Van Lennep (Wm B.)

Compliments of the Author.

A CONTRIBUTION TO

PLASTIC SURGERY.

BY

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PHILADELPHIA.

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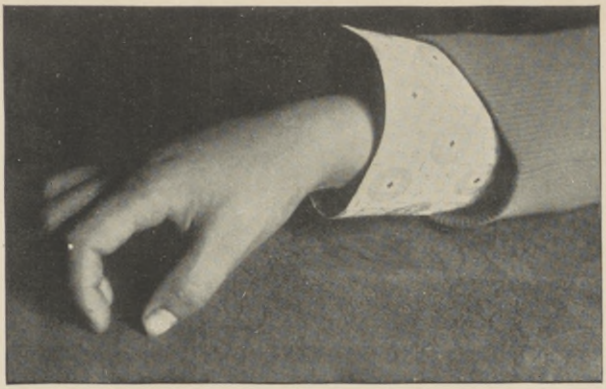


FIG. 1.

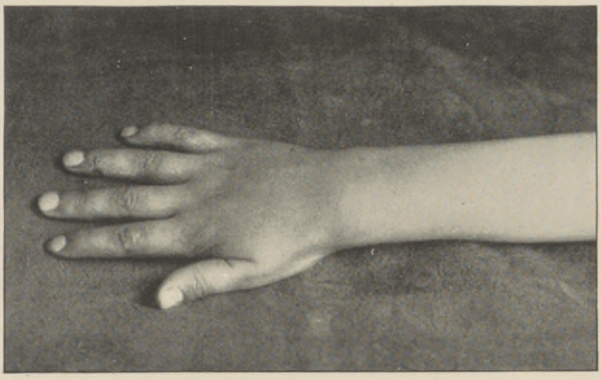
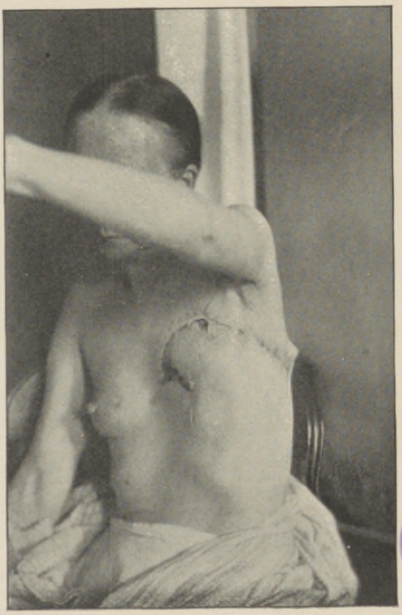


FIG. 2.



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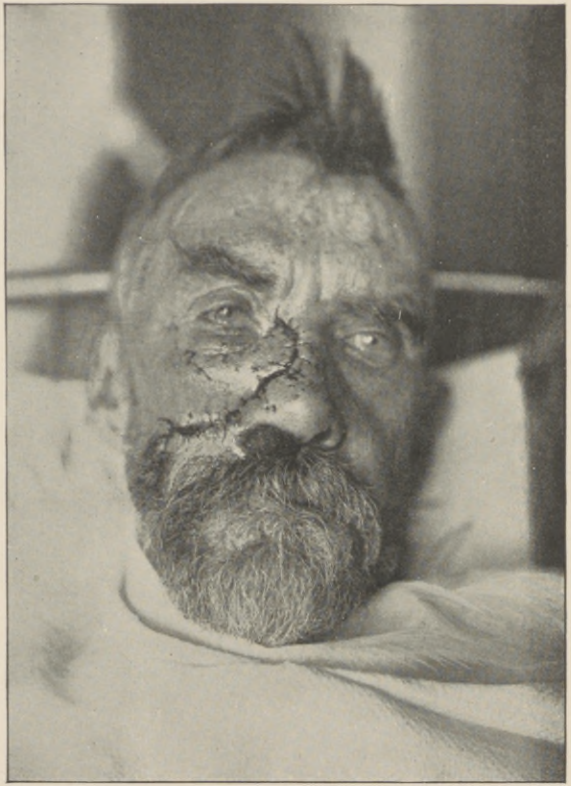

Fig. 5.

