STATED MEETING, HELD MARCH 2, 1914.

Dr. John H. Gibbon, President, in the Chair

BONE TRANSPLANTATION (ALBEE OPERATION) FOR SPINAL TUBERCULOSIS

Dr. James K. Young reported the following cases:

Case I.—David S., aged twenty, male, born in Russia, was admitted to the Polyclinic Hospital, November 21, 1913, suffering from tuberculosis of the spine in the lumbar region.

Previous History.—Two years ago while at work in the country, in Russia, he was injured by being thrown against a door and striking his back, was confined to bed for one week, and worked one week, when he noticed the bone projected backward; he was advised by a physician to have an apparatus applied, but refused. The deformity increased and he was unable to work.

Present Condition.—On admission there was marked kyphosis in the lumbar region, including the first and fourth lumbar vertebræ, with deferred pain and weakness, but no paraplegia. On November 22 Dr. Young did a bone transplantation operation, taking the graft from his left tibia. The convalescence was uneventful. He wore a plaster case ten weeks and has since worn a brace. The symptoms disappeared and the spine is ankylosed.

Case II.—John B., colored, male, aged twenty-four, was referred to the Polyclinic Hospital by Dr. David Reisman. In addition to a tubercular lesion of one of his pulmonary apices he had a well defined tubercular kyphosis in the dorsal region. The usual signs of pressure, pain and muscular spasm were present, but no paraplegia. On June 18, 1913, was done a bone transplantation operation, taking the graft from his tibia; a plaster-of-Paris cast was worn for seven weeks. There was nothing unusual in the convalescence and a fixation of his spine caused an improvement in his symptoms. Upon removing the cast he was not entirely free from symptoms and a spine brace has since been worn. The spinal lesion appears to have been arrested.

Case III.—Rose L., Russian Hebrew girl, aged nineteen years. Was admitted to the Polyclinic Hospital December 12, 1912, for dorsal Pott's disease with paraplegia. She had had the deformity for eight years, part of which time she had worn a spine brace

and head piece. She was without any efficient support most of the time. The kyphosis was angular and large, including the fourth to ninth dorsal vertebræ. There was loss of patella reflexes, marked ankleclonus with marked motor palsy of the lower extremities. She was very anæmic and weak, but there was no suppuration nor amyloid disease of any of the internal viscera. On December 13 bone transplantation, using a graft from the tibia, modeled to fit the curve. During convalescence the wound in the leg attracted her attention more than the spinal incision. She was in bed four months in a plaster case, since which time she has worn no support, her paralysis has disappeared and her spine is ankylosed.

The technic of Dr. Young does not differ from that of the inventor Albee, except in a few non-essentials. A curved incision is made in the dorsum on the right side and the left side of the spinous processes is separated with a chisel. This insures a good covering over the spinous processes and prevents gaping of the wound. Kangaroo tendon sutures are used in the fascia, the bone from the tibia is removed with an osteotome, and by team work of the assistants the time of the operation is diminished: the Resident Surgeon assists while the spine is prepared, the graft being removed by the first assistant with the aid of a second assistant. Then the first assistant takes the place of the Resident and holds the bone in place while the wound is closed. A support should be worn until the akylosed spine can support the weight of the body, at least 9 to 12 months. In selected cases the recovery seems to be more rapid from earlier ankylosis. It should not be performed in children under eight, in incipient cases without deformity, or where efficient apparatus can be worn.

An abscess or discharging sinus in the region of the incision would complicate the operation. Amyloid disease would not be a contra-indication, but would render the ultimate prognosis less favorable.

Dr. J. Torrance Rugh said that he would not make the age limit quite the same as did Dr. Young. He believed the operation to be especially indicated after the twelfth or fourteenth year, and for the older class of patients it is the ideal operation. There is one feature of the operation which, however, has brought rather disastrous results in a certain number of cases, and that is that the graft is made too short. It does not extend a sufficient distance above and below the site of disease to give a firm hold and a firm support, and the cases which have done badly and where the deformity seems to have recurred, have been due to that fact.

