and not conclusive, are so much encouraging that I venture to publish it.

The method is simple. Contrary to the accepted rule of our technique, the incision is made obliquely to the surface with a razor or a scalpel, one border of the wound forming a broad strip like a Thiersch's graft, then the incision is carried down as deeply as needed. In uniting the wound, the graft is exactly spread out and adapted to the surface from which it was taken.

Small incisions are sealed without suture with colloidum, or treated in the usual way of skin grafting.

In large incisions, deep catgut sutures may be employed to close the wound, the graft spread over the same and treated as before stated.

Drainage may be used, but this complicates and endangers the healing.

The same method may be of value in some cases to remove existing cicatrices.

The theoretical consideration, experiments and details will be the subject of a paper in connection with the exhibition of cases.

900 Reliance Building.

CRANIECTOMY—AN IMPROVED TECHNIQUE.

Read at the Meeting of the Tri-State Medical Society, held in St. Louis, April 2, 3 and 4, 1895.

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In this paper I do not wish to discuss the rationale of, or the indications for, craniectomy; but wish to limit myself to the description of an operation which differs in its technique from those heretofore described.

Craniectomy may be either linear, circular or irregular in form; may be confined to one or both sides of the cranium, and may be anterior or posterior. The method of performing craniectomy (one-sided linear) employed by most surgeons, is as follows: a large scalp flap is cut so as to expose the entire field of operation on the bone beneath it. The flap has its base at the base of the skull and extends in a curved line along the sagittal suture, beginning at the hair line of the forehead anteriorly to the coronal suture, and extending posteriorly across the lambdoid suture onto the occipital bone. Its upper border runs parallel with the superior longitudinal sinus, and may extend as high on the vault of the cranium as the sagittal suture. The flap includes all the tissues of the scalp and the pericranium. It is important that the incision be firmly made and carried directly down to the skull, making a smooth, clean incision through the pericranium. With a flat periosteal elevator the pericranium is lifted off of the skull and with it the tissues of the scalp. In this manner the bone is bared as far as the base of the scalp flap, which is on a level with the tip of the ear.

With a small-sized trephine an opening is now made on the frontal bone, anterior to the coronal suture and at a safe distance from the superior longitudinal sinus. The trephine opening is the starting point for the next step in the operation, viz., the cutting of a longitudinal strip of bone out of the cranium, three-eighths to one-half inches wide, including both

tables, and extending backward from the trephine opening in the frontal bone, across the parietal and on to the occipital, as near to the lateral sinus as is safe. This part of the operation is done with especially devised bone-cutting forceps (Keen's, Lannelongue's, etc.), or the chisel.¹ The bony parts divided are parts of the frontal, the parietal and part of the occipital bone. In skulls in which the tables are soft, or not very thick and moderately ossified, the cutting out of this strip of bone by Keen's or other forceps, may be readily accomplished in a moderate space of time, say one-half hour. In skulls, however, that are thick and hard, the cutting out of the bony strip is not an easy or rapid task.

It is in cases in which the skulls are thick and hard that I have devised the operation which I shall now describe. The instruments required are a scalpel, artery forceps, periosteal elevator, double-bladed saw (see cut), a chisel with a beak (see cut), an ordinary chisel three-eighths inches wide, a mallet and dural elevators (see cut).

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 1, double-bladed saw (author's). Fig. 2, beaked chisel (author's). Fig. 3, dural elevators (author's).¹

I make the scalp flap as already described. When the bone is cleared and the flap retracted, a button of bone is taken out of the frontal bone (or elsewhere, according to the operation to be done) with a small-sized trephine. It is in the removal of the bony strip that the improvement in the operation consists. Beginning at the trephine opening with the double-bladed saw, I cut a strip of bone the width of the saw (three-eighths to one-half inch) as far back as indicated. The saw cut is carried through the outer tables, the diploic structure, and onto or into the inner table. The outer table is now cut out by means of the ordinary narrow surgical chisel. The next step in the operation is to cut out the inner table by means of the beaked chisel; with a dural elevator (see cut) the dura is separated from the inner table; separating it step by step, as piece after piece of the inner table is cut out. The beaked chisel is of much service; for, on account of the dull projecting beak, the dura is not injured, as the beak glides over it readily. I hardly need mention that with the ordinary chisel this part of the operation is not free from danger to the dura.

¹ There is no doubt but that the quickest way of opening the skull is with a properly constructed electrical or dental engine, with properly constructed saws. Those devised by Cryor, of Philadelphia, are the best, but they are very expensive and not available outside of large well-equipped hospitals.

¹ The above instruments were made for me by Holekamp-Moore Instrument Company, St. Louis.

REMARKS.

The double-bladed saw that I use was devised by me some years ago, to cut off plaster-of-Paris casts. It cuts a strip three-eighths of an inch wide. It very much facilitates the operation of craniectomy, as described.

