met with in infantile spastic hemiplegia; all degrees being obtained from this downwards through cystic formation, cortical sclerosis, and local softenings, to limited convolutional atrophy (microgyria).

Various views have been propounded as to the causation of this condition, but that most favourably received, and which fits the case under consideration most nearly, is a thrombotic occlusion of a cerebral artery, with secondary softening and cystic formation. In this case, though the entire cerebral hemisphere is atrophied, it would appear that the posterior cerebral artery was that chiefly implicated. That this may take place before birth seems highly probable in some cases. The history in our case clearly points to the onset three days after birth, when the child was seized by convulsions; and the conditions in which the first clinical appearances were developed seem in favour of thrombosis rather than of embolism as the cause of such vascular occlusion, as was first seen by Heubner.¹

The subsequent onset of epilepsy in such cases is invariable.

ON THE TREATMENT OF SOME OF THE MORE COMMON EYE AFFECTIONS.

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(Continued from page 60.)

The treatment suitable in cases of cicatricial ectropion is, as we have seen, influenced by the fact that the eversion of the lid is due to more or less extensive loss of surrounding skin. The operations which have been recommended as applicable in conjunctival ectropion are therefore rarely of use here. They can only be employed in the comparatively slight degrees of cicatricial eversion. Snellen's thread operation, though it may lead to an improvement in such cases, is never particularly satisfactory, as the turning in of the eyelid conjunctiva is then got at the expense of the position of the lid in another respect; it is always too far withdrawn from the eye, which generally causes an unsightly appearance. Removal of a wedge-shaped portion from the lid, on the other hand, sometimes gives quite good results. In cicatricial ectropion, however, the wedge should be removed from the portion which shows the greatest amount of eversion. This may be any part. Often it is the middle of the lid.

As a rule, and whenever the eversion is at all marked, it becomes necessary to perform a plastic operation. The portion of skin which has to be transplanted may be taken from some part

¹ Wien. med. Bl., 1883.
in the neighbourhood—from the cheek, the forehead, the temple, the side of the nose, or, in the case of cicatricial ectropion, of the lower lid, even from the upper lid. In all these cases the flap taken should, of course, be a pedicled one. Sometimes, owing to the absence of any sound skin from which to secure a pedicled graft, a piece of skin completely detached from some other part of the body, preferably the arm or leg, may be used as a graft. This proceeding has the inconvenience that, although the transplanted skin always, with proper care, retains its vitality, and becomes adherent in the gap to which it has been transferred, it has, nevertheless, an invariable tendency to shrink subsequently to a considerable extent. Often this shrinking is so great, that, notwithstanding that the graft has been taken originally a great deal larger than required to make up for the lost skin, the effect of the operation is gradually practically reduced to little or nothing. After a large experience of such operations, I am convinced that they should never be undertaken except where it is quite impossible to get a flap from any part of the face. The patient should then not be encouraged to expect too much. As there is no local loss of substance resulting from failure in such transplantations, there is always the possibility of repeating them. Indeed, it is usually necessary to do so once or twice, to get a fairly good permanent result. The main points to be attended to in making a large skin graft from a distance are—to secure asepsis in both wound and graft, to avoid interfering too much with the graft, to remove all fat from the skin to be grafted, also any blood clot from between it and the wound, to cut the graft sufficiently large, and to allow the first dressing to remain for several days without being changed.

The first step in the operation should be the freeing of the traction which causes the eversion of the conjunctiva. An incision is made in the skin or cicatricial tissue, parallel with the whole extent of the lid margin and close up to it. This is continued in depth with the knife or with a pair of scissors, so as to form a flap composed of the conjunctiva and lid margin. This flap is freed sufficiently to enable the conjunctiva to be easily held in its proper position and turned towards the eye. Three horse-hair loop stitches are then passed through the margins of the upper and lower lids, and the free ends knotted on the lid which is not the site of the operation. This secures the retention of the flap in its proper place, and also fairly well the desired immobility. A gaping wound is thus left, which has to be filled with the graft. Before, however, cutting the graft, a suture may be placed at each angle, and also one or two through the upper edge of this wound, ready to be used for keeping the graft in position. By doing this any bleeding at the time of placing the graft is avoided. The graft itself is next cut, and of a size at least half as big again as the gaping wound it has to fill. It is best to remove the skin with the
underlying fat. This can be done quickly and more satisfactorily than dissecting it free from fat. The fat is afterwards removed from the excised portion of skin, which is then ready to be placed in position. By the time it is ready, the wound, on which a compress dipped in corrosive solution has been meantime held by an assistant, has usually stopped bleeding. The free ends of the sutures, which have been placed at points surrounding the wound, are then carried through corresponding parts of the edge of the graft, and knotted. These are usually sufficient to hold the graft in its place, but it is well to further secure it against risk of displacement by means of strips of fine court plaster. The whole may then be covered by a piece of ordinary protective, powdered well over, and especially at its margins, with iodoform. A good large pad of absorbent cotton and a bandage complete the dressing, which is not disturbed for three or four days.

