TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

Stated Meeting, held March 5, 1917

The President, Dr. Charles H. Frazier, in the Chair

X-RAY TREATMENT OF CARBUNCLE OF FACE

Dr. George G. Ross presented a woman, sixty-two years of age, who was admitted to the Stetson Hospital on December 23, 1916. Her history showed that on November 23, 1916, she had first noticed a "small pimple" in the right temporal region just anterior to the ear. This grew very hard and painful, enlarged rapidly, and spread to the cheek and side of the neck. The carbuncle was incised, but grew rapidly worse. On admission the patient showed on the right side the face a hard, deeply congested swelling, containing numerous small openings from which a little pus oozed, showing slough beneath. This swelling extended from just anterior to the ear around under the eye and down the neck to just above the clavicle, involving the whole side of the face and cheek over to the edge of the mouth and nose. This is well shown in the accompanying photograph (Fig. 1).

The patient's general condition was poor. Her previous history of polyuria and pruritus suggested diabetes, and there was also a history of glycosuria. Sugar was, however, not shown in the urine until January 4, 1917, and then in small quantity (.277 per cent.). Later it was more abundant and has been in evidence since her discharge from the hospital. The temperature on admission was 101 degrees and never ran above this, being practically normal after the third week. Pain was not marked and the carbuncle was markedly insensitive to handling. The process was exactly such a slow sloughing with subacute infection as is often seen in diabetic conditions.

The patient was placed upon liquid diet with milk and eggs freely given. Flaxseed poultices were applied and continued until January 18, 1917. Local treatment was from the first confined to cleansing, removal of detritus, and touching the openings with tincture of iodine. The first X-ray treatment was given on December 27, 1916, and three subsequent ones on January 1, January 5, and January 18, 1917, respectively. Each one was of ten minutes' duration and given without

filtration. A five milliampere current backed up against a 4½-inch spark. After each treatment there was a marked reaction. Improvement was noted after the first treatment and each subsequent one (Fig. 2). The inflammatory swelling began to subside and the carbuncle literally dried up. The pictures show this better than it can be described. The local process made an uninterrupted recovery. In the second week the swelling below the angle of the jaw became so marked that it seemed that incision would be necessary, but improvement under the X-ray made this unnecessary. The patient's general condition rapidly improved and she was able to be up on January 18, 1917. A troublesome diarrhœa and pains, probably phlebitic, in the lower extremities delayed her complete recovery.

GALL-STONE ILEUS

Dr. George G. Ross presented an elderly woman, who was admitted to hospital December 3, 1916, with the history that about twenty-four hours before admission she was seized with sudden cramp-like pain in central abdomen. There was no radiation and it increased in intensity. Nausea and vomiting started almost immediately and continued at very short intervals until admission. At first the vomitus was yellowish, but later it became dark brown and of a fecal odor. It was forcible in type. Patient's bowels moved twice after the onset of sickness without any medical agents. There were no cardiac, pulmonary or renal symptoms. According to her statements she had always been in good health except for an attack of severe upper abdominal pain about one year ago, lasting for two or three days and accompanied with nausea and vomiting. Has never been jaundiced. Has never noticed clay-colored stools. She has never been troubled with gastro-intestinal symptoms aside from the above, and occasional gaseous eructations. Physical examination reveals an elderly white female, apparently very acutely ill. Frequent vomiting of dark fluid material with intense fecal odor. Pulse is good in volume and regular. Heart and lungs negative to rapid examination. Abdomen pendulous. There is no point of special tenderness, but a general soreness. There are no palpable masses. Inguinal and femoral hernial orifices free.

The abdomen was opened by a right rectus incision just below the level of the umbilicus. Considerable free blood-stained fluid within the peritoneal cavity. Peritoneum slightly injected. Hernial orifices free. In the pouch of Douglas was a loop of ileum, in the lumen of the most dependent portion of which was a mass about the size of a walnut. Intestine slightly dilated above the obstruction. Bowel incised over the mass which was expressed through the incision. It appeared

FIG. 1.—Carbuncle of cheek.

