will succeed; attending, meantime, to the general health, the digestive organs especially, from disorder of which the disease itself will often occur.

We have sometimes pricked the pustules, and thus evacuated their contents, but have not found any decided advantage in the practice.

CHAPTER X.

Gonorrhœal Ophthalmia.

We have spoken of this disease in the eighth chapter, the discharge of gonorrhœal matter inoculating the eyes of the infant, acting as one of the causes of that form of purulent ophthalmia. The truth of this opinion, however, would be rendered doubtful if we could reasonably question what many persons have assumed as a fact—the contagious nature of gonorrhœal matter. The discussions on this point have been numerous, and the subject is not even to this day decided. But when we have instances, though they may be rare, of persons washing or wiping their face with a sponge or towel containing the virus, and becoming affected with ophthalmia of a decidedly gonorrhœal nature—persons in whom gonorrhœa itself does not exist—we have fair evidence to presume that the matter is contagious. We are not unaware of many experiments which would go to prove the contrary. But we must not forget that the doctrine of contagion, if we may so speak, is a disputable doctrine, on account of the uncertainty of the operation of contagious matter—an uncertainty which depends on many things that may perhaps be accounted for. For instance, we know that the same matter (and we are not limiting ourselves to any particular kind of matter which is said to be contagious) introduced into the system of different persons, will affect only some. Here is a plain case, and a decided uncertainty in the operation of the poison, and yet who will say that poison is not contagious? We must look to circumstances apart from the contagious influence of the matter, to

find a reason why it had not the same effect in all: and what are those circumstances? The mode of inoculation; the susceptibility of the body or part to receive it, and be affected by it; the existence of diseases or disorders neutralizing the effects, or preventing their operation. Besides, matter from the same ulcer, or abscess, is not, perhaps, at all times equally contagious. Its virulent properties may be mitigated under certain conditions of body—such vicissitudes as persons are daily exposed to; and we have ample evidence to prove that the contagiousness of a discharge undergoes great changes in the progress of the disease itself.

We are not disposed to enter upon the discussions involved in this question here; but we rest satisfied, from the observations we have been able to make, that, though there is no reliance to be placed on the operation, there is no doubt of the contagious character of gonorrhœal matter.

It is also doubtful whether the gonorrhœal disease can be transferred, like gout or rheumatism, from one part of the body to another. This is what we call *metastasis*. There are decided cases, but very few, wherein persons suffering from gonorrhœa, have been attacked with gonorrhœal ophthalmia, who, from the caution they exercised, would appear to have prevented any thing coming in contact with their eyes which might contain the slightest particle of the gonorrhœal fluid. If none were introduced, we come safely to the conclusion that the cases were cases of metastasis. But, notwithstanding every precaution, the matter may yet become introduced into the eye. We know how involuntarily and unconsciously the hands are put to the eyes; how liable a person is to use the wrong towel; and how likely it is that he should wash his face in water wherein he had washed his hands. Metastasis is yet very probable. Syphilis, whereof the nature of gonorrhœa partakes, is decidedly transferrable from one part of the body to another. We have syphilitic ophthalmia; but it is not a disease of the conjunctiva. It has been declared, but our observations do not

allow us to vouch for its truth, that the discharge from the urinary passage in gonorrhœa has ceased altogether when the ophthalmia commenced. If this were the case, we may have a remedy for the removal of the ophthalmia by renewing the discharge in the urethra, which is often known to be diminished in quantity under the conjunctival disease. But this might happen even if there were no alliance between the nature of the gonorrhœa and the inflammation of the eye, as it is contrary to the economy of the human frame, that two distinct irritations should be kept up in different parts of the frame, without one mitigating the other. We have seen the gonorrhœal discharge removed from the urethra while gonorrhœal inflammation was going on in the eye; but that removal was, we think, attributable to the remedies employed for the cure, which was nearly effected before any symptom of ophthalmia became visible. It may be impossible to prove which was the remedy, the new disease or the chirurgical and medical course resorted to; but concurring circumstances generally exist to induce us to lean to one side, and that, in these cases, was in favour of the course mentioned.

Gonorrhœal ophthalmia is what we call a purulent ophthalmia, as the discharge secreted from the membrane is puriform and copious, possessing, at all times, the same character as that secreted from the urinary passage or urethra. It resembles the ophthalmia of infants, as is natural to suppose when that ophthalmia may be gonorrhœal; but it has a nearer resemblance still to Egyptian ophthalmia, so called, or the purulent ophthalmia of the adult, which depends upon other causes than gonorrhœal for its existence, and which we shall have occasion to notice in a subsequent chapter. There is one grand distinction between this and the other forms of purulent ophthalmia. In this the inflammation attacks the conjunctiva of the globe as soon as that of the palpebræ. In the other purulent forms, the palpebral is always affected first. There is not that extreme swelling of the lids as takes place in the infant, and the disease

is much more rapid in its progress, and more destructive compared with the number it attacks. We have seen the whole globe destroyed in forty-eight hours, and it is seldom that any treatment will stop its progress. Yet the most violent forms of Egyptian ophthalmia present nearly the self-same characteristics in this respect; and unless gonorrhœa existed in the individual, or it could be proved, or reasonably suspected, that its matter had become introduced into the eye of the individual who is not the subject of gonorrhœa, we should have reason to look upon it as a violent Egyptian ophthalmia. Gonorrhœal ophthalmia is, however, more violent in its nature, more rapidly destructive; and though circumstances may prevent us deciding, on first seeing a patient, under which of the diseases he is labouring, the effects in general serve to satisfy us. Common purulent ophthalmia is usually much more manageable. We do not, in fact, remember to have seen any case of purulent ophthalmia, wherein there was every reason to suspect the absence of gonorrhœal connection, which could not be arrested, if seen in time, without either of the worst results following; and often have we known the inflammation subside, without leaving so much as an opacity. By way of distinction, we may mention one circumstance upon which we may place some reliance. It is that, in gonorrhœal ophthalmia, one eye only is usually affected, while in the other form it is the reverse. This circumstance helps, we think, to corroborate the fact of the gonorrhœal matter being contagious, and the cause of the ophthalmia; as nothing is more probable than that one eye only should be affected, *i. e.* a person is more likely to inoculate one than both. It yet will happen that the sound eye becomes affected by the other, from their being in such close contact.

