

point out these districts as being the peculiar focal centres of functional and psychical life. If this theory be correct, it can explain all the phenomena manifested by experiments made, and pathological conditions found, on the cortical substance, without resorting to the chart made out by such shifting, incomplete, and changeable boundaries as the sulci of the convolutions afford. The "bumpologist" conveniently locates all mental centres in the cortical substance nearest to his manipulations, and ignores all the similar surfaces at the base and between the hemispheres, because this *terra incognita* is not convenient to map out. He cannot reach these parts; therefore they must be useless appendages. He forgets nature has no lumber room. In somewhat the same way the Ferrier school of investigators find certain functional disturbances following the abrasion, excision, or galvanism of definite cortical parts, with a considerable degree of uniformity. Based on these manifestations, already, with considerable confidence, it is said nearly all the functions of the body are located on the exterior part of the nerve mass, which is within reach of experiment, and somewhat hasty conclusions are drawn from the results. All the rest of the brain mass, which has a substance exactly similar in structure to the external grey matter, is practically ignored, in spite of its paramount importance, which is evident from the complexity of the structure, and from the fatal results which flow from injury to these central parts. It seems to be overlooked that any injury to the cortical substance must necessarily affect the lower ganglia, to which it lies in juxtaposition, and to which it stands so nearly related. The periphery of the brain doubtless has much to do in stimulating to action these centres. In the latter are found the distinctive seats of functional activity, and in the superimposed mass the residuary power to impel, but not to direct—to give additional vitality, but not to indicate the mode and direction this force is to take. This discriminative power is left to be performed by these central glands, which are safely situated in the centre of these sympathetic and active auxiliaries. Not only is this true in respect to function, but it is equally

true as respects sensation. Sensation and function have a community of interests, and are *focalized* together. Dr. Symonds, in the Gulstonian lectures, says: "Pain does not seem to be in the nervous matter, whether vesicular or tubular, of the cerebral hemispheres, or of the cerebellum. No evidence of feeling has been obtained by vivisectors till they approached the sensory ganglia—the *thalami optici* and *corpora quadrigemina*. But these are the centres of sensation to all parts of the body as well as to the head."

(To be continued.)

PLASTIC OPERATIONS ON THE EYELIDS.

BY R. A. REEVE, B.A., M.D.

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(Read at Meeting of Canada Medical Association, Ottawa, Sept. 2, 1880.)

1880

I need hardly remark that *pari passu* with the advances of the past few years in general surgery, new operations and improved surgical methods have been introduced into ophthalmology. Procedures which were not thought of a few years ago, or not practised because not considered feasible, are now carried out with success. The restoration of the eyelid by transplanting a flap *without* pedicle (see case one), is a striking instance in point. To refer only to others somewhat akin, formerly it was regarded as quite creditable to relieve symblepharon where the lid was only partially adherent to the eyeball. Now, by transplanting conjunctiva from the lid or globe or both, cases of extensive union can be cured or materially relieved. And even where the whole lid has become fused to the eyeball, and conjunctiva could not be used, the delicate skin of the lid has been utilized, being drawn through a button-hole incision in the tarsus after the latter had been dissected free from the globe. The conjunctiva of rabbits has already been successfully transferred to the cul-de-sac of the human eye, and portions of cornea have also been transplanted; and the day may not be far distant when men will be enabled to see their fellows, and perhaps gain a livelihood, by means of the cornea of other animals.

The cases which I have the honour to present illustrate some points in recent improved methods of correcting deformities and removing diseased conditions about the eye by plastic operations.

CASE 1.—Complete ectropion of upper and lower eyelids treated by transplantation of flap without pedicle.