The method, as shown by Albee, is to expose the spine, prepare the site for the insertion of the graft, and then measure the length of graft desired and take it from the leg. It would be difficult to gauge the exact length of the graft needed unless the area for the insert has already been exposed.

In the younger cases, under twelve years, the Hibbs' operation has a distinct place. This consists in the utilization of the spinous processes for securing a bridge of bone along the posterior column. In a case in which a total paralysis had been present for eight months this disappeared absolutely in about two months after a Hibbs' operation and the patient is now walking about with practically no support and with a good firm spine. The Hibbs' operation is very easy in the child but difficult in the adult.

Dr. James K. Young (in closing) said, in regard to the size of the graft, he used a wooden sterile tongue depressor on which he measured the vertebræ, and his assistant was then able to take out the part marked while he was preparing the spine for its insertion. The operation is easily performed in twenty minutes. He had found the osteotome better than the electric saw.

There is no age limit, but the shock is less after eight years of age.

He takes the periosteum with the transplant, and Dr. Albee suggested always scarifying the transplant in the longitudinal direction, while Dr. Galloway suggested scarifying it in the opposite direction, so he scarified it in both directions so that the osteogenetic layer of the periosteum of the graft will unite with the bone of the vertebræ.

A TREATMENT FOR OLD CONTRACTED CICATRICES

By Emory G. Alexander, M.D.

of Philadelphia

clinical professor of surgery, women's medical college; associate surgeon, episcopal hospital

There is scarcely any condition in surgery that so tests the patience, ingenuity and skill of the operator as the treatment of old cicatricial contractures. Especially is this true if the cicatrices are hard, dense and of long duration. It is not my object to review what has been done in the past in the field of plastic surgery, as the method of procedure in each case must be determined on the local findings. In one case the division of contracting bands may suffice, in another the sliding, twisting or transplantation of flaps, to take the place of the excised cicatrices may be required. In still other cases, especially of the extremities, the deformity may be so great as to require amputation.

Are bad cicatricial contractures following burns as frequent as they were a generation ago? Our present-day text-books on surgery would lead us to believe that they are not, as little attention is given to this very important subject. Possibly we have improved in the treatment of burns, certainly, antiseptic dressings and early skin grafting has reduced to a large degree the late bad effects.

It is often difficult and sometimes impossible in cases of cicatricial contractures to get healthy flaps, and if one be so fortunate as to succeed, the result is always in doubt, as the flap may slough on account of a deficient blood supply.

In old, dense cicatrices, the result of deep burns, plastic operations are not without risk, as important structures, such as nerves and blood-vessels may be caught in the scar tissue and their anatomical situation so disturbed as to render injury almost unavoidable.

The case I wish to present to-night was not treated by the usual method of plastic surgery. In this case a plastic operation has been done at the wrist and axilla with much improvement; at the elbow, where an old firm cicatricial contracture existed, a good result has been obtained. This result has been obtained, not by the usual method of dissecting out the cicatrices and the lateral approximation of healthy skin, nor by the sliding, twisting or transplantation of flaps, but by operative, medicinal and mechanical means.

E. F., aged seventeen years, white, was admitted to the Episcopal Hospital on May 16, 1913, with the following history:

At the age of 14 years he received a severe burn of the left

side of the body, arm, forearm and hand. The patient was 18 months recovering from the burn. He was treated for ten and one-half months as an inmate in a local hospital in the town in which he lived, and for seven months after being discharged from the hospital, in their dispensary.

A physical examination of the patient on admission to the Episcopal Hospital showed the heart, lungs and other organs to be healthy. The left wrist was in extreme flexion, the joint ankylosed, and the overlying skin and cellular tissue consisted largely of scar tissue and contracting bands. The fingers could be freely moved. The thumb was partially ankylosed. The left elbow was markedly flexed and held by contracted bands of hard cicatrices. The left arm was held close to the chest wall by a large web of contracted scar tissue. The shoulder, chest and abdominal wall, and the latter anteriorly, showed contracted cicatricial tissue.