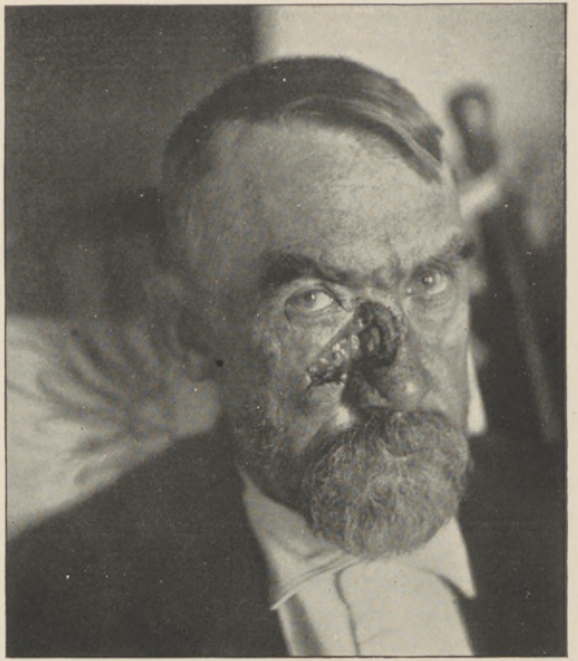

Fig. 4.

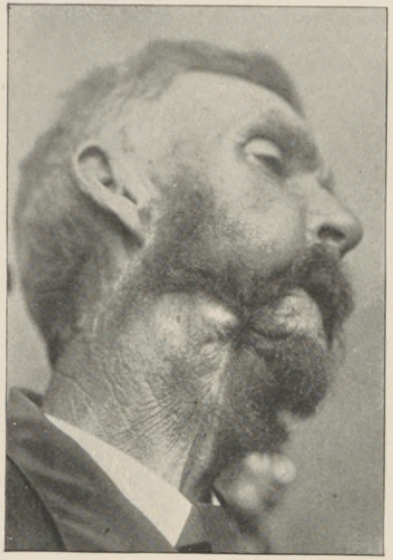

Fig. 8.

Fig. 7.

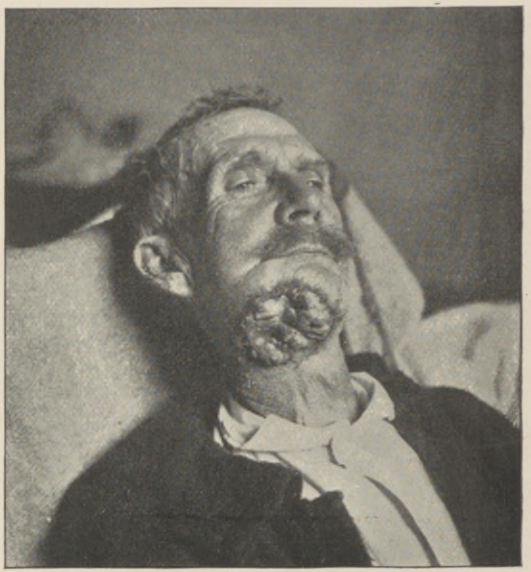

Fig. 6.

Fig. 10.

Fig. 9.

A

CONTRIBUTION TO PLASTIC SURGERY.

BY

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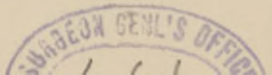
THE subject of reconstructive or reparative surgery, as well as that of preservation so closely allied to it, has been particularly impressed upon my mind during the past year. For this reason, as has been my custom in the past, the annual meeting of the State Society seems an appropriate occasion to bring the subject up for discussion.

In looking over my table of operations since the last meeting, I have selected, from quite a number, the following ten cases which may be taken as more or less typical of the work done on these lines:

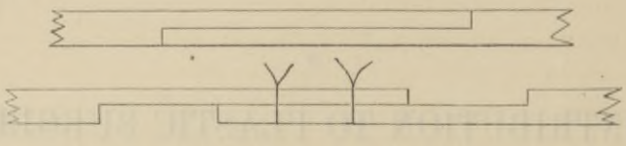
I.—*Vicious union of ulna and radius; contracture of flexor muscles; osteotomy and osteoclasis; tendon lengthening; cure:*

W. E., boy of 8 years, referred to me by Dr. C. G. Abbot, of Woodbury, N. J. He had sustained a fracture of both bones of the right forearm several months previously; union had taken place at an obtuse angle, and there was an accompanying contracture of the flexor muscles of the forearm. The extent to which the fingers and wrist could be extended is shown in Fig. 1. Considerable callus could be felt between the bones, and, thinking the contraction might be due to adhesions, massage, and passive and active motion were given a thorough trial for three months, when operative interference was consented to and undertaken.