When we see a very serious case of purulent ophthalmia, it is prudent to make every enquiry about the existence of gonorrhœa, or the probability, if no such disease exist in the patient, of its matter having, by accident, been brought in contact with the affected eye. The habit of poor persons sleeping

together, and using the same water, towels, basins, &c., and the liability of the matter to be introduced into the eye of a person free from the disease, are incidents too common and obvious to escape our notice. Among this class of persons the eye is generally destroyed, or in such a state as to defy every effort to prevent its destruction, before application is made for advice. So short indeed is the period that elapses between the time the disease commences, and its worst stage, that we seldom have an opportunity of witnessing it in any person before the whole globe presents the most threatening aspect. In a few hours the conjunctiva is highly inflamed and swoln, secreting a puriform discharge in large quantities; serous effusions are poured out into the cellular texture, producing chemosis; there is great tumefaction and redness about the lids; and, lastly, a pain of an acute character seizes the globe, extending to the head, indicating the existence of inflammation about the more internal tunics. If we see the eye in this state before ulceration or sloughing has commenced, we may, perchance, arrest its progress so as to prevent the destruction of sight, either from the escape of the humours, or extensive opacities, from ulceration, or sloughing of the cornea, or prolapsus of the iris; but we seldom have sufficient command with remedies to prevent ulceration or sloughing, and consequent opacity to a given extent. How soon soever the patient may seek for relief, and however prompt our measures may be, it is very seldom we can prevent these occurrences. It therefore becomes the more necessary that we should endeavour to avoid the cause. If either of the results has commenced, there is scarcely a possibility of averting the worst consequences. The form of the eye may be preserved, but sight is almost inevitably destroyed. It would appear that the matter corroded every part with which it gradually came in contact, and that nothing was equal to check its virulence.

A singular circumstance connected with this disease is, that females are never its victims. We pretend not to offer any

conjecture for this mysterious and anomalous affair; but we are disposed to think, that it no more militates against the contagiousness of the morbid secretion, than it does against the idea of metastasis; and if against both, to what shall we ascribe gonorrhœal ophthalmia?—or how say that such a disease exists? Nothing, save gonorrhœal properties existing in some form, can produce any thing gonorrhœal. They are specific properties, and could not be generated by accident. No disposition of body apart from one infected with gonorrhœa could produce gonorrhœal inflammation. No air, no water, no cold, no moisture, no heat—nothing, in fact, capable of producing other inflammations, is sufficient to produce a specific disease, unless it can be said to contain the elements of that disease; and we look upon gonorrhœa as a specific disease, and its operations, and influences, and properties as specific.

Treatment.—So rapidly destructive is this disease, defying, in general, all remedies, that it is almost impossible for any one set of remedies to be said to claim precedence in usefulness over another. It is, perhaps, the commonest practice to employ a free antiphlogistic course, and to trust almost exclusively to that. Bleeding, general and local, is carried to a great extent, reducing the system to its lowest ebb. But in this, as in every other form of purulent ophthalmia, our experience allows us to decide in favour of the astringent plan. When a patient presents himself to us at the onset of the disease, before the cornea is affected, and when the vessels are slightly congested, and a degree of tumefaction of the conjunctiva or chemosis exists, which is the common incipient symptom, we immediately commence the local stimulating treatment, first dropping into the eye a solution of caustic of eight grains to the ounce, and after the interval of five or six hours, applying the common black ointment,

called Guthrie's. If the system be plethoric, and the lids much inflamed, leeches may be applied, and even general bleeding resorted to in combination with active purgatives, consisting of calomel, jalap, senna, and salts. In a debilitated system such measures will necessarily be less active, and leeches alone, as far as bleeding is concerned, will be required. We have often abstained from the abstraction of blood, trusting alone to local stimulants and purgatives, and yet succeeded in preventing any permanent affection of the eye. The caustic solution or ointment should be used every fifth or sixth hour, care being taken, meantime, to exclude light and prohibit the use of all stimulating food. With this treatment we have employed blisters, and are inclined to rest a great degree of confidence in them. The back of the neck is the site we select, and no delay is made in the application. We have found this course of treatment the most effective. Our minutes of infirmary cases inform us that nearly double the number of eyes have been saved under this treatment in comparison with those under the exclusive and rigid antiphlogistic plan, though in either case the number has been small. The eye may be kept constantly cold and moist by the saturnine lotion.

In the earliest stage of the disease we necessarily enjoin a low diet and quiet; but so soon as ulceration or sloughing has commenced, or the inflammation begins to put on a chronic form, which it rarely does in this species of ophthalmia, we resort to a more generous regimen, doing every thing, in fact, to support the system.

CHAPTER XI.

Variolous Ophthalmia.*

During the progress of small-pox the eyes are very likely to participate in the general affection of the skin; and when even the eruptive disease of the skin has disappeared, and we should seem to have little reason to anticipate any lingering inflammatory action about the system, variolous ophthalmia will sometimes make its appearance, though under modified circumstances, seldom ending in loss of vision.