On June 12, 1913, a plastic operation was performed at the wrist, as his hand was so markedly flexed as to render it useless. At this operation an arthrectomy (first row of metacarpals removed) and a plastic operation were performed. The result was quite gratifying, as shown in Fig. 1. An arthroplasty on the wrist is the next operation we intend to perform. One month after the above operation the patient was discharged from the hospital in the condition as shown in Fig. 1.

On November 14, 1913, he was again admitted to the Episcopal Hospital, and on November 17, 1913, was operated upon and a plastic operation of the flap, sliding type, was performed on his axilla, the flap being gotten from the pectoral region. On his arm and forearm a different procedure was tried, many incisions were made along the contracting bands. These incisions extended into the healthy skin laterally and were of varying depth, some being quite superficial and others being deep enough to penetrate the cicatrices. After the wounds had ceased to ooze, fibrolysin, a compound of thiosinamine and sodium salicylate, was next rubbed thoroughly into each incision and also injected hypodermatically into the fibrous tissue. The wounds were covered with rubber tissue and a dry dressing applied. A straight splint, padded mould-shape to take up the concavity caused by the flexed elbow, was applied. The bandage holding the splint was firmly applied, so as to extend the forearm as much as possible.

For two days following the operation the patient complained of pain at the elbow. This was undoubtedly due to the extension made on the forearm.

In one week's time quite an improvement was noticed. The forearm could be extended fully fifty per cent. further than it

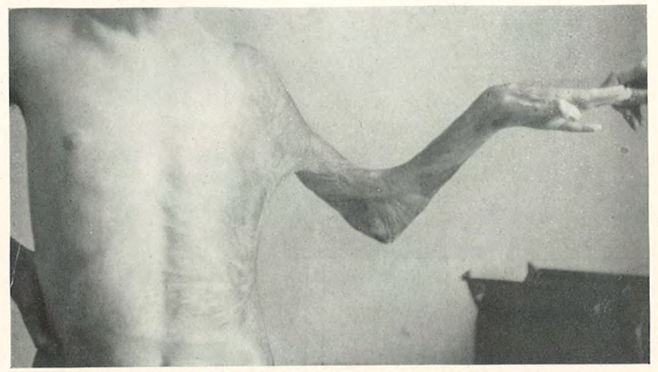

FIG. 1.—A plastic operation has been done at the wrist. Axilla and elbow show dense, contracted cicatrices.

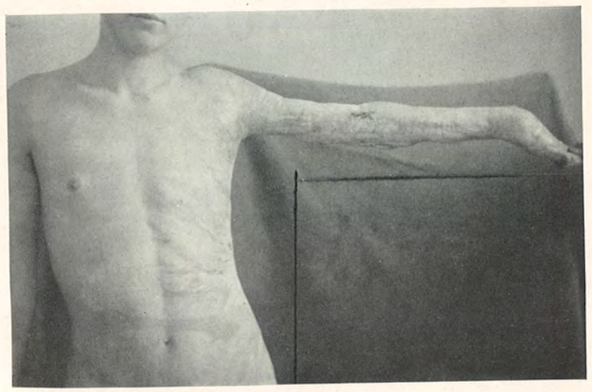

FIG. 2.—End result.

FIG. 3.—Back view.

could before the operation and the cicatrices were soft and pliable.

On December 4, 1913, the operation as described above for the administration of fibrolysin was repeated. After this operation the patient experienced nothing like the discomfort which followed the first. In ten days' time the arm was as straight as you see it now (Fig. 2). At each operation the contents of four ampoules of fibrolysin were rubbed into the incisions and injected into the cicatrices.

The after-treatment has consisted in the occasional injection hypodermatically of the fibrolysin into the site of the old cicatrices. Passive motion and massage have also been given. Three and one-half weeks following the second operation the splint was removed, but as the forearm showed a tendency toward flexion it was reapplied.