The palmar surface of the forearm was incised from the annular ligament to above the seat of fracture; this latter was exposed in the radius, and the bone divided with the osteotome. The ulna was broken across the knee. The muscles were separated, and examined carefully down to the bones and interosseous membrane. No adhesions were found, and the contracture did not disappear after the deformity was corrected. Lengthening of the tendons was



then undertaken, just above the wrist, according to the method of Anderson.



The superficial and deep flexors of the fingers, the long flexor of the thumb, the flexors of the wrist, and the palmaris longus were successively lengthened, until the deformity was found to be completely overcome. The amount of lengthening necessary for this purpose varied from one to one and a half inches, approximately.

The wound was tamponaded with iodoform gauze, and dressed with sterile gauze. At the end of a week the tamponade was removed, the wound tightly closed with a buried suture of catgut without drainage, dusted with iodoform (one part) boric acid (three parts) corrosive sublimate (one to five hundred), dressed with sterile gauze, and put up in a starch cast. As usual, the strictest antiseptic precautions were taken throughout.

At the end of two weeks the dressing was taken down, and the wound found healed, with the bones in good position. This was repeated twice a week for six weeks, passive motion, massage, and Faradism being given each time, when he was sent home from the Camden Homœopathic Hospital for Women and Children, where he occupied a private room. The same treatment, without any splint, was kept up for two months longer, when the cure was complete. The result is perfect as regards function and the amount of extension, as the hand lies easily on a flat surface, is shown in Fig. 2. The cicatrix is slightly adherent to the tendons, and moves with them somewhat.

II.—*Old, traumatic rupture of the membranous urethra; complete occlusion of urethra; urinary fistula in thigh; urethroplasty; cure:*

In 1884, the patient, while walking along a fence, fell astraddle of it, striking his perinæum. Only a few drops of bloody urine were passed, and, as the catheter could not be introduced, the bladder was aspirated a number of times. A week later a large perineal abscess was opened. This was followed by recurring abscesses, and finally, a fistula through which all the urine was passed. In 1887, he entered one of the large Philadelphia hospitals, and was operated a number of times, but the fistula persisted, and soon all the urine

was again discharged through the perinæum. Abscess after abscess appeared, until he came under the care of Dr. A. F. Brandt, of Harrisburg, Pa., who sent him to me.

Examination, November, 1892, showed the following condition:

No instrument would go through the urethra, all being arrested in the bulb. In the median line of the perinæum was the cicatrix of an external urethrotomy completely healed and soft. To the left of this was a mass of cicatricial tissue, which extended for some distance down the inner side of the thigh, where there were a number of fistulous openings through which all the urine was passed.

The patient was anæsthetized eleven times, to which might be added fifteen more previously, and a number of measures were undertaken, although each procedure does not represent a separate sitting or operation:

1. Epicystotomy to divert the urine, with the introduction of a catheter-à-demeure (Skene–Goodman) through the suprapubic opening. This had to be changed from time to time as it became encrusted with phosphates. The irritation it produced was combated by frequent irrigations, but it became so severe, finally, as to preclude sleep, while the straining brought on very troublesome hæmorrhoids. As soon as the catheter was removed the suprapubic fistula healed spontaneously, the urinary distress disappeared, and the hæmorrhoids ceased to trouble him.

2. Perineal urethrotomy, by means of which were found the posterior end of the membranous urethra, well under the pubic arch, and the proximal end of the anterior urethra close to the edge of the scrotum. There was a gap between these ends of fully an inch and a half, and it was of course impossible to approximate and suture them.

3. Excision of the mass of cicatricial tissue which filled the right half of the perinæum and extended down the thigh, leaving a large raw cavity.

4. Complete dissection and removal of the inner layer of the prepuce (Wolff, Wölfler), which was transplanted as a graft ($1\frac{1}{2}$ by $\frac{3}{4}$ inch) to form the roof and sides of the new urethra. This took partly and failed partly, the result being a good roof but raw sides.

5. The application of skin grafts after the method of Thiersch to the sides of the urethra. This was successful, every graft taking.

6. Closure of the gap in the perinæum and thigh by sliding and twisted flaps and Thiersch skin grafts. The flaps were obtained from the thigh and the side of the scrotum; the grafts were taken from the abdomen.