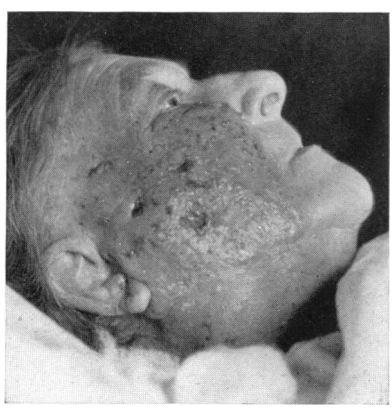

FIG. 2.—Carbuncle of face. Condition after two applications of the X-ray.

to be a gall-stone. The bowel was closed by fine catgut suture. Peritoneum stitched over the line of incision with linen thread. To palpation the gall-bladder was very much contracted and the lumen practically obliterated. There were old adhesions between the gall-bladder and bowel. The abdomen was closed without drainage.

Except for a moderate superficial infection her subsequent progress of recovery was uneventful and she was discharged at the end of five weeks.

The obstruction in this case was due to two conditions: First, the diminution of the lumen by the large stone; and second, to the sharp angulation of the gut caused by the weight of the stone.

PROBLEMS OF PLASTIC SURGERY

DR. JOHN STAIGE DAVIS (of Baltimore) read, by invitation, a paper with the above title, for which see page 88.

DR. JOHN B. ROBERTS said that of late years he had been more interested in what might be called cosmetic constructive and reconstructive surgery than in strategic and substitutive plastic surgery. The last two are often valuable in obtaining access to deeper organs and in supplying physiologic substitutes for structures put out of commission by operation or disease. Cosmetic surgery affords operative relief in congenital deformities and deformities due to loss of tissue. To illustrate some of the results he had brought a patient and a few photographs of other patients to give an idea of what he considered good plans of treatment. This boy, now eleven years old, had been under his care for successive operations since he was about five years old. He lost, by cicatricial contraction after deep burns, the use of his left thumb, which is shown by the photographs (Figs. 3 and 4). In addition his left ear was deformed in its lower portion by being buried in cicatricial tissue close against the lower part of his skull. He had no chin, because the deep sloughing and scarring of the neck had drawn the lower jaw close to the front of the laryngeal region. His lower lip was attached to the mental region so that it was dragged outward allowing saliva to flow over. His mouth, therefore, could not be closed and he could not lift his head from his chest (Fig. 5). The thumb, which was extended and abducted and attached to the front of the wrist by contraction, was by a succession of operations liberated by sliding tissue from the dorsal and palmar surfaces of the forearm into the gap left when the flexed wrist and the movable thumb were after incisions put in proper position. A portion of the gap was closed by a large flap obtained by attaching the hand and forearm to the abdomen for a couple of weeks. He now has a fairly movable thumb and a straight wrist (Fig. 4). By sliding and transferring pedunculated

flaps from the sides of the neck, the head was liberated and a chin made. The everted lower lip shown in the original photograph was freed and replaced so that he could close the mouth; and a new external portion made to the lip by utilizing flaps from the outer portions of the upper lip and some of the flap taken from the anterior belly wall to fill in the space left when the thumb was liberated. Sliding flaps were used to make a new lobe to the ear. This was accomplished by using a folded flap with penetrating mattress sutures to form a lobe. The final result obtained is shown in Fig. 7.

The method of transporting a flap from abdomen or thigh is shown in Fig. 8, which shows a large piece of skin and superficial fascia removed from the thigh of a patient and attached to the left hand to be carried to the face to make the lower part of the nose, lost by syphilis. Figs. 9 and 10 show how the ponderous nose due to rhinophyma or hypertrophic acne may be relieved. This man's nose was shaved down to a proper shape by a razor and a large Thiersch epithelial skin graft from the thigh was placed upon the end of the nose. The photograph was taken very shortly after the skin graft was placed in position. The cure was very satisfactory.

Figs. 11 and 12 show the value of adipose tissue grafts to restore the contour of the cheek. The patient had had, since early manhood, a deeply attached furrow scar of the cheek, due to a kick by a horse. By splitting open the tissues, incising the scar tissue latterly beneath the skin and inserting a free flap of fatty tissue from the front of the abdomen, he was able to fill out the cheek as shown in the picture. This, it will be seen, was made a little over-full because shrinkage is sure to take place later. The second photograph was made about three weeks after the operation.