This disease always begins in the palpebral lining, and particularly about that part of it in the vicinity of the eye-lashes. Here pustules are formed. The fluid they pour out agglutinates the lids, and ulceration and chronic inflammation of the tarsal edges, if nothing more, often follow. If many pustules should form about the external part of the lids as well as the tarsi, the palpebræ become swelled, and, until the general disease subsides, continue closed, producing blindness for a season, and perhaps chronic inflammation, rendered more or less permanent according to the violence with which the parts have been affected, the constitution of the patient, and the privileges he enjoys. Sometimes the cilia are destroyed, and ectropium, such as arises in purulent ophthalmia, is an occasional result. In this case the lid often becomes diseased, *i. e.* thickened and inflamed through life, giving the individual an unsightly appearance, and occasioning considerable inconvenience. During the closing of the palpebræ in this stage,

* Ophthalmia variolosa, or Ophthalmia externa variolosa.

the pain is often considerable. This arises partly from the change going on in the pustular parts, and partly from the discharge arising from the pustules and the natural secretions of the conjunctiva being pent up in the eye.

So long as the variolous inflammation is confined to the lids, we apprehend no serious consequences, so far as vision is concerned; but when the inflammation extends to the conjunctiva of the globe, and one or more pustules form on the cornea, which quickly suppurate, we anticipate the worst results. The inflammation in such cases is usually of a violent character, and the ulceration or suppuration produced, of a serious description. The least evil we expect is a permanent opacity of the cornea.

It unfortunately happens that, during the progress of this active inflammation of the conjunctiva oculi, the lids are generally swoln and closed, for reasons already assigned, leaving us to guess, from the nature of the symptoms, of the extent of inflammation going on. The symptoms are multiplied when the conjunctivitis is general. The patient experiences pain on moving the globe, and generally when at rest. There is likewise the common sensation of some foreign body being lodged in the membrane. In addition, there is that of dryness; and if the palpebræ should happen to be separated, the admission of light is intolerable. Sometimes the degree of light admitted through the lids during their agglutination and tumefaction will be sufficient to produce some inconvenience in this way. The lachrymal secretions are also more abundant here, and the pain of the parts altogether increased. The total destruction of either sight or the globe is a frequent occurrence among the poorer classes. Frequently we witness a dense opacity of the cornea, with the iris adhering to its internal surface. Parts of the cornea near the margin will be often found transparent, which gives us an opportunity to make an artificial pupil, and thus afford the patient some portion of sight.

In this species of ophthalmia the cornea and sclerotica become more necessarily implicated, participating in the conjunctival affection, than they are in any other. In gonorrhœal and strumous conjunctivitis, the conjunctiva is rarely affected alone; but perhaps we never see variolous ophthalmia of the conjunctiva oculi, without the subjacent tunics being affected, while there is every reason to believe that the disease is, primarily, one of the mucous membrane alone.

Treatment.—In the first stage of the disease the pustular bodies should be pricked, that their contents may escape; leeches must also be applied to the lids. The lids, and edges especially, should be frequently bathed with warm milk and water, and to the latter it will be prudent to apply the common goulard or spermaceti ointment, that incrustations may be prevented. When crusts of matter have formed, they must be relaxed by means of tepid washes and these ointments; but every precaution is necessary to prevent their formation. In this case we enable the secretions, which would otherwise be confined within, to escape, and thus remove one source of irritation, and one of those causes which induce inflammation of the globe. After applying tepid washes, and after the leeches have been applied, and while the unctuous applications are yet strewed along the palpebral margins, we may keep a compress of linen rag wet with the saturnine lotion constantly applied to the surface of the lids.

These measures, conjoined with those commonly prescribed for the general affection of the skin itself, will usually prevent the inflammation extending to the globe, or even any permanent affection of the lid. When the conjunctiva of the cornea and sclerotica is affected, our measures may be more active, if they can be used consistently with the condition in which the patient is placed in regard to the small-pox itself;

for it would be impracticable to attend to the inflammation, and endanger the life of the patient, which we should do by carrying out the antiphlogistic plan to any great extent. For this reason we are inclined to rely exclusively on local bleedings, using them with less reserve when the inflammation has become extended to the globe.

We should open the palpebræ often in both stages, and syringe the whole internal surface with a zinc lotion—four grains to four ounces of distilled water. We have used the wine of opium with most decided benefit when the eye has been painful, and the conjunctiva of the globe inflamed. Suppuration having taken place, the nitrate of silver solution will lessen the ulcerative tendency, and help to restore the parts when ulcerated. This event having occurred, it will be time to allow of a more generous diet, and to prescribe tonic medicine, if nothing exist, such as inflammation of more vital organs, to interdict their use.

CHAPTER XII.

Catarrhal Ophthalmia.*

After what has been said of the nature of the simple form, little remains to be said of this, as they approximate in character. Catarrhal ophthalmia forms a connecting link between the simple and purulent kinds. A violent attack of the former, and mitigated one of the latter, nearly resemble this species of conjunctivitis. It is evident, indeed, that the purulent ophthalmia of the infant is often catarrhal, but assuming features at this age which it does not in a person of more mature age; and it is a matter of considerable doubt whether the Egyptian ophthalmia, so called, is not strictly catarrhal, of a very violent character. If the opinions of some persons can be relied on, there would yet appear to be a difference between these two affections, not merely in the state of intenseness and severity, but in one being contagious, the other not. If the Egyptian form be absolutely contagious, there is an essential distinction, but it is extremely doubtful, the Profession being divided on the point. The similarity between the two diseases proves little, as the Egyptian and gonorrhœal present similar features, except in violence, and yet are different in character. We have reason to believe that the latter might often have been mistaken for the purulent ophthalmia of the adult, and a notion of contagiousness have thus arisen; though there still appear some well-grounded facts of the Egyptian form being contagious, while there are others to the contrary. It may exist

* Conjunctivitis catarrhalis, or Ophthalmia mucosa.