The patient, Flora McQ., æt. 12, was admitted into the Andrew Mercer Eye and Ear Infirmary (Toronto General Hospital) on Aug. 12, 1879. On Dec. 30, '78, she received a severe burn on the right half of the face. Cicatrization was completed in about three months—at the end of March, '79. Present condition: The patient is healthy and well nourished. There is complete eversion of both eyelids on the right side, the conjunctiva being vascular and somewhat hypertrophied from exposure; but the eyeball and *edges* of the lids are intact. The margin and cilia of the upper lid take the place of the eyebrow, which has been destroyed; and the edge of the lower lid is drawn down so as to form in part the upper border of a large, raised, and indurated cicatrix, which extends from the mesial line on the nose to the angle of the jaw. The skin above and on the outer side of the orbit is almost altogether cicatricial, being pale, very thin, and mostly glazed. The subject presented a most unsightly appearance. As the general integument was quite healthy, and it seemed impossible to get a large enough flap from the forehead without danger of sloughing, I decided to transplant one from a distant part, without a pedicle. This method, originated by Wolfe, of Glasgow, and already followed a few times on both sides of the Atlantic, would, at least, not increase the deformity if it should fail. The keloid character of the cicatrix rendered marked contraction somewhat improbable, and at any rate immediate interference was indicated in order to prevent inflammation of the cornea from exposure.

The operation was done on August 13. An incision was made a little above the margin of the upper lid and another just below that of the lower, and some dissecting done until the lids could be brought together in the normal position, when their free edges were united by

sutures at three points which had been pared.

The raw surface on the upper lid was of triangular shape, and was an inch and a quarter-long at its base, its vertical diameter being the same. To cover this, an oblong piece of skin two and a quarter inches long by about the same width in the middle was dissected off the arm from the inner aspect of the biceps, thoroughly freed from all subcutaneous tissue,—being dipped into warm water, from time to time,—and was trimmed and fitted, being left somewhat larger than the area to be covered so as to allow for further contraction. It was then carefully adjusted in position, being puckered slightly in the middle, and especial pains taken to make the edges coapt with great nicety. To effect this the better, and prevent incurving or displacement, three sutures of the finest silk were put in, but were only passed through the epidermis.

Instead of covering also the lower raw surface by transplantation, as had been intended, I merely utilized a triangular piece of the skin taken from the arm, one-third of an inch long by one-fourth wide at the base, placing it at the inner angle, and adjusting the edges carefully, without any stitches, and leaving the rest of the denuded surface to heal by granulation and grafting.

The upper and lower lids were then covered with gold-beater's skin, and upon this a thick compress of cotton wool and a bandage were applied.

No pain or inflammatory reaction ensued. Forty-eight hours after the operation (Aug. 15) the bandage and wool were removed and re-adjusted. As seen through the gold-beater's skin, which, by the way, was left undisturbed on the upper lid for about a fortnight, the edges were coapted and dry: So also on the fifth day, as indicated by a fine dark line as of dry blood, excepting on part of the lower border where the flap had retracted a millimeter. Just above this the skin seemed somewhat puffy, the rest being smooth and apparently closely adherent to the subjacent surface.

In a few days the epidermis separated at the spot where the skin was swollen, leaving

a small moist patch of the true skin such as would be caused by a tiny blister; but the greater part of the flap retained its epidermis, and, indeed, looked as if it were the normal tissue of the part, save that it was paler than that of the opposite side.

On the eleventh day, Aug. 23, the gold-beater's skin was still attached to most of the flap, which was all firmly united. On the seventeenth day the patient was presented at the meeting of the Toronto Medical Society; the small excoriation still persisted, and owing to tension caused by contraction of the large keloid cicatrix, the lower lid had separated from the upper about a quarter of an inch at the inner canthus. Hoping to effect a still greater improvement, and by keeping the lids united and distributing the traction to be able to prevent further eversion of the lower lid, another operation was done; an incision was made below the eyelashes, and after a little dissecting to relieve tension, the lids were reunited near the puncta, leaving a raw surface one inch horizontally by three-quarters vertically. To cover this a piece of skin, $1\frac{3}{4} \times 1\frac{1}{4}$ inches, was dissected off the arm, carefully cleaned and trimmed by means of scissors, and then adjusted; gold-beater's skin, cotton, wool, and bandage being applied.

The next day a thin layer of the discharge from the excoriated surface on the upper lid and the conjunctiva was found covering the lower lid, but the flap was adherent all around, though swollen in the middle. The parts were bathed with weak carbolic lotion, and the dressings reapplied.

On the third day the same state of things existed; the transplanted skin was thin and free from moisture at its margin, closely applied to the surrounding skin, and apparently well attached in situ. In a few days the epidermis peeled off, leaving the moist true skin, which soon healed over, *without any granulations developing*; but the inner suture cutting out again, the tension on the free edge was re-established, the new skin became much reduced in size and the inner part of the lower lid again drooped somewhat.