The great advantage which a pedicled flap taken from the neighbourhood has over a graft from a distance is, that it shows little or no tendency to shrink subsequently. When a plastic operation of this nature is properly performed, the flap always retains its vitality. The one objection which might be made is that a scar is necessarily left at some previously more or less normal part of the surrounding skin. This scar should, however, always be linear, and is then not by any means so unsightly a deformity as that which calls for operative interference. It is important, however, to give quite as much care to the stitching up of the wound from which the flap is taken as to the stitching of the flap itself into the gap which it has to fill up. Tension must, of course, be avoided, and this is best done by freely undermining the skin before stitching.

I have discussed the merits of many of the numerous different operations which have been suggested in my lectures on eye operations. In this connection it is not necessary to do more than to refer to some of the practical points which require attention in all plastic operations of this kind. The operation must be done antiseptically; the ectropion must be reduced completely before the flap is cut, and this either by an incision close to and parallel with the lid border, as already described, or in continuity with a flap, beginning from incisions made at a greater distance from the margin, according to the operation which it is proposed to do. After this the lids should be temporarily sutured together. The flap must be cut sufficiently thick, and the pedicle be sufficiently broad. If, after cutting it, it should turn out to be rather short, it is better to get the remaining length required, from another place if possible, than to risk narrowing the base. If this is not possible, it may be lengthened by undermining the skin at its base. Especially when operating for cicatricial ectropion of the lower lid, care should be taken that the depth of the skin-flap is sufficiently great at the inner angle. Finally, the flap should
be very carefully stitched to the edges of the gap to be filled, by a large number of sutures. The dressing should be the same as that described above, and should remain undisturbed for the same length of time.

A particular form of cicatrical partial ectropion of the lower lid is often met with. This is caused by a tacking down of the superjacent tissues to some portion of the malar bone, which has been the site of a tubercular caries. In such cases I have found it best to circumscribe by an incision the portion of ulcerated skin or cicatrix which is adherent to the bone. Then undermining the surrounding skin in all directions, but most freely upwards in the direction of the lid, so as to free the ectropion, the wound thus caused may be readily closed, while at the same time the temporary union of upper and lower lids maintains the previously everted portion of the latter in good position. This is better than making an attempt to liberate the puckered skin from the bone, which is not only often difficult to do without buttonholing it, but which almost invariably leads to failure from reattachment.

**Entropion and Trichiasis.**—From the points of view of both etiology and treatment, two forms of entropion may be distinguished. The entropion may be purely spasmodic. This variety is confined to the lower lid, and is practically only met with in old people. The skin of the lid is wrinkled and flaccid, or redundant, in comparison with the layer of palpebral orbicularis muscle-fibres below it. Any irritation which leads to repeated contraction of these fibres causes the skin and the eyelash border to roll inwards. The eyelashes, by rubbing against the eye, further irritate and lead to the keeping up of the spasm which maintains the entropion.

The treatment of spasmodic entropion must be directed both towards mechanically counteracting the inversion of the lid and removing the irritation which leads to the frequent forcible orbicularis contractions. In a number of cases, and particularly in those in which there is only a temporary source of irritation, as after a cataract or other operation, all that is necessary is to reduce the inversion with the finger, and, after carefully drying the skin, paint on collodion. The lid must of course be held down, and should indeed be held somewhat everted, until a sufficiently thick layer of the collodion has had time to dry, and thus keep up the mechanical effect. This treatment may be tried, before resorting to anything more radical, in all cases which have not lasted very long, and in which the lid has not, as it were, got a set in the inverted position. The collodion has frequently to be reapplied—at least once daily, this depending upon the extent to which the layer becomes softened by overflowing tears. At the same time the local irritation should be allayed by frequently
bathing the eye with warm boracic acid lotion, and afterwards dropping in a solution of cocaine. For this purpose a freshly-prepared solution of cocaine in almond oil is useful. The following prescription may be recommended:—

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\begin{align*}
\text{B Cocainae} & \quad . \quad . \quad \text{grs. 5} \\
\text{Olei amygd.} & \quad . \quad . \quad \text{3ij}
\end{align*}
\]

Dark glasses should also be worn, and reading or writing disallowed for some days.