DR. FRANCIS T. STEWART said, in regard to æsthetic surgery, that one of the principles which should be emphasized is the taking of the tissue from the immediate neighborhood of the defect whenever that is possible. The secondary changes which take place in a graft taken from a distance sometimes make the repair as unsightly as the defect. The Italian method of transplantation was until recently the only method of bringing parts from a distance, but this has fallen into increasing disuse because of the employment of the free transplantations. In the correction of defects especially of the face which is the only part, at least in man, which can always be seen, tissue from the scalp can be used to advantage. Fortunately the hair follicles are preserved and the hair grows and covers up whatever irregularities the surgeon may not have had the skill or the opportunity to correct.

ACUTE PERFORATION OF GASTRIC AND DUODENAL ULCERS

DR. EMORY G. ALEXANDER read a paper with the above title, for which see page 72.

FIG. 3.—Deformity of thumb and wrist from scar of burn in child of six years, due to accident one year before.

FIG. 4.—Plastic operation on thumb, showing condition three months after operation (see Fig. 3). Notice flap swung from back of wrist and forearm to release thumb.

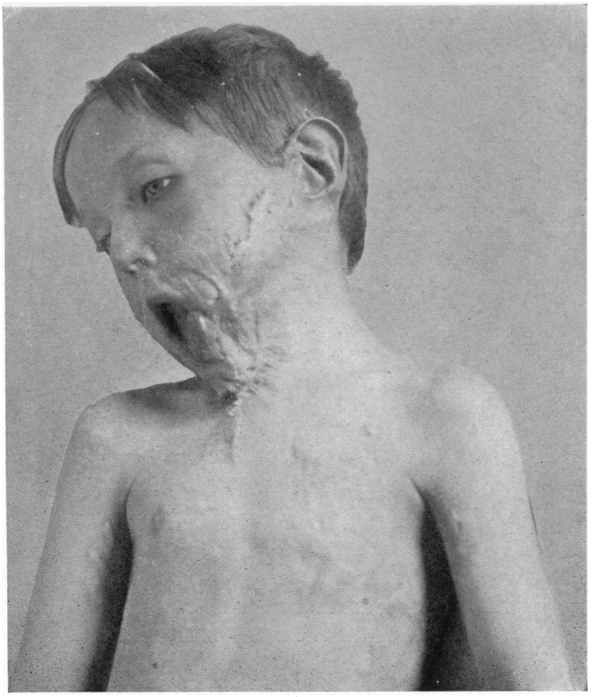

FIG. 5.—Deformity of mouth, chin and ear from burn one year previously.

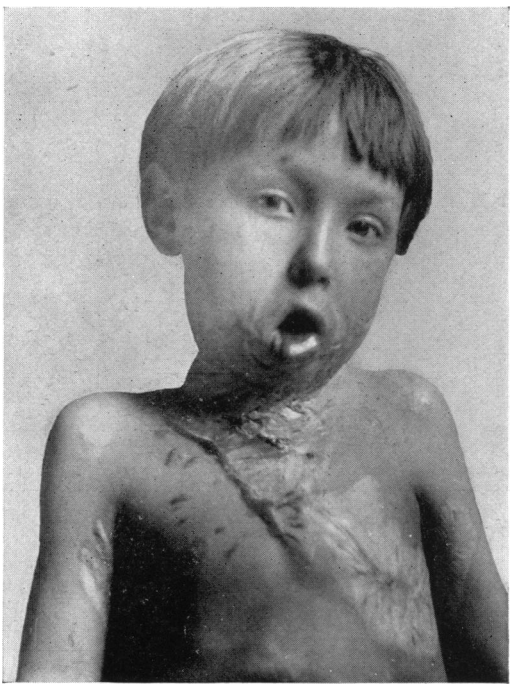

FIG. 6.—Showing improvement in face three months after operation.

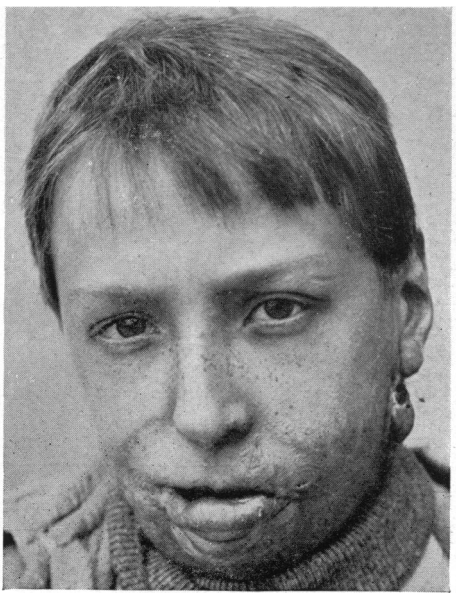

FIG. 7.—Showing condition of patient of Figs. 5 and 6, six years after operations. Boy now twelve years old.