The patient left the hospital, Oct. 3, '79, the intention being to divide the bands of adhesion at a subsequent date, possibly not until the large cicatrix had ceased to contract, when also another operation would be done to correct the remaining ectropion.

(To be continued.)

CANCER OF OMENTUM,

UNDER THE CARE OF W. T. AIKINS, M.D.

For the following notes we are indebted to Mr. H. W. Aikins, M.A. :—

Mrs. J., æt. 48—Still menstruating. First seen by Dr. A. upon October 25th last; prior to that date had for several months "not felt as well as formerly," and it was stated by one of the relatives after her death that she had been losing ground for as much as two years previously. About October 4th she first detected a "lump" situated in the abdomen, upon the right side of the median line, between the navel and cartilages of the lower ribs, rapidly increasing in size. When first seen by Dr. A., it was about the size of his wrist, and four inches in its vertical length. There was a question raised at first as to whether there was a fecal accumulation in the colon; this idea, however, was soon abandoned. In the early progress of the case the liver was not found to be involved, though during the last ten days or fortnight it was pushed partially beyond the costal cartilages of the ribs.

Skin examined upon various occasions, and found satisfactory:

Urine examined on two or more occasions and found normal:

Temperature very slightly elevated until a few days before death, and pulse slightly quickened:

Irritability of stomach for over a fortnight preceding death, and jaundice markedly present during last eight or ten days.

Death occurred 4th December.

Post-Mortem.—Limited to abdomen, made 36 hours after death: Body well nourished; surface jaundiced; abdomen discoloured and tumid; the discolouration being due to the employment of concentrated St. Catharines water as a topical application. From half a dozen to a dozen blackish crusts distributed over surface, one of which, having been cut through in the central incision, appeared to dip down into the subcutaneous fat. The peritoneal cavity contained between two and three quarts of bile-stained fluid. On dissecting the flaps, a large pancreas-like mass in mid-abdomen came into view, stretching across from

cranium and brain. The ball was not removed for seven years after the injury, but in a few days after being wounded he was fit for duty. In January, 1871, this officer was on duty as captain in the 13th Infantry.

Private Stallman, wounded at Winchester by a musket ball, which entered at the right temple and emerged at the opposite side of the head. In spite of this serious lesion of brain, in a few months he was put on light duty. He had no strabismus, and we are told that, although his mental faculties were slow and uncertain and his memory impaired, he had no hallucinations nor mental aberrations. The year following the injury he was pensioned. No functional impairment except the above mentioned.

Private Haggart was wounded by a conoidal musket ball, which struck the left side of the head, and passing through carried away a large part of the left half of the occipital bone. At first he became insensible and lost more than an ounce of cerebrum, leaving bare the meningeal artery. Seven months afterwards he was discharged from the hospital. At that time both eyes were dilated, causing dimness of vision, but his intellect was good, and he could read very coarse print. He died four years afterwards, but it is not recorded what was the cause of death. This extensive lesion only produced these slight results.

Sergeant Woodman was wounded by a gunshot missile, which entered above the left frontal eminence and emerged at a point one inch behind the upper margin of the right ear. He was unconscious for several hours. At the wound of exit eight small bones afterwards discharged. He was alive three years afterwards, and it was reported that the organs of special sense and the intellect were unimpaired.

Private Plumly was wounded by a conoidal musket ball, which entered at the inner angle of the left eye, and after passing through the brain substance it emerged behind the left ear. On March 7th, 1867, nearly three years after the wound was inflicted, he was in good health, and a pensioner. The only physical results were obscuration of the vision of the left eye for a short time, the discharge of pus from the orifice of entrance of the ball and through the right nostril and upper part of the posterior nasal cavity into the mouth.

Private Sechler was wounded by a conoidal ball, which struck the *os frontis* over the right eye and passed into the brain. He not only lived, but returned to duty six months afterwards, and was at the close of the war mustered out so well that he did not even receive a pension. The ball was not extracted. No functional results.

(To be continued.)