Although the collodion treatment is often successful in earlier cases, there is in many a tendency to relapse. In many, again, the treatment fails to give even temporary relief. Recourse must then be had either to one or other of the two thread operations about to be described, or to excision of a piece of the redundant lid skin. The most commonly employed thread operation is known as Gaillard’s. This consists simply of passing three or more loops of thread beneath the skin of the lid, and knotting them on pieces of drainage tubing at a greater or less distance down the cheek. One end of a thread, which must be aseptic, is entered immediately below the lid margin, and passed downwards for an inch or so below the skin towards the cheek before being brought out. The other end is entered in the same way, close to the first. This forms a loop. The three or four loops thus placed close to the lid margin are then knotted. They may be allowed to remain as long as they do not produce too much irritation, and the tracks they form are afterwards replaced by cicatricial bands, which render the mechanical effect permanent. This little operation is both simple and efficacious. It has the disadvantage, however, of leading to a somewhat unsightly fold of the skin of the lid.

Another thread operation which may be substituted for it on this account, and which is also more suitable in cases in which there is no marked redundancy of skin, is the following:—Two or three loops are formed at the bottom of the conjunctival sac, by passing the two ends of each thread, parallel to each other and close together, from the bottom of the sac upwards underneath the skin, and out immediately external to the lid border, where they are tightly knotted together. For ordinary senile entropion, however, there is no more immediate and satisfactory cure than the excision of a portion of the lid skin. The thread operations need only be resorted to when, as is pretty often the case, the patient is averse to any cutting. When properly done, the removal of skin leads to a permanent rectification of the lid inversion. The only difficulty in the proceeding is to make sure of excising just the right amount of skin. If too little be taken, the entropion, though not as great, may be quite as troublesome as before, and an excision of too large a piece will convert the condition into a more or less unsightly ectropion. On the whole, it is better to err on
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the side of removing too much than too little. At all events, the patient will usually be better pleased. A slight degree of entropion, amounting as it does in such cases to little more than a withdrawal of the lid margin from the eye, is of little consequence, provided always there is no decided eversion of the punctum lachrymale. It is well, therefore, to take care not to include too large a piece of skin to the inner end of the lid in the portion excised. The upper limit of the excised portion should come close to the lid margin, except to the inner side, where it should curve away from it, in order to get the best effect. After the slight bleeding has been stopped by pressure, the edges of the wound should be brought together by three or four sutures. The dressing (protective, iodoform, cotton-wool) may be changed after forty-eight hours, the stitches removed, and the linear scar covered by a piece of court plaster. The scar eventually left is quite unnoticeable.

The other common variety of entropion is the cicatricial. Cicatrices in the conjunctiva, and shrinking of the subconjunctival tissues generally, lead to inversion. The cicatrices may be the result of both accident and inflammation, and this form of entropion is equally frequent in both upper and lower lids, and on the whole more troublesome in the former. The most frequent cause of cicatricial entropion is trachoma. There is then also trichiasis, or misdirection inwards of the eyelashes. The rubbing of the eyelashes against the eye is not only a source of great irritation, but leads always more or less to an aggravation of the corneal inflammation which is so often associated with trachoma.

The main aim, therefore, in operations for cicatricial entropion is to remove the trichiasis. To do this without sacrificing the eyelashes, it is necessary to transplant the lid margin. Many different methods of doing this have been practised, few of which can be said to be completely satisfactory, and to fully secure the patient against recurrence as the cicatricial contractions become more and more pronounced. With few and unimportant exceptions, the various methods in vogue may be divided into two classes. In the one, a transplantation is effected by merely loosening the connection between the cilia-carrying border of the lid and the subjacent tissues, and sliding the bridge thus formed upwards, at the same time securing its reattachment in the altered position by suitably placed sutures. In the other, an attempt is made, in addition, to cover the tissues from which this strip or bridge is displaced with a pedicled skin-flap from the lid itself, or with a piece of skin or mucous membrane taken from a distance.