I have found the beaked chisel (my own device) very useful in operations on the skull, especially where the inner table is to be cut through. On account of the blunt beak the dura is not liable to be injured. I have found it very useful also, in cases of depressed fractures where it was necessary to smooth off the sharp projecting edges of the inner table. The chisel is about eight to ten inches long and made of three-eighths to one-half inch octagonal steel; the blunt beak projects one-eighth to one-quarter of an inch beyond the perpendicular edge. The cutting edge is at right angles to the shaft of the chisel, and is one-half to three-quarters of an inch long. The chisel has a curve so that the contour of the cranium can be easily followed.

I am well aware that many surgeons deprecate the use of the chisel in operations on the cranium, for fear of the resulting concussion of the brain. This seems to me to depend, in a measure, on the skill of the operator, and also on the character of the chisel used. It is a noticeable fact that most chisels made by instrument makers are improper

true, "a good mechanic needs but few tools;" and I would add that they must be of "proper construction and properly used."

I should be loth to present for your consideration a procedure that I had not tested, both on the cadaver and on the living. On the cadaver, I have cut out the bone, as described, within twelve to fifteen minutes.

Within the last year I had the opportunity to execute the operation on two cases.² The first, a modified linear craniectomy in a child 7 years old, for ossification of the cranium and defective development of the brain; the second, a metastatic tumor of the cranium (carcinoma), in a woman, age 56, in which I removed the tumor with the same instruments, double-bladed saw, trephine and beaked chisel. In this case the bone (and tumor) excised was rectangular, measuring about two inches square. In both cases there were no untoward symptoms, as far as the operation was concerned, viz., concussion from the use of the chisel. I refrain from reporting these cases *in extenso* at this time, as I shall incorporate them in a future paper.

2229 South Broadway.

SOCIETY PROCEEDINGS.

The Ohio State Medical Society.

Annual Meeting held at Columbus, May 15, 16 and 17, 1895.

(Concluded from page 328.)

DR. W. J. MEANS, of Columbus, Ohio, presented a paper on INFLAMMATORY DISEASES OF THE CERVICAL LYMPHATIC GLANDS.

After outlining the topographical anatomy of the neck, and calling attention to the important and intimate relations of the various structures, Dr. Means continued:

The inflammatory diseases of the cervical lymphatic glands in their general features are so well understood that I will not devote much space to a description. Since the management of the different forms is in many instances so radically different, I am compelled, however, to give a classification and a short clinical history of each.

The most practical grand divisions are simple and specific. The simple variety is met with in children perhaps oftener than most any other disease. In severity, simple adenitis exists from the evanescent swelling of the glands that passes off in a few days, to that of suppuration or chronic enlargement that continues for weeks, causes the patient much trouble and is liable to become specific from secondary infection. The etiologic factors are numerous. Inflammatory processes about the mouth, face, head and ears, such as ulceration of a tooth, stomatitis, tonsillitis or any of the diseases of mucous membranes, eczema of the face or scalp, dermatitis, otitis media, pediculosis capitis and other diseases too numerous to mention are frequent causes. The eruption of the teeth, exposure to cold and sprains are all common causes in producing swelling of the cervical glands.

The pathologic changes that take place are first found in the cortex of the gland. It becomes more vascular, soft and swollen; the reticulum loses its distinctiveness, the lymph passages become packed with lymph. The capillaries become enlarged and the gland becomes a deep purple in color. The termination may be by resolution, chronic enlargement or suppuration. Owing to the inherent power of the glands to throw off foreign bodies and to resist the attacks of invading microbes, a large proportion of them undergo resolution and disappear. When the inflammation becomes chronic there is a failure to absorb the exudates and they become organized. This thickens the capsule and it becomes hard and adherent to the surrounding tissues. In some cases the lymphatic vessels are compressed and there follows dilatation of them and edema of the parts. If the termination is by suppuration, the gland itself will be the seat of necrosis,

² Since the writing of this paper I have performed two additional craniectomies after the method herein described. In both cases the results were perfect, as far as the operation is concerned. No shock; union per primam intentionem.

The above cut shows the skull exposed, flap of scalp turned down, and the different stages of the operation on the cranium.

tools, being too short and also too light for proper manipulation. In my estimation, the best chisel for surgical purposes generally is the carpenter's or joiner's socket-framing or firming chisel, into the socket of which a metal knob has been fitted to receive the mallet blows. It seems to me that with a chisel of this form (or any other long heavy chisel) the concussion of the brain is much less than where a short light chisel is used. Surgery is mechanical in part, and the surgeon can learn many important technical lessons from the skilled craftsman in the workshop. A skilled sculptor or mechanic would not think of using a tool so short that he would continually run the risk of pounding his fingers; for, certainly, the fear of hitting the fingers would detract materially from the delicacy in execution of the work to be done. How often do we see improper instruments used in surgery, and, if bad results follow, the blame laid to other causes than to the execution of the operation? The old saw is