as an epidemic, and so may the catarrhal form; but we never see the latter especially unaccompanied by common catarrhal fever, or inflammation of some other membrane, those of the bronchiæ, the tracheæ, the fauces, the frontal sinuses, or the Schneiderian membrane. These concomitant symptoms help to establish our diagnosis. Perhaps we are not at liberty to pronounce any ophthalmia to be catarrhal exclusive of some of these general signs. The very term signifies that some atmospherical vicissitude is the cause—a cause that acts not exclusively on the conjunctiva, which participates in common merely with other mucous tissues. Exposure to wet and cold, by first acting on the skin, has a tendency to affect these tissues; and we never remember to have seen catarrhal ophthalmia without either these being affected, or the body generally with fever. Influenza, wherein the eyes are always affected, is one instance of the conjunctival inflammation being accompanied by fever and inflammation of other mucous membranes, always of some, generally of all. Whatever, therefore, will produce what is called a cold, may occasion catarrhal ophthalmia. We need not relate the various modes in which a cold is taken, and by which the ophthalmia is produced, for they are evident enough to every person. Yet he may not be able at all times to say from which his cold arises.

There is one remarkable feature in catarrhalis conjunctivitis—it is the remission by day of both the ophthalmic and general symptoms, and their renewed violence at night. This accompanied with the usual absence of that commonest of all symptoms, intolerance of light, when the disease is developed, will usually distinguish it from simple conjunctivitis. Round the corneal margin we often find in the catarrhal species some small vesicles charged with a serous fluid, forming a kind of phlyctænular eruption. This is not a symptom of the simple form. In the purulent ophthalmia these elevations of the conjunctiva from the subjacent sclerotic membrane, are more considerable and extensive; and that thickening of the mucous

coat which occurs in this more violent species of conjunctivitis, is not known in catarrhal ophthalmia.

The first secretion is lachrymal, then mucous, which grows thicker in consistence as the inflammation progresses, and greater in quantity in proportion to the extent of the inflammatory action. The discharge is usually white, but sometimes of a straw colour. We have noticed in this form what we have not so often observed in any other at the onset of the disease—an irregularity in the vascular distention of the conjunctival vessels. The degree of redness so varies as to leave one spot redder than another. In a more advanced stage this irregularity is lost.

In every other respect catarrhal resembles simple ophthalmia. It is very manageable, and scarcely ever extends beyond the conjunctiva. It is, therefore, not a dangerous form ; for so long as the cornea is not implicated, there is nothing to fear. In severe cases the lids become somewhat tumid, which soon subsides in general, as does the accompanying increased discharge, which, at the commencement of the disease, is so small in quantity as to constitute a mere line of muco-purulent matter lying inside the inferior palpebra, or lower lid. It seldom assumes a chronic character.

Treatment.—We have little more to say on this head than has been already said when referring to the treatment of the simple form. Looking upon the disease as one in which the system is more generally implicated, and being persuaded that the ophthalmia is a mere concomitant of, and not a cause of, that implication, we reasonably conclude that the ophthalmia will, in common with the other symptoms, yield to the ordinary course of treatment pursued for a cold, which is, to keep the bowels and skin active, to bleed if circumstances call for it, to avoid atmospherical exposures, and all stimulating drinks

and animal food. The warm bath will be found a useful auxiliary.

The propriety of applying leeches depends on the extent of the inflammation, and the constitution of the patient: they are, however, generally used with safety and effect. Warm fomentations are very serviceable, affording ease, by relieving the sensation of pricking and stiffness, and subduing the inflammation. A lotion, consisting of sulphate of zinc, five grains to two ounces of water, may be injected between the lids every four hours; and if there should be an appearance of obstinacy in the inflammatory process, unaccompanied by inflammatory fever, or any febrile symptoms, blisters will be serviceable. Concretions should not be suffered to form about the lids; and whenever any of the discharge rests in the corner of the eye, it must be wiped away with a clean linen cloth.

In the chronic form, if such it should assume, we must be regulated by the plan laid down when speaking of simple conjunctivitis. The wine of opium dropped into the eye daily will generally suffice to terminate the chronic stage in the course of a few days; the general health and cleanliness being, meantime, attended to. The acute stage seldom requires attention to any other rules than those mentioned above. The reader, however, is referred to the treatment contained in the Sixth Chapter.

CHAPTER XIII.

Egyptian Ophthalmia.*

The general features of this affection so strongly resemble those of the purulent ophthalmia of newly-born infants, that there is little left to be said here. There are three stages in both, and they are each attended with the same concomitant symptoms. The Egyptian form is, however, less manageable, and therefore more destructive; but the constitutional disturbance it occasions is usually less, and there is a greater tendency in it to return after it has been cured. This we find no difficulty in accounting for, if we look upon the disease as being more strictly *catarrhal.*

Though this calamity partakes almost of the self-same character as that of infants, the causes are not essentially alike. We have observed that gonorrhœal and leucorrhœal discharges in women, as well as cold, and the ordinary causes of conjunctival inflammation, may occasion the disease in

* This has been termed ophthalmia contagiosa, purulent ophthalmia of the adult, ophthalmia blennorrhœa, &c. Those persons, who would thus designate it, suspect that the disease is not peculiar to Egypt, in which country it first became so manifest as to attract the attention of the medical world towards it. We are inclined to take the same view of the matter; but the term being so familiar, and the disease, under that designation, being so well understood, we feel it desirable to retain the term, and particularly as we failed to recognise it before it broke out with such violence in Egypt among the English and French troops while they were contesting for the possessions of that country. We find that the disease has occurred in parts remote from Egypt, and without the slightest intercourse subsisting between them. So far it is not peculiarly Egyptian.

infants; but in the production of the Egyptian form of conjunctivitis these discharges are supposed to have no share.