7. Formation of the floor of the urethra by a reversed flap, pedunculated and twisted, the skin surface toward the urethra. This required two sittings, as the first attempt was a failure, and its raw surface was covered by sliding flaps and skin grafts (Thiersch and Reverdin).

8. Internal urethrotomy, first with the Maisonneuve and then with the Otis dilating urethrotome, to divide a linear stricture on the roof of the urethra at the junction of the anterior end of the grafts with the mucous membrane. This stricture, being partial, has not recurred.

9. Sounding under ether, then under cocaine, and finally without any anæsthetic, the patient at present taking without difficulty a No. 38 (Charrière) curved, conical sound.

10. Cauterization of three small fistulous openings which resulted from tension on one of the flaps, with the actual cautery, potassa fusa, and nitrate of silver stick, until the perinæum is now firmly and definitely healed.

At present his condition is an interesting and instructive one: The urine is passed entirely per urethram and the stream is thrown with considerable force. Erections and nocturnal emissions occur with their previous normal frequency, and, while some semen is ejected, most of it remains in the urethra and has to be squeezed out. The loss of the compressor urethræ muscle—the voluntary as well as surgical sphincter of the bladder—is also shown by the fact that the calls to urinate must be answered promptly, and if they are neglected too long, the urine gushes out involuntarily. Strangely, this seems to be gradually decreasing. The capacity of the bladder has improved greatly since the suprapubic catheter was removed, and is now normal. He urinates three times during the day, on retiring and arising, and does not have to get up during the night. The contraction of the numerous scars on the right side of the perinæum has shown itself by drawing the urethra slightly in that direction, and this must be remembered in sounding. As might be expected, the mental condition shows a very marked change for the better.

III.—*Excision of dura mater; closure of the defect with transplanted graft from the pericranium; healing:*

I. G., æt. 29, had been subject to epileptic seizures for a number of years. They began in the left lower extremity, spread to the upper, and then became general. Loss of consciousness was inconstant. With intermissions of a few days he had these seizures several times daily, and they lasted from five to fifteen minutes. Their supposed origin was a traumatism. There was a scar over the left

parietal eminence, in which region the skull had been explored, and there was excessive tenderness and pain at a corresponding point on the other side of the head. A deep stricture had been cut through the perinæum, and a ring of hæmorrhoids had been removed. He denied syphilis.

Operation, at the Hahnemann Hospital, July, 1893. The scalp was laid back in a large semi-circular flap, and the trephine applied over the upper portion of the fissure of Rolando. In this region, and backward and toward the middle line, the skull presented a decided hyperæmic appearance, bleeding quite freely, in marked contrast with the surrounding normal bone. The trephine opening revealing nothing, the rongeur was used, working backward and toward the middle line, until quite a large aperture was made. About an inch posterior to the trephine opening and at the point of greatest external sensitiveness, the dura was intimately attached to the skull, much thickened, and apparently bony. The same condition was found on its inner surface, from which there projected a good sized piece of bone. This portion of the dura was excised, leaving a gap one and a half by one inch in size. To prevent hernia, Keen's suggestion was followed: a piece of the pericranium was dissected off, trimmed down to fit the opening, into which it was stitched, with the osteogenic side outward. The scalp was closely sutured with fine, iron-dyed silk (buried), except at the most dependent portion, where a thin strip of iodoform gauze was inserted as a capillary drain. This was removed in forty-eight hours, and the wound healed throughout without reaction or suppuration.

It is too early yet to speak of the result. There were several convulsions, and left-sided hemiplegia, immediately after the operation, but the latter has disappeared, and the former recur at long intervals. There is no tendency to hernia of the brain.

IV.—*Large floating spleen; suspension in place until attached by the induction of plastic inflammation:*

Mrs. A. M., æt. 35, had been the rounds of the Philadelphia hospitals for a pelvic tumor that had been variously diagnosed. I first saw her on the operating table, under ether, at the Camden Homœopathic Hospital for Women and Children, when it was very easy to lift the tumor out of the pelvis, and recognize the spleen enlarged to about ten times its normal size. It could readily be moved to any part of the abdomen. From her history and subsequent inspection I judged the enlargement was of malarial origin. The symptoms were those of pressure and traction on the pedicle. Excision would have been very easy.