From my own experience of operations for cicatricial entropion, I believe most of the methods which have been advocated are capable of giving fairly satisfactory results. They are, however, in my opinion, not equally suitable in all cases. For instance, the transplantation of a pedicled piece of skin to fill up the space left
bare by an intermarginal incision which detaches the flap containing the eyelashes, is most serviceable in cases of partial trichiasis, where the inversion of the cilia is found only at the outer or inner portion of the lid. For complete trichiasis, it is not only difficult to execute efficiently, but it leaves a decided disfigurement. Transplantation of an unpedicled graft of skin is not to be recommended at all; even if the graft takes, which is by no means always the case, it eventually shrinks, and the effect is lost. Transplantation of mucous membrane from the lid has the same inconveniences, though to a less extent. To get a good result, the portion transplanted must be pretty broad (¼ in. or so). The healing process is an unnecessarily tedious one; the immediate result, a somewhat unsightly broad lid margin, and the subsequent shrinking apt to lead to recurrence of the inversion. It must be admitted that several operators who have had large experience of this method of treating trichiasis appear to be well satisfied with it. For complete trichiasis, without any scarcity of lid skin, and with little incurring of the tarsus, I consider v. Graefe's modification of an old operation (Jaesche-Arlt), to be immediately described, on the whole the most suitable. It is easy to do, the healing is rapid, and not interfered with by movements on the part of the patient, who need not, therefore, be confined to bed; and the tendency to recurrence after it is not particularly great, if care be taken to make a sufficiently deep intermarginal incision. Where, in addition to complete trichiasis, the tarsus is very much shrunken and incurved, it is better, I believe, to substitute another easily performed operation, which will also be described, and which was first recommended by Panas.

All operations on the upper lid are facilitated by being rendered bloodless by the use of a clamp devised by Snellen. This consists of a double-bladed instrument, in the shape of a forceps with broadened-out extremities. The end of the lower blade, which replaces the old horn plate, has on the one side a concave cylindrical surface, which is applied to the eye, while its other side, that turned to the inner surface of the lid, is convex. The outer blade consists of a flattened rim, the external measurement of which is rather greater than that of the lower blade. It rests on the skin of the lid, and is screwed down upon the lid, squeezing it on to the one lying between the eye and lid. The rim, when screwed tight, thus completely compresses the tissues and prevents bleeding.

V. Graefe's modification of Jaesche-Arlt's operation is done as follows: After applying Snellen's clamp, an intermarginal incision is made with a fine bistoury, by which the lid is separated along its whole margin into two layers about ¼ in. deep. The upper layer must contain the whole of the cilia and their bulbs. At either end of this incision two vertical incisions are made down upon it through the skin, fully ¼ in. in length. An elliptical
portion of skin is next removed from the skin of the lid. Two or three stitches are then introduced to unite the lips of the wound thus made, the effect of which is to arch up the central portion of the detached layer carrying the eyelashes. Finally, the outer and inner corners of this layer are stitched up to point about ¼ in. higher on the other sides of the vertical incision wounds. By this means, traction is exerted on the other portions of the cilia flap. The effect got immediately after operation must be a considerably exaggerated one, as subsequent cicatricial contraction takes place in the site of the intermarginal incision, and the contraction may eventually lead to recurrence if this precaution be not taken.

In Panas’ operation the removal of any skin from the lid is obviated. It is done as follows:—After applying the clamp, an incision is made through the skin and muscle along the whole length of the cilia-bearing portion of the lid. The incision must run parallel with the lid margin and about ¼ in. from it. With a pair of scissors the tissues are then cleared from the tarsus, both upwards and downwards. The upper dissection should extend to somewhat beyond the upper margin of the tarsus, while the lower should just stop short of the lid margin. An incision is next made perpendicularly through the tarsus, at the level of the skin incision, and equal in length to it. This must sever the conjunctiva as well. Threads are then passed through the tendinous attachment at the upper margin of the tarsus, each end of which is carried down underneath the tissues forming the lid-margin flap, and brought out in the middle of the lid margin. The three or four loops thus laid are tightened and tied over smooth glass beads, to prevent them cutting through the lid margin. The incision in the tarsus thus permits of its lower portion, together with the cilia, being tilted up. The edges of the skin wound are sufficiently brought in contact by these same loop sutures, the ends of which, after knotting, should be left uncut and plastered down on to the forehead.

**Symblepharon.**—The last condition of the lid which need be referred to here, as a commonly met with affection, is that in which the lid becomes adherent to the eye. It is important to recognise the possibility of such an adhesion, technically called symblepharon, occurring as the result of any accident which causes destruction of the mucous lining of the lid and the opposing surface of the eye. It is often, indeed, possible to prevent the development of a symblepharon by proper treatment. After a burn with lime or molten metal, or any other substance, the eye should not be tied up. This would only favour the growing together of raw surfaces which tend to lie in apposition. When the area of destroyed conjunctiva is limited to portions on the eye and lids which are not continuous, owing to the transition fold
having escaped injury, the lid should be frequently moved by being pulled away from the eye and rubbed gently from side to side, after a drop of castor or almond oil has been dropped into the conjunctival sac. If this be done for several days—three or four days, or longer, according to the state of cicatrization—each surface heals independently, and a symblepharon is prevented. This precaution should be taken hourly during the day and several times during the night.