The question of the contagiousness of this disorder has long afforded matter for cavilling and speculation. It is still undecided. The contrary opinions of men who have had the best opportunities of judging, and than which no greater opportunities, perhaps, will ever present themselves, seem to favour the views expressed in the Chapter on gonorrhœal ophthalmia. While we are inclined to suppose Egyptian ophthalmia, so called, of a contagious nature, we believe it an acute form of catarrhal ophthalmia, rendered violent in Egypt among the soldiers, first, perhaps, from the nature of the climate, and, secondly, from their being exposed to those causes, such as wet, damps, confined barracks, &c., which we have before mentioned as favouring the development of conjunctivitis, and of increasing its severity when once it has occurred. There can, we think, be little doubt of the puriform discharge arising from the eyes in this kind of ophthalmia being capable of infecting a sound eye, and producing the disease there. There are sufficient instances or cases on record, related by men no less eminent than Walther, Vetch, and Macgregor, and a whole host of army surgeons in Egypt during the time it made such ravages in this part, that we should be closing our eyes to the most palpable facts if we abandoned the idea of contagiousness. At the same time, there are the best reasons to believe that the disease may arise without contagion—be produced, in fact, from either of those causes which are capable of inducing inflammation of the conjunctiva.

In ordinary catarrhal ophthalmia there is a mitigated form of all the symptoms. We seldom find the cornea affected; the discharge is smaller in quantity; there is no such chemotic swelling, and seldom any tumefaction of the lids; nor is the inflammation altogether so extensive and destructive: and yet we believe that all these symptoms would be increased if the subject of them were exposed to the same extra causes

as produce what is termed the Egyptian form. Indeed, we have been able to trace the purulent ophthalmia of the adult first to catarrh, in which a combination of unfavourable causes, like those we have already noticed, existed, to render the disease more violent in its essential features.

Treatment.—A difference of opinion exists as to the propriety of using local stimulants from the commencement. We prefer this plan; nor should we recommend general bleeding at all, unless the patient is of a plethoric habit, or inclined that way. Leeches will be found useful, especially when chemosis exists; from ten to twenty may be applied to the eye. Cold lotions constantly used will help to reduce the swelling of the lids, and lessen the chemotic state of the conjunctiva. We necessarily prohibit the use of wine, malt liquors, spirits, and animal food in the early period of this disease. A low diet, in every respect, must be enjoined till the active stage has subsided.

Sometimes the inflammation is exasperated by the astringent applications. In this case it is prudent to suspend their use, and, generally, resort to more copious bleeding than that by leeches. The ophthalmia is, however, more frequently subdued by the astringent method than by the strictly antiphlogistic course; and that granulated condition of the membrane so often left after the latter plan, is very modified in its character under the former. The ectropium which is apt to result from purulent ophthalmia, exhibiting the internal part of the lid in a vascular and thickened state, proving irksome to the patient, and obstinate to the practitioner, is not so common a consequence when we begin early with the astringent remedies. We have found, when the stronger remedies of this kind have served to increase the inflammation, that the wine of opium has diminished it, and in no case has it been found injurious.

When the lid, after the subsidence of the inflammation, presents a granulated appearance, whether it be attended by ectropium or not, the part should be touched every day with the nitrate of silver or copper in substance—the former is preferred; and the surface may be smeared at intervals with the common golden ointment. After the application of the nitrate of silver we have sometimes deemed it advisable to syringe the touched surface with tepid water, on account of the possibility of an atom of the substance being left on the lids, which generally produces extensive mischief. The ointment may be rubbed on the edges of the lids from the commencement.

Inflammation being subdued, every thing that can be done to recruit the health, and give tone to the system, must be adopted, and especially if any degree of ulceration or sloughing of the cornea exist; and on no account must we omit the astringent solutions while the least inflammation remains, or these results are in operation. Blisters are useful in this stage. They may be applied behind the ears; and when we have to contend with ectropium, and a thickened or granulated state of the mucous lining, they may be placed on the temples. The conjunctiva of the globe itself often continues in a chemotic state when the active stage of inflammation has subsided, presenting a loose, flabby, and pale appearance. Blisters are likewise serviceable here. Indiscreet practitioners will cut off these apparent appendages; but we have only to support the system, and make use of astringent applications and blisters, and the relaxed membrane will begin to assume a natural appearance.

Some individuals are in the habit of scarifying the granulated membrane; but experience has taught us to prohibit this practice. From the scarified parts we have frequently known granulations of a fungous character arise, producing ectropium, even if it did not exist before, and increasing the calamity. If we could rely on no such excrescences arising, the plan would be practicable, as it would relieve the congested vessels.

It is alike injudicious in the purulent ophthalmia of infants and in gonorrhœal ophthalmia.

While doubts remain of this affection being catarrhal, we are required to act with the same precaution, using, meanwhile, those general remedies which we would administer in a case of catarrhal fever. The principle is good under any circumstance; and so long as a doubt exists of the disease being contagious—so long, rather, as the puriform discharge is capable of affecting a sound eye, uncertain as it may be in its operation, we must act as if no uncertainty whatever prevailed, and do all we can to prevent such communication between parties as may lead to the propagation of the disease.

CHAPTER XIV.

Scrofulous Ophthalmia.*

This is the most common kind of conjunctivitis. At this we are not surprised, considering how few individuals are free from the strumous or scrofulous diathesis, and how susceptible such individuals are of disease. Whenever such a constitution prevails, the conjunctivitis which may happen to be occasioned by some external exciting cause, will, sooner or later, in all probability, take on a strumous character. Whatever, therefore, is capable of producing simple conjunctivitis, will be sufficient to develop this species of ophthalmia if such a diathesis exist. The greater the scrofulous disposition is, the more readily will the ophthalmia be developed, and the more violent will it be in its character. For this reason it is that we find the disease more prevalent in debilitated habits, in children who are badly fed and clothed, and exposed to all the vicissitudes which poverty and negligence bring. In them this disposition is greatest. Scrofula is like a latent germ, which is brought forward and made to shew itself by any thing capable of reducing the powers of the system. It thrives best in a bad soil. In childhood, when the vital energies are naturally weaker and more impaired than they are at maturity, occasioned in part from the growing processes of the body, this germ is, as it were, quickened, and kept alive and active till these processes cease, and the fibres of the body gain additional vigour and power.