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CASE 2.—*Ectropion of Upper Lid, treated by Transplantation of Flap without Pedicle.*

Though second in order, this was the first case in which the above method was followed; and it was the fourth, so far as I was then aware, on this side of the Atlantic, the first being reported by Wadsworth, of Boston, and the second and third by Aub, of Cincinnati. The patient had psoriasis (non-specific) to such an extent that one could hardly get a patch of healthy skin large enough for a flap; and I did not wish to operate until he had fully recovered, as there was little likelihood of success; but it was (now or never) with him. When admitted, the left cornea was sloughing, owing, seemingly, to exposure of the globe from ectropion—the result of an injury received some months previously. The lower lid was drawn downwards and outwards, and everted, and all the skin of the upper lid was destroyed, except at the ciliary edge, which was adherent to the upper margin of the orbit, where slight exfoliation of bone was going on. All the surrounding tissue was cicatricial, and a flap with pedicle could not be had.

As it was too late to attempt to save the cornea, palliative treatment was used until the inflammatory action had ceased and the carious spot had healed; and on the 25th of June, 1879, the operation was done. The lower lid was first brought up into place by incisions making a triangular flap with base to free border (upwards), some burrowing and subcutaneous division of bands of adhesion, and then the sliding upwards and inwards of another flap (rectangular), with its base under the malar process.

The upper lid was freed by an incision a little above the eyelashes, and some dissection. The free edges were then made raw at four corresponding points, which were brought

together by sutures. A large piece of skin was then cut away from the arm, made as thin as possible, trimmed, fitted, and adjusted upon the upper lid, and all the parts covered with gold-beater's skin, compress and bandage.

Not to go into too many details, the transplanted skin did not unite save at one point, and had to be removed after a few days; and grafting, by means of small grafts, was afterwards done. The patient was discharged on the 22nd July, 1879, cicatrization being complete.

The lids had parted slightly, short bands having formed by traction at the points of union, the division of which was deferred.

Remarks.—It need hardly be urged that this method of blepharoplasty conveys a lesson of practical moment in general surgery. In some cases, at least, the planting of a large piece of skin on a raw (lymph-exuding) surface will be found preferable to the old plan of putting small grafts on a pus-secreting one. Much painstaking care is required in its execution, and the tendency of the flap to contract is certainly a disadvantage; but it is sometimes available when other methods are not, and its results seem to compare favourably with those of transplantation of large flaps with pedicle.

Dr. H. D. Noyes, of New York (N. Y. *Medical Record*, March 27th, 1880), after reporting some successful and unsuccessful cases of his own, and citing others, says,—“A number of cases have proved failures. In some of these instances failure is sufficiently accounted for * * *; at the same time, if out of fifteen cases ten have proved successes, it is something remarkable.”

In my own cases there were two successes and one failure, the latter being almost a foregone conclusion.

A few points should be observed, which, if not essential, are most important. 1. In contrast with other flaps, the transplanted skin should be thoroughly freed from subcutaneous connective tissue and fat, which is most easily done by means of sharp scissors. 2. It must be adjusted and the edges coapted with the greatest nicety; all oozing of blood having ceased from the raw surface, which should be quite clean; and it should be kept well covered

and undisturbed. 3. Allowance must be made for extraordinary contraction of the skin after its removal, say 35 to 50 per cent., and for further shrinkage after union. 4. The general integument and the subject should be healthy. 5. The special indication in blepharoplasty is the destruction of the skin of the lid or lids, with preservation of their free edges, so that they can be temporarily united; the tissues around the orbit being so altered or diseased as to preclude or jeopardize the proper nourishment of a flap through its pedicle. And it is to be preferred, *ceteris paribus*, when there is a likelihood of increasing the deformity by utilizing the skin of the face after the usual methods.

CASE 3.—*Epithelioma of Eyelids and Inner Canthus. Blepharoplasty by Sliding Flaps.*

Mr. M.— consulted me July 27th, '77, in regard to disease of the lower lid of the left eye, which had begun in 1862 as a large pimple on the edge of the lid near the lachrymal punctum, with ensuing excoriation, slight discharge, and scabbing. For the first twelve years the disease was confined to the inner fourth of the lower lid. It then began to creep outwards. There has been no pain from the outset. The whole ciliary border of the lid is now involved, the inner fourth presenting an ulcerated fissure, with hard, slightly-raised edges, and there is partial ectropion. The immediate removal of the diseased tissues was advised, but the case was not seen again until July, '79, when the outer canthus and also the lachrymal sac and the inner end of the upper lid had been invaded. An operation was again advised, a guarded prognosis being given.