The abdomen was opened in the middle line, the pedicle untwisted, and the organ pushed up into place. Another opening was made just below the border of the ribs, and suture to the abdominal wall attempted. The stitch tore out. A strand of heavy silk was passed with a needle into the abdomen, close to the spinal mass of muscles, as high up as possible, guided by the hand inside, and then out again in front. By throwing this loop around the spleen, drawing on it and tying the ends on the outside, the organ was held well up in its normal position. Through the opening in the side, the peritonæum lining the abdominal wall and the under surface of the diaphragm, as well as the capsule of the organ, were throughly scarified. Iodoform gauze was freely packed between the spleen and the abdominal wall, and the median incision sutured layer by layer with buried catgut.

Drs. Howard and Woodward, surgeons to the hospital, conducted the after-treatment, and I did not see the patient until some two months afterward. She made a rapid and uninterrupted recovery without an untoward symptom. The median incision healed *per primam;* the gauze tamponade was gradually withdrawn, and, when adhesion was found complete, the suspending loop was removed. When I saw her, the organ was firmly held in place and all her symptoms had disappeared.

The firmness of such peritoneal adhesions is too well known to require comment. In anchoring the kidney plastic inflammation is encouraged by many operators, but the stitches are needed besides, as the scar of connective tissue will yield very much more readily than the adhesions of a serous surface.

V.—*Excision of recurring mammary carcinoma; closure of defect by sliding flap and skin grafts; healing:*

Miss R. C. W., 44 years of age, had the left mamma removed by the "dinner plate" incision at the Hahnemann Hospital in February, 1892. The large wound healed very slowly by granulation, the cicatrix breaking down and closing again and again, until a recurrence showed itself in the adherent scar.

The growth together with the entire cicatrix were excised, the incision being carried into healthy tissues. The pectoralis major was removed entire, and the axilla, which had been cleaned out at the former operation, opened, but found free from disease.

The patient having a fair amount of adipose, and the skin being freely movable, a curved incision was carried around the side to the back, and a large flap slid over the raw surface. The wound was closed with a buried suture of fine iron-dyed silk without drainage,

except at a spot, one and a half by three-quarters of an inch in size, which the flap would not cover. This was closed by Thiersch grafts taken from the thigh. As usual the most rigid antisepsis was employed, and the wound dressed with iodoform gauze wrung out of bichloride solution, wet sublimated gauze, sterile sheet cotton, bandages and adhesive strips. The grafts were dressed with protective changed every other day. They all took. The wound healed without reaction or pus, and this in spite of the formation of two sloughs from tension, which were kept aseptic by frequently-changed wet bichloride dressings. The small defects left by their removal healed by granulation. These, as well as the wound and flap are shown in Fig. 3. The silk has not been heard from.

The resulting cicatrix is very satisfactory, being but moderately adherent, and containing a minimum of scar tissue, while the enormous defect is covered with normal, soft, pliable skin, with a good padding of fat, and shows no tension, which annoys such patients very much when a large wound like this heals by granulation. This plan has been followed now quite extensively in my private practice and in my hospital service, and I find that it gives the ideal result. Whenever practicable, in any portion of the body, after a defect is left by any operation, I have recourse to this plan of sliding flaps. Next to it and far superior to the cicatrix resulting from healing by granulation is the method followed in case VI.

VI.—*Excision of carcinomatous breast; immediate closure of defect by skin grafts; healing:*

Miss C. Z., æt. 54, private patient at the Hahnemann Hospital, operated September, 1892. Examination showed the right mamma to be completely filled with a stony-hard growth, which was afterward found histologically to be a carcinoma with excessive stroma. The skin was not ulcerated, there was some fixation to the chest-wall, and several nodules could be felt in the axilla. The breast was removed by the "dinner plate" method, the pectoralis major excised, the minor pectoral divided (Halstead), and the entire axilla thoroughly cleaned out. A number of infected glands of varying size were found. The enormous wound was drawn together as much as possible, with interrupted sutures of silk and a continuous buried suture of catgut. The patient was so thin and the skin so inelastic, that a large raw surface remained, and sliding flaps were out of the question. Thiersch grafts were at once taken from the thigh, which had been previously prepared, and the entire defect covered with them. Hartley's razors answered admirably for this purpose. The

sutured wound was dusted with iodoform-boric-sublimate powder, the grafts covered with strips of sterilized protective taken from salt solution, and the whole dressed with sterile gauze, woodwool, and a bandage held in place with adhesive strips. The grafts were dressed every other day and "took" with one exception, this defect being closed by Reverdin grafts kindly supplied by one of my students. The rest of the wound healed under one dressing, and her physician, Dr. G. D. Woodward, of Camden, N. J., reports no recurrence as yet. Unfortunately an early photograph was not obtained. I have employed this method, suggested by Watson Cheyne, in a number of cases, and can heartily recommend it where sliding flaps are unavailable. Either of these plans hastens healing immensely, and does away with the deplorable "invitation to return" held out by the ordinary slow process of granulation, with its easily ulcerating scar tissue, long continued irritation, adherent cicatrix, and painful contraction and contractures.