* This species of ophthalmia is not essentially one of the conjunctiva. It may attack other tunics primarily as well as the conjunctiva, though rarely.

Strumous conjunctivitis is hence usually found in children, and generally in those who are the most constitutionally scrofulous, in whom the disposition is increased by any cause operating to reduce the tone and strength of the animal fibre. If, therefore, any doubt exist with respect to the character of a conjunctival ophthalmia, we are to take into consideration the constitutional disposition, the age, and station in life of the patient. But there are characteristic signs in this species of ophthalmia sufficiently distinctive, independent of such a consideration. These are the extreme sensibility of the retina, producing the greatest intolerance of light, the copious flow of the lachrymal secretion, accompanied by a *very moderate degree of redness*, or apparent inflammation of the conjunctival vessels. The impression of light is so painful, that the child will do every thing to avoid it. The spasm of the orbicularis muscle, the muscle of the lids, is more violent here than it is in any other species of conjunctivitis. When the child is brought into the light, all the muscles of the face are affected, the lids are forcibly closed, the alæ of the nose are drawn up, the brows are contracted. When an attempt is made to open the lids, great resistance is used; the whole globe puts on a slight revolving motion, till the cornea is turned away from the light, and hid from our view. So great is the spasmodic action of the lids, that pressure is necessarily made on the globe, occasioning additional pain. We have lately been attending a little boy in whom these peculiar physiognomical features were strongly portrayed. He constantly kept either a handkerchief or his hand to his eyes during the day, always holding down his head, and resisting every attempt made to separate the lids. In the evening there would be a cessation of all the symptoms, because the great stimulus, light, was in part removed. He had suffered from strumous conjunctivitis for several months, and during that time had assiduously kept something to his eyes to exclude the light, putting his face in the pillow when in bed, and seeking

every situation where light was least powerful. When we first saw him, the vessels were but slightly charged, and opacity of the corneal conjunctiva had taken place. By the aid of medicine, the application of the caustic solution daily, and a blister, the child soon recovered. We mention this case as an instance of hundreds which present themselves to the practitioner in the habit of seeing much of ophthalmic disease.

In scrofulous conjunctivitis the tears, which flow in abundance, are of so scalding and irritating a nature as often to assist in producing an eruption in the vicinity of the eye. This eruption is partly occasioned from the friction kept up by the constant application of those things used to exclude the light, and from the little patient constantly hanging the head down, when there is naturally a greater determination of blood to the eyes and face. The lachrymal passages are themselves often considerably irritated by the acrid and hot tears, and so, necessarily, is the conjunctiva. The secretion is more acrid and copious at the commencement of the disease, and will often produce violent sneezing. We have known the eruption thus produced extend itself over the whole face and ears, and sometimes over even a great part of the body. The incrustations attending this eruption are picked off by the child, aggravating the affection. In this state the absorbent glands about the neck generally swell, which is not removed until the eyes and eruptions are cured, and sometimes not even then.

There is something manifestly peculiar in the character of the inflammation itself, apart from the concomitant symptoms. It is not unlike that attending pustular ophthalmia before noticed. The vessels are inflamed in patches, not uniformly as in conjunctivitis in general; and these proceed from the lid to the cornea where the fasciculi or bundles of inflamed vessels often terminate in pustules, which will be collected about the cornea, some on the margin, others on the surface. Their site depends on the part where the fasciculi terminate, which may be either on, or at the edge of the cornea. If on the

cornea, the danger is greater, as we have explained when speaking of pustular ophthalmia. But the inflammation is often very slight, and not equal to account for the violent symptoms which attend it.* In this case we should look to some cause apart from the actual inflammation of the membrane—one, perhaps, acting in concert with it. The health of the patient will be usually found deranged; the stomach and bowels most likely in a very disordered condition. We do not remember to have seen the intense irritability of the retina accompanying a modified degree of inflammation in the strumous kind, without some derangement of the general health. The retina is sympathetically affected, the state of the health, and the inflammation of the conjunctiva being the causes. These causes being removed, the retina loses its sensibility. It is even partially lost when the light is feeble. There is no absolute danger in this affection, while inflammation is confined to the external tunic of the eye. The same degree of irritability attends retinitis, which we must be careful not to overlook for conjunctivitis, two diseases not very easily confounded.

In strumous ophthalmia there is another circumstance of a characteristic kind—it is the sudden changes the symptoms undergo. One day they will have so subsided in violence as to hold out a hope of the disease being entirely eradicated, while the next day will bring a renewal of the disease, even in an aggravated form. This is not owing to any capriciousness, if we may so speak, of the disease, but to the temporary removal or renewal of the causes on which it depends, and on its liability to cease as they cease, and return as they are again brought into operation. The susceptibility of the system to disease, and the influence of ordinary causes is, we have said, great in scrofulous

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* Sometimes we witness great intolerance of light without any inflammation. This is called *photophobia scrofulosa*, and is only found in delicate children of a very strumous habit.

constitutions; and as these causes are likely to be removed one day and reproduced the next, we need not marvel at the changeableness in the violence and action of the symptoms. This vicissitude is much greater in unhealthy and weak children, and in them the susceptibility is greater.