July 21st, '79, the patient being anesthetized by Dr. Zimmerman, and Dr. Covernton, the family physician, kindly assisting, the whole of the lower lid from the ocular conjunctiva to below the edge of the orbit, the outer end of upper lid as well as its inner fourth, and the lachrymal sac with some of the orbital tissue behind it were cut away. An incision was then made down the side of the nose, and a large horizontal flap dissected back with its base on and below the malar bone. This was slid up against the globe, and its upper

edge stitched to the upper lid (to form the outer canthus) and to the ocular conjunctiva, and at its inner free end to the apposed part on the side of the nose. To restore the inner canthus and upper lid another horizontal flap was made across the root of the nose, and its free end then drawn over and carefully united to the raw vertical edge of upper lid by a twisted suture and stitches. Strips of plaster, cotton wool and bandage were then applied. Both flaps united satisfactorily. Grafting was done on the raw surface below the lower flap to lessen cicatricial contraction, and some suspicious looking tissue near the site of the sac afterwards destroyed by chromic acid.

Five weeks after the operation (Aug. 28), the new part of upper lid was well back in position, and the patient could just uncover the pupil so as to see straight forwards, and could read with facility. The eye was comfortable, though there was some epiphora. A microscopic examination by Dr. Zimmerman confirmed the diagnosis of epithelioma.

On several occasions during the year a small growth appeared about the inner canthus, yielding at once to treatment.

P.S.—Jan., '81. There has been no sign of relapse, apparently, during the last six months.

CASE 4.—Epithelioma of Eyelids. Plastic Operation.

T. C. D., æt. 51, was admitted into the Andrew Mercer Eye and Ear Infirmary, Dec. 19, '79. The patient ascribes his affection to a burn caused by molten lead splashing into his eye five years ago. The sore would not heal, he says, but remained as a red lump with a white top near the caruncle for one year, when it spread to the lower lid. Treatment by caustics was tried ineffectually. Eighteen months ago, epithelioma was diagnosed after a microscopic examination. One year ago the side of the nose was invaded, the ulceration creeping very slowly and painlessly.

Present condition.—The inner fourth of the upper lid, nearly to the brow, is eroded and perforated and surrounded by a hard, raised border; and there is also erosion of the inner canthus, lachrymal sac, and inner two-thirds

of the lower lid. The globe itself is intact, though the conjunctiva bulbi at the inner and lower side has a doubtful look.

On Dec. 27th the following parts were cut away: the inner three-fourths of the lower lid and inner two-fifths of the upper, all the lachrymal sac and some orbital tissue behind it, part of the ocular conjunctiva, as well as a square piece from the side of the nose down to the periosteum. A large flap was then made reaching from the side of the nose to the malar process, $3\frac{1}{2}$ inches long by $1\frac{1}{2}$ inches wide, and was slid up against the eyeball, its upper edge being stitched to the conjunctiva bulbi, and its free end in position at the root of the nose. To repair the upper lid a flap was taken from the top of the nose and the forehead, and then turned horizontally, the original lower edge being fastened to the vertical raw edge of the upper lid by a pin and three sutures after the fibres of the orbicularis muscle had been divided at the outer canthus to allow the lid to give towards the nose. The adjacent edges of the two flaps at the root of the nose were also stitched together, and the upper edge of the upper flap and the skin under the brow. A pad was put on the lower flap to keep it in contact with its bed, and supporting straps, cotton wool and bandage applied. On the third day all the dressings were removed. The flaps looked well; vaseline compress and straps re-applied. On the fourth day no pain or inflammatory reaction present; no discharge from orbit; took out pin and some threads. On the fifth day removed the rest of the stitches, putting collodion across the upper lid before all were cut out. Subsequently, put twelve grafts on the raw surface below, but with indifferent effect; also had to destroy sprouting granulations at the site of the sac. The patient was discharged January 28th, '80, the parts having healed.

On July 27th he was re-admitted, and the rest of the lower lid cut away, mainly to relieve his own anxiety. A canthotomy was also done, and division of external palpebral ligament to render upper lid lax and remove discomfort from friction.

August 20th, patient discharged. The inner canthus has cicatrized back to the plane of the right. There is some annoyance from lachrymation, for which extirpation of the lachrymal gland may hereafter be done.

P.S.—Jan., '81. Patient reports no relapse to date.