When the transition fold is involved, in continuity with a greater or less extent of the ocular and palpebral conjunctiva, this treatment will not prevent an adhesion slowly forming, as in some part there is necessarily always a close contiguity between the opposing raw surfaces, which, in fact, meet at an angle which gradually closes up. In the less extensive burns of this nature much may often be done, if the patient is seen early after the accident, by covering in the raw surface left, on destruction of a portion of the ocular conjunctiva, with conjunctiva transplanted from the immediate neighbourhood. The wound must first be carefully cleaned, and as much of the burnt tissue removed as possible with scissors. The conjunctiva to either side is then undermined, and the edges drawn together by silk sutures. It is seldom that in this way all adhesion can be prevented, but it is often possible to limit the adhesion to the deeper part of the conjunctival sac, and thus to a great extent to obviate the serious consequences to the movement of the eye, which a more extensive symblepharon entails. The same treatment may be adopted in cases where a symblepharon has been allowed to form before the patient first comes under observation. Where the extent of injured conjunctiva is great, it is not possible to prevent an extensive symblepharon. Often the injury has at the same time caused great destruction of the cornea, so that the necessity for keeping the lid and eye apart may not be of any urgent practical importance. A very extensive symblepharon, too, when it has become established, is usually a very difficult condition to improve by any operation. In such cases it is rarely advisable to interfere, except when the eye affected is the only one in which any vision has been retained, and a good chance offers of increasing the usefulness of the eye by iridectomy, or otherwise, when the lid attachments have been more or less overcome. Such cases are, however, infrequent, and not ones the treatment of which any comparatively speaking inexperienced operator should undertake.

**Diseases of the Cornea.**—The various diseases of the cornea are in all respects the most important of the common diseases of the eye. They are for the most part cases in which not a little good can be done by proper and judicious treatment, and much harm may result from wrong interference or neglect. Their importance lies in this, coupled with the value to vision of the
normal cornea. There are other parts of the eye which are of course equally valuable in this respect, but of few of them can it be said with equal justice that the treatment is often of great importance in influencing the consequences of the diseases by which they may be affected.

The main dangers to which the cornea is exposed by inflammation are, more or less serious permanent loss of transparency, and alterations in its curvature. Any collection of inflammatory products within the meshes of the corneal connective tissue causes an intransparency, and this, according to circumstances, may or may not be permanent. When there is no actual destruction of corneal tissue to account for some, at all events, of the inflammatory products, there need be, and generally there is, no permanent opacity left in the cornea. A localised inflammatory destruction, however, anywhere, is followed by cicatrical tissue formation, and this is always intransparent. In infants and young children, in whom the tissue changes are active, even cicatrical opacities may clear. This, however, takes place very slowly, as the connective tissue of the cicatrix gradually becomes replaced by corneal connective tissue.

The points in this connection which are of practical importance, then, with respect to both prognosis and treatment, are the recognition of interstitial infiltration opacities from cicatrical opacities, and the influence of the patient's age in the stability of the latter. Both forms of opacity may exist together. That is to say, we may find at some stage in the healing process an area of the cornea in which the opacity is due to cicatrisation, surrounded by one often considerably more extensive, in which the cause is merely an infiltration. It frequently happens, too, that, owing to the latter obscuring more or less of the pupillary portion of the cornea, vision is much more interfered with than it eventually is, after all possible absorption has taken place. The surrounding infiltration can generally be recognised by its less pronounced whiteness and density. Further, its margins merge indefinitely into the clear cornea, never ending sharply, as does a cicatrical opacity. The surface of the cornea, the epithelium, is often irregular over the cicatricial—never so, or at least only finely stippled, where the cause of the dulness is mere infiltration.

Although it is common to talk of opacities in the cornea from cicatrisation and infiltration, the loss of transparency does not in reality ever lead to real opacity. The tissues remain translucent, and it should be remembered that translucent nebule or leucomata in the cornea, as they are called, may interfere with vision, not by altogether excluding more or less of the light rays which should enter the pupil to form the retinal image, but by scattering those which they intercept. The scattered rays lead to a general blurring of the retinal images, by which the visual acuity is diminished. It is for this reason that tattooing of a nebula, with or without iridectomy, may lead to considerable improvement in vision.