The sclerotic and corneal coats generally become affected, and sometimes the iris and inner coats, if the inflammation should be great or protracted. Occasionally, however, the cornea will be considerably affected without, and this is a peculiar feature of strumous conjunctivitis. In severe cases of this affection it will present a singular appearance. The conjunctiva covering it is thickened, opaque, and presenting, in the midst of the opacity, lines of vessels congested with blood. It is not an opacity from ulceration, but from interstitial deposits, which are to be removed. The cornea is now in a state which renders us apprehensive of those fatal results to which we have had frequent occasion to refer. We quote one case of disorganization, for the very singular circumstances which attended it.

Mary Flint, aged 12, of a scrofulous habit, and quite blind, presented herself to us for the first time with disorganization of the right eye, and complete amaurosis of the left. For twelve months she had suffered from inflammation of the right, beginning, from the accounts given by the parents and friends, in the conjunctiva, and gradually creeping to the internal tunics, where retinitis would appear to have existed to some extent. We found a few of the conjunctival vessels charged with grumous-looking blood; the sclerotica had nearly lost its naturally opaque character, assuming a dark bluish cast; the cornea was slightly nebulous; the iris, almost colourless from inflammation and deposition, had fallen against the cornea, and become nearly closed; the humours looked turbid, and the eye was somewhat larger than the other. She suffered much from shooting pains in the eye, which extended to the back of the head, and the admission of light increased them. The child

was now grown feeble, and irritative fever in a mitigated form existed.

From the habit of the patient, from the whole character of the globe, from the manner the inflammation commenced, from the insidiousness and tardiness of its progress, from the nature of the symptoms which would appear to have prevailed, there can be little doubt of the case having been one of strumous ophthalmia. The girl had sought the best advice she could obtain, and, in the course of the year, experienced considerable relief at intervals: still the inflammation was never entirely subdued, and the slightest cold would bring it back with renewed violence. Leeches, scarifications, calomel, blisters, were freely used during this lapse of time, and with little intermission. Every renewed attack, at least, would appear to have been thus treated. About three weeks before we saw her she had another attack of increased inflammation, the eye being quite disorganized, and its sight gone; but that eye of which we have spoken as being amaurotic, had not suffered till then more than a slight degree of occasional dimness. The surgeon to whom the girl again applied, deemed it prudent to scarify the lids of the disorganized eye, *and in the act of doing so, the sight of the other was destroyed.* The child had gone into the surgery with vision, but left it blind, being scarcely able to distinguish light from darkness.

Business calling us from home for a few days, we sent her to a surgeon of skill, enjoying a considerable reputation. He properly directed his attention to the amaurotic eye, prescribed calomel, and leeches to the temple. As the leeches, which were applied to the left temple only, were sucking, the conjunctiva of the disorganized eye (the right) began to swell, and effusions into the cellular texture to take place. The chemosis increased to a great extent; intense tumefaction of the lids followed; and the loose folds of the diseased conjunctiva protuberated and hung between the edges of the lids, covering the cornea. We saw the eye in this state; the pains

of the head were violent, and increased in intensity about every ten minutes, thus forming a periodical paroxysm. The restlessness and constitutional irritation were now twofold greater than they had heretofore been; and nothing besides arrow-root and sago in the way of food were retained on the stomach. The child would frequently feel faint, which was attended by some convulsive twitchings about the limbs and face. We applied a cold saturnine lotion to the eye, and administered seven drops of the tincture of opium every three hours. These remedies afforded considerable relief. In three days the chemosis and tumefaction had entirely disappeared, the pain under the opiate was diminished, but there still remained the exciting cause. The humours now grew more turbid, the intolerance of light had diminished, and the whole globe, presenting more traces of inflammation than it had before done, began to augment in size. These symptoms no sooner supervened than the pain almost entirely left the head, and settled in the spinal column. The whole of the vertebræ were tender on pressure, and the application of warmth increased it, indicating inflammation about the membrane of the cord. There was now with the syncope, a tremulousness about the limbs, instead of any thing approaching muscular contraction; but this entirely disappeared as the disease of the globe advanced, which has ended in a malignant growth, promising to destroy the child, who appears unable to bear any operation.

Usually the change of structure is confined to the cornea in strumous ophthalmia. In fact, if inflammation attacked the internal tunics, it would no longer be conjunctivitis. Changes are sometimes going on in the iris when, owing to the inflamed and opaque state of the cornea, we are not able to perceive them. Scrofulous ophthalmia presents, from the beginning, a passive rather than an acute character, and is generally protracted, or not so remediable as many other forms. So long as the cornea is unaffected, or merely nebulous or opaque

from interstitial deposits, we may form a more favourable prognosis. If ulceration has commenced, more or less opacity of a prominent description will arise; and if that ulceration should extend itself throughout the laminæ, we shall have the unfavourable consequences to which we have before alluded; such as prolapsus iridis, or staphyloma, or evacuation of the humours, and a consequent collapse of the globe.

Treatment.—The remedies upon which we are called to rely most implicitly in this affection are of a general character. The most painful symptom is the extreme sensibility of the retina, and this is more dependent on some remote cause than on the inflammation of the conjunctiva. The ophthalmia itself is of a constitutional character, though usually brought into action by some exciting, local cause. The condition of the system may produce it without an external cause, but it is not, we apprehend, so commonly the case. When inflammation is induced, and it partakes of the prevailing habit of body, it is fed and protracted by that habit. Whatever, therefore, will diminish the scrofulous tendency of the system, or invigorate the health, will usually be found advantageous in strumous conjunctivitis. Attending this species of ophthalmia, and particularly if the intolerance should be great, we generally find a great derangement in the alimentary canal, quite sufficient to account for the inflammation and sympathetic affection of the eye. In this case we are required to give active aperients, consisting of calomel in combination with the ordinary purgatives. The tendency to this disorder of the digestive organs must be prevented by the daily administration of alterative medicines, such as the hydrargyrum cum creta, or calomel with rhubarb. These may be given every second morning; and if they are not sufficient to prevent the accumulation of any offending matters in the alimentary canal, a purgative must be occasionally substituted. In the mean-