VII.—*Excision of carcinoma of the cheek; closure of defect by sliding flaps; healing:*

R. S. D., æt. 48, private patient, operated at the Hahnemann Hospital. An epithelial carcinoma of the right cheek and side of the nose was excised in June, 1893, leaving the defect shown in Fig. 4. The ulcer had been previously treated with caustics, causing extensive cicatricial contractions in the surrounding tissues. As a measure of safety, the dissection was carried so deeply that the nasal cavity was laid open. The extent of this opening is shown in the photograph.

A week later, a flap was formed by a curved incision in the cheek, carried downward and outward, which was slid over to close the defect. The result is shown in Fig. 5.

Owing to tension, or, more probably, to impaired blood supply, the portion of the flap covering the nose sloughed, leaving the nasal cavity open. After healing was complete, another flap was dissected off of the above flap, under cocaine, and slid over this defect. This apparent mishap was really a fortunate occurrence, for the sliding of the second flap thinned the cheek which was thicker than the other side, and gave a slope to the nose, which was obliterated by the original thick flap. Rapid healing followed the second plastic operation, and the patient was sent home to the western part of the state with a small sinus communicating with the nasal cavity. Unfortunately, I have not yet received the final photograph which would show a decided improvement on Fig. 5.

VIII.—*Excision of recurring carcinoma of the right side of the neck (secondary to carcinoma of the lower lip) with resection of the lower jaw; closure of the defect by sliding flaps; healing:*

W. A. L., æt. 65, patient of Dr. T. O. Clements, of Dover, Delaware. Two years previously I removed a large carcinoma of the lower lip, closing the defect by the sliding method of Celsus, using a higher incision of the mucous membrane to form a new lip. The scar of the operation shows in Fig. 6. Six months previously, Dr. John E. James, my surgical colleague in the Hahnemann Hospital, removed, by an extensive and thorough operation, a number of cancerous glands from the right side of the neck. The wound did not heal, and he returned again in March, 1893, presenting the appearance shown in Fig. 6, and insisting on another operation.

Excision of the growth necessitated a resection of over half the lower jaw, which was, so to speak, eaten into, and a careful dissection of the tissues attached to the larynx, œsophagus, and great vessels of the neck. The mouth was opened, too, to a large extent. The resulting cavity is shown in Fig. 7. The wound was packed with iodoform gauze, and, a week later, a flap was loosened, by a curved incision, from the side and back of the neck, and slid over to cover the defect. The tension was so great as to produce symptoms of asphyxia, and the nurse was instructed to cut the sutures should such a condition become imminent. The elasticity of the skin was sufficient, however, to allow of rapid primary union, and and the patient was discharged with a small fistula communicating with the mouth. Fig. 8 is from a photograph taken a few days since, when complete and definitive healing had taken place. The only visible defect is the absence of the beard on the flap which came from the back of the neck. In another photograph, showing the full face, this is not noticeable.

IX.—*Crushed foot; gangrene of three toes and dorsum of foot; amputation of toes and removal of slough; skin grafts; cure:*

R. D., æt. 17, Italian laborer, was sent to the Hahnemann Hospital by Dr. Thomas Reading, of Hatboro, Pa., in June, 1893. A large stone had fallen on his left foot, crushing the three inner toes and the dorsum of the foot, and fracturing the two inner metatarsal bones. The three toes soon became gangrenous, and the process spread rapidly up to the ankle, involving almost the entire breadth of the foot. The parts were dressed antiseptically, and carefully watched, until the line of demarcation was clearly defined, when he was operated.

The three toes were amputated, and it was found possible to partially cover the heads of the metatarsal bones by forcibly drawing forward the sole. The slough on the dorsum was dissected off, and the skin drawn together from the sides and down from the ankle, with considerable tension, to reduce the defect as much as possible.