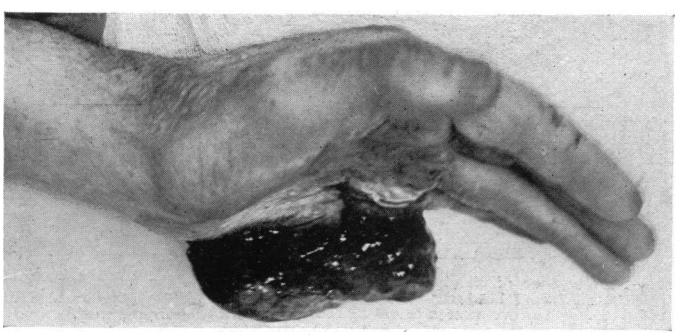

FIG. 8.—Mass obtained from thigh attached to edge of hand to be transferred to nose as a rhinoplastic procedure.

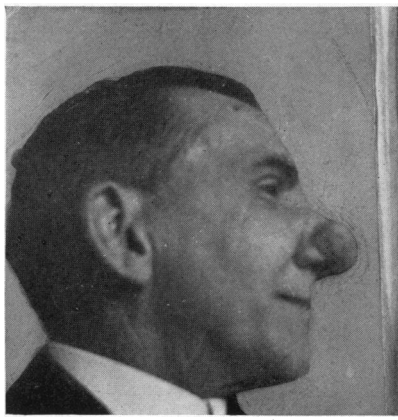

FIG. 9.—Rhinophyma.

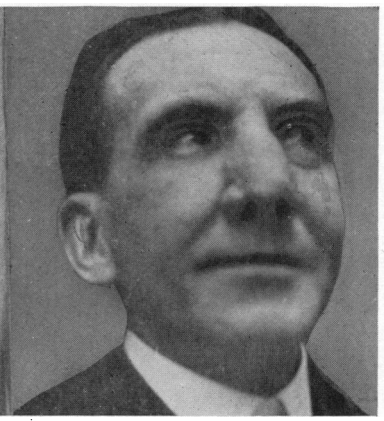

FIG. 10.—Result of graft after removal of rhinophyma.

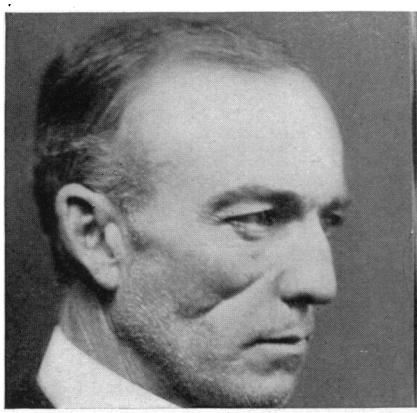

FIG. 11.—Furrow scar of cheek attached to subjacent bone.

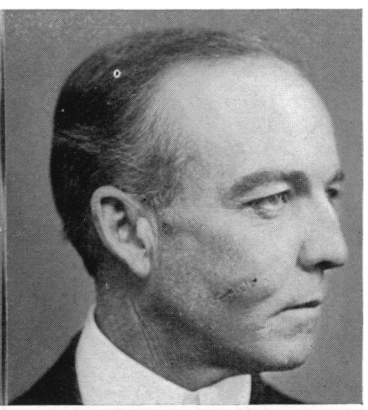

FIG. 12.—Scar freed from bone and cheek filled out by a free transplant of fat taken from abdominal wall.

HISTOLOGICAL EVIDENCES OF GROWTH CHANGES IN TRANSPLANTS

DR. DEAN LEWIS, of Chicago, read by invitation a paper with the above title, of which the following is an abstract:

There is still considerable discussion as to the histological changes occurring in transplanted tissue of different types and their significance. We know that certain rules must be followed and certain technical errors avoided if the transplantation is to be successful, but we do not as yet know positively upon what the life of transplanted tissue depends. A number of different conclusions have been drawn from the study of much the same material by different men.