time, a light nutritive diet should be prescribed, in union with tonic medicines. If the patient be very debilitated, wine or porter will be useful. A vegetable diet is usually injurious. Every kind of farinacious food, with eggs and milk, may be safely employed on all occasions. Unless the digestive organs are very irritable, and the individual is inclined to be plethoric, which is seldom the case in scrofulous habits, meat may be given; but this must be of the lightest character, such as chicken or tender mutton. Exercise in the open air should be taken, the eye being, meantime, protected from any glare, or cold wind. In the house it is better to darken the room than to wear any compress or shade about the eye. In fact, whatever is capable of invigorating the system must be resorted to. Quinine, quassia, sulphuric acid, calumba, and steel are recommended as tonics. But they, as well as the use of meat, porter, and wine, require care in their administration when the alimentary canal is in a state of derangement, pouring out unhealthy secretions, and containing undigested food. The doses must be regulated according to the age and habit of the patient. We say habit, as two persons of the same age may not be equally capable of bearing the same dose; and it is to the indiscriminate use of medicine, regardless of the dispositions of the system, that failures in their administration are often to be attributed.

The local measures are such as we would employ in most of the other species of ophthalmia. The caustic solution and wine of opium are useful from the commencement; the former especially so, if the cornea is ulcerated and congested. As the edges of the lids are very likely to be affected in strumous habits, on which little abscesses are often formed, they may be anointed every night with some ointment. The goulard and the red precipitate form the best preparations.

Leeches are seldom demanded. In irritable and weak habits, when the strumous disposition is strong, the intolerance of light great, and the inflammatory action slight, they should be

avoided. The reverse of these things calls for their application. The irritability of the retina is generally increased by the abstraction of blood, but lessened by purgatives, tonics, and a generous diet. Unless, however, the digestive organs and bowels are affected, we must be sparing in the use of aperients.

Hot fomentations afford great relief, especially if they are made of poppy-heads. Lotions have no specific virtues, if we except an evaporating one, such as that of Dr. Seed's, mentioned in a former Chapter. We have known this essentially serviceable in abating the irritability, applied on the external surface of the lids by means of a thin compress of rag.

Blisters and counter irritation are most decidedly efficacious in relieving the sensibility of the retina, in preventing any change of structure, or in arresting its course when once it has begun.

When the structure of the cornea is changed, or presents a threatening aspect, we have not only persisted in the use of blisters and the caustic solution, but have given calomel freely, though not so as to affect the mouth, making use, meanwhile, of a generous diet, and syringing the eye twice a day with a solution of oxymuriate of mercury, two grains to six ounces of distilled water. Some persons are in the habit of blowing powdered loaf-sugar combined with calomel, into the eye; but the mixture possesses no advantage over the other remedies, even if it be so efficacious.

Cleanliness is particularly recommended, as is also the use of warm clothing and warm bathing. The circulation of the skin must be freely promoted. The disease being removed, and the system strengthened, cold bathing may be substituted, to prevent a renewal of the attack, which it has the power of doing when the patient is able to bear it. Sea-bathing and even sea-air are useful; but the intense glare from the water and sands on the coast will prove injurious. When the irritability is subdued, the sea-side will be found efficacious in general, from the invigorating properties of the air.

CHAPTER XV.

Erysipelatous Ophthalmia.

In this species of conjunctivitis there is but little inflammation. The chief characteristic of the disease is the effusion of water into the cellular membrane, which gives the inflamed conjunctiva a pale blush, and the appearance of being swoln. In this state it assumes a gelatinous character. It sometimes attends other diseases of the eye. We have seen cases of chronic strumous ophthalmia, where the occasional renewals of inflammation to which that species of conjunctivitis is liable, after intervals of suspension, were attended by erysipelatous ophthalmia, which extended itself even to the lids. It sometimes accompanies disorganizations of the globe.

The watery effusion finds its way through the interstices of the cellular substance to the bottom of the eye, when the elevated conjunctiva protrudes and hangs over the under lid; and now especially it is, that the bulging membrane assumes a gelatinous character, or the appearance of a slightly vascular bag, of an irregular surface, filled with some fluid.

We anticipate no evil results from this affection of the eye when confined to the conjunctiva, and it very seldom extends beyond. Its existence usually indicates some derangement of the bodily health, and may be regarded rather as a constitutional disease brought into action by some local irritation. We are disposed to believe that where there is also inflammation of the sclerotic coat, it is not necessarily of an erysipelatous nature, the sclerotitis being often, perhaps always, the precursor of the affection of the conjunctiva, which alone partakes

of an erysipelatous character. At least, in the inflammation of the sclerotica, we see nothing peculiarly erysipelatous, and have generally observed it to be pre-existent. When the sclerotica is affected, the symptoms are more severe. There are now pain and intolerance of light, which were not, most likely, observable before. The appendages of the eye partake of the inflammation of the conjunctiva, and the constitutional irritation is increased. Confined to the conjunctiva, it occasions very little inconvenience to the patient, who is usually advanced in years. Children are seldom the subjects of this affection, except when it attends some strumous disease of the eye, of a protracted and irritable character.

Treatment.—Looking upon the affection as more particularly constitutional, we are required to seek for the cause, and to remove it. Impaired health, indicated by irregularity of bowels, foul tongue, headache, dry skin, lassitude, capricious appetite, nausea, and other febrile symptoms, will generally be found in the individual thus affected. Our treatment must, therefore, be directed to it. In the meantime we would not neglect local measures. These are very simple when the disease is strictly conjunctival. A cold saturnine lotion kept constantly to the eye will generally be sufficient, in conjunction with proper general remedies, to remove every unpleasant symptom in a few days. Hot fomentations may be used occasionally. Leeches are to be avoided; nor do we consider that any efficacy attaches itself to blisters.

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