Two weeks later, after the surface had been prepared by frequently changed, wet, bichloride dressings, and the foot and thigh had been thoroughly scrubbed and disinfected, he was etherized and the granulating surface covered with Thiersch skin grafts. They were treated in the ordinary manner, and every one took. The resulting cicatrix, after complete healing and contraction, is shown in Fig. 9. He was discharged with a perfectly useful foot.

X.—*Crushed elbow; excision; close suture; superficial gangrene; skin grafts; cure:*

C. D., age 19, was brought by the patrol to the Hahnemann Hospital, August 1, 1893. His left arm, at the elbow, had been run over by a horse car. The lower end of the humerus and the upper end of the ulna and radius were ground almost to a powder; the muscles and skin were extensively crushed and torn, and, with an intimate admixture of dirt and grease, resembled a filthy pulp. The wound and arm were scrubbed and disinfected vigorously and thoroughly, the cavity packed with sublimated-iodoform gauze, and the whole put up in a wet bichloride dressing. I saw the case the next day, and, finding pulsation at the wrist, at his urgent solicitation, after he had been impressed with the probable dangers, decided on a conservative course.

The comminuted joint was cleaned out, leaving smooth humeral, radial, and ulnar stumps, and the cavity allowed to fill with a blood clot. After careful trimming, the muscles and deep fascia were closely sutured with iron-dyed silk. The ulnar nerve was isolated and preserved. The skin and subcutaneous tissues were crushed beyond recovery, but, guided by former experience, I decided to continue the close suture without drainage, relying on keeping the slough aseptic.

Besides, in carefully watched hospital cases, even if infection takes place, it is an easy thing to open a wound and arrest the process. I have gone so far in this direction as to amputate a forearm, at the edge of a stinking, sloughing, phlegmonous erysipelas; pack the wound, and, at the end of three days, closely suture it without drainage. Healing followed with but slight suppuration, and this in spite of the fact that the pyæmic process had affected the opposite

elbow, and the patient when operated was in a low, muttering delirium, and in profound collapse.

The pulpy skin was accordingly sutured with buried silk, without drainage, and the arm put up in wet, sublimated drsssings; the inner layer iodoformized. They were frequently changed.

All the tissues, down to the deep fascia, over the posterior surface of the elbow became gangrenous and were removed as soon as loose. The extent of this superficial necrosis is shown in Fig. 10, in which are also seen the Thiersch skin grafts. In spite of this process the muscles and fascia united by first intention without being infected, and presumably the moist blood clot remained intact. There was a smart febrile rise for the first few days, reaching 102°, but a careful study of this showed only a slight zigzag, no more than could be accounted for by the necrotic process; so the deeper portions of the wound, and, for that matter, the superficial portions too, were not touched.

Eighteen days after the first operation the sloughs having been cleaned off and the granulating wound thoroughly disinfected, the whole defect was covered with grafts taken from the thigh. Their appearance is shown in Fig. 10. Unfortunately, only about three-fourths of them took, this partial failure being due, I am sure, to faulty technique in the primary or subsequent dressings. At the close of my hospital service for this year, September 1st, this portion of the wound was rapidly cicatrizing, and, judging from the function already present, and the results obtained in two almost identical cases last spring, I think he will have a useful arm.

The granulating wound, before and after the use of grafts, was dressed with a 5 per cent. emulsion of balsam of Peru in castor oil, well rubbed into absorbent sterilized gauze. This was covered with occlusive material, such as sheet cotton, wax paper, or oiled silk. I have experimented quite extensively, in the dispensary and hospital, with this dressing, suggested by Van Arsdale, for granulating wounds, and with such satisfactory results as to lead me to adopt it in private practice.

Apropos of the primary rise of temperature, the following recent case at the Hahnemann Hospital seems in point:

A large suppurating lymphoma of the groin and Scarpa's triangle was thoroughly excised, the greatest pains being taken to render the cavity sterile by mechanical as well as chemical means. A close, buried suture of silk was then made, allowing the underlying cavity to fill with a blood clot, a small gauze drain being slipped into the

lower portion of the wound which was not considered completely aseptic, and which had been shut off from the rest with the suture. The temperature rose rapidly to 106°, and then very slowly, but steadily, came down without any zigzag. The wound was inspected daily until the temperature became normal, but there being no signs of inflammatory reaction it was not opened. The blood clot filling the large cavity probably caused the "aseptic fever" of "fibrin absorption." At the end of two weeks the gauze drain was removed from a small granulating sinus, the rest of the wound being completely healed *per primam.*