Various views have been expressed concerning the fate of the different elements in bone transplants, and in many instances much the same type of experiment has been made and the preparations have been stained in much the same way. One observer comes to the conclusion that periosteum is markedly osteogenetic, while another observer believes that the transplanted tissue acts merely as a scaffolding for developing osteoblasts and that therefore boiled bone, homo- and heterotransplants do as well as an autotransplant. It is difficult to reconcile the different views which have been expressed. The difficulties of interpretation of histological preparations are indicated by the diversity of conclusions arrived at in the study of preparations of much the same kind. It is almost impossible in some cases to correlate histological appearances with function and growth potentialities.

In considering transplants of bone, tendon, fascia and nerves, we find that degenerative and regenerative changes occur in all.

The regressive changes occurring in a bone transplant are dependent upon the physical properties of compact bone which does not permit of early and extensive permeation of serum. The unossified portion of a transplanted segment of bone and the periosteum and contents of the medullary canal, porous spaces and Haversian canals, are readily permeable to lymph and consequently are more apt to live. The compact bone is apt to die. As far as can be determined by histological examination of transplanted bone, the greater part of the compact bone dies, and this is replaced slowly by the so-called "creeping substitution" by bone cells of the compact bone which have not died and by cells from the periosteum and endosteum.

Ivory pegs or dead boiled bone may be used as intramedullary splints, the ends of the fragments being placed in immediate contact or somewhat separated over such a splint. In these cases the peg or dead bone may be replaced by the newly formed bone. Such material cannot be used to bridge a long defect, for substitution, in my experience does not take place in dead tissue used to bridge a long defect.

Degenerative and regenerative changes occur in transplanted tendon. The degenerative fibrillæ in a tendon transplant are replaced by tissue formed by proliferation of the peritendineum externum and internum. The regenerative changes in the transplanted tendon are dependent upon the early assumption of functional activity. Segments of tendon, transplanted into

subcutaneous fat roll up and become shrunken, the fibrillæ becoming distinctly smaller in size and staining poorly, while segments of a tendon transplanted into a defect in a tendon which is made to functionate early undergoes distinct regenerative changes as indicated by an increase in size and distinct histological evidences of growth.

All transplants must assume function early. William Roux several years ago stated that the fate of transplanted tissue was dependent upon whether or not the transplant was made to assume functional activity.

Tissue such as fascia and cartilage which physiologically may be placed rather low in the scale perform a number of different functions, and may be transplanted in different ways and places and still survive. Cartilage as shown by Davis transplanted into subcutaneous tissues will survive, while bone transplanted in this way will be gradually absorbed. Fascia does not tend to undergo the same changes as tendon. The degenerative changes occurring in transplanted fascia, which are mostly fatty, are apparently directly proportionate to the size of the transplant. In large fascial transplants transplanted into dural defects fatty changes have occurred in the center with subsequent cicatricial substitution. These changes are due to failure of serum to permeate to the center or delayed reëstablishment of vascular circulation at this point.

Fascia and cartilage may be successfully transplanted into places and under conditions which would result in gradual absorption of tendon and bone transplants.

In nerve regeneration the degenerative changes occurring in the distal end of the proximal end and throughout the distal segment are followed by regenerative changes which are very important. Degeneration of the axis cylinders and myelin sheaths are followed by proliferative changes in the neurilemma sheaths which lead to the formation of the so-called protoplasmic bands. These bands form the conduits down which the regenerating axis cylinders of the proximal stump pass, and are the essential determining factor in nerve regeneration. Axis cylinders reform after section of the spinal cord, but do not pass the point of section because no bands are formed and the regenerated axis cylinders form a network at the level of section.

Experimental work would indicate that the hyperplastic nuclei of the developing protoplasmic band can grow in vitro, while the resting nuclei die. This experiment would indicate that a nerve graft to be successful should be transplanted after Wallerian degeneration has commenced.

After the neurilemmal nuclei has passed back to the resting stage it is doubtful whether the protoplasmic band stage can be reproduced again, and this may account for the number of failures of secondary nerve suture after the lapse of considerable time.

Roux's law has much to do with the fate of a transplant and failure to keep it in mind accounts for the many different conclusions which have been drawn concerning the fate of transplanted tissue. Interpretations of the histological findings often differ because of the difficulty of correlating structure and function.