It is as yet too early to say what the ultimate outcome will be, as the tendency to contraction after the splint was removed has made me a little skeptical. No reactions were noted from the use of the drug.

Richardson, ANNALS OF SURGERY, December, 1911, in an article entitled "Studies on Peritoneal Adhesions," discusses the results obtained by specific drugs in the treatment of adhesions and cicatrices. He says, "Sidorenko has just reported the results of a clinical, experimental, and histological study of fibrolysin on cicatricial tissue. From a critical study of the results of other workers, and from his own results, he concludes that it does not exert any therapeutic effect upon cicatricial tissue."

A. H. Tubby, *British Medical Journal,* November 8, 1913, described a method of treatment of Dupuytren's contracture by flap dissection, excision of the affected fascia and the use of fibrolysin. While not following Mr. Tubby's technic, it was from his article that I got the idea of using fibrolysin in the way as described in this case.

Mr. Tubby, in speaking of his operative results in the treatment of Dupuytren's contracture, says, that in every case they were "infinitely superior" to those in which the thiosinamine (fibrolysin) was not used.

In the case just presented it is difficult to attribute the success to any one thing, as three distinct measures, operative, medicinal and mechanical were used. That the cicatrices were rendered soft and pliable lends weight to the drug.

DR. JAMES K. YOUNG said, in regard to fibrolysin, he had had some experience with its administration, and had found it could be used quite extensively. He had given one patient 94 injections without any bad effects. The drug is often tasted in the mouth, so that evidently

it goes through the body, and in arthritis deformans it has a peculiarly happy effect on the joints, as the ankle, knee, wrists, etc. He called attention to a treatment by Parker, of Chicago, for the prevention of scars after burns. He showed several patients he had treated by strapping with zinc oxide plaster and fixing the parts in plaster-of-Paris splints. This plaster was removed at intervals, and by keeping the elbow, axilla, and groin straight and fixed, contractures did not occur in the patients shown.

Dr. J. Torrance Rugh said that he had had some experience with the use of fibrolysin. He had the privilege of seeing one of Mr. Tubby's cases last summer and in that case Mr. Tubby did not dissect out the scar tissue in Dupuytren's contraction, but simply scarified the parts and rubbed in the fibrolysin, and the result was a most satisfactory one and there was complete correction of the contraction.

Quite some years ago, following an operation on the heel tendons, a rough callus developed over the site of the scars. He gave thiosinamine by mouth for three months and secured absorption of the scars, the tissue becoming soft like the other skin. Recently in a similar case, he injected fibrolysin in the patient with the same type of result, absorption of the redundant scar and a perfectly normal skin over the top of the old thickened hardened scar.

In a case of congenital Dupuytren's contraction in the fingers in a girl of 13 he used perhaps six injections of fibrolysin, and since then had had the finger on a splint for the purpose of firm extension. The only effect of the fibrolysin observed in this case has been a marked softening of the tissue. It has not now the density which it had before he made the injections, but he was having difficulty in extending the finger because of the contraction of the ligaments on the palmar surface of the joint.

Dr. L. H. Mutschler said that he was called at 5 o'clock in the morning to see a man, about sixty years of age, who had been suffering for a number of months with articular rheumatism. He had had one injection of fibrolysin the afternoon before. He had had a collapse, became short of breath, perspired profusely and everyone thought he was going to die; he seemed to have recovered somewhat by the time he was seen by Dr. Mutschler, being in fairly good shape though still a little delirious. The next day his physician gave him fibrolysin again in half the amount of the first dose, and the patient again became delirious. The last heard of him he had a nurse taking care of him. He had never had any such attack previous to this treatment.

Dr. Emory G. Alexander (in closing) said, with regard to the effects of fibrolysin, there were no bad results in the administration of

the drug in the case of the patient reported, and he had also noticed in the literature that many people recommend giving it intravenously. They claim it produces a nauseating effect sometimes but aside from that he knows of no ill effects at all.

This boy's arm had completely healed when he was again injected a week ago, which has caused the breaking down at the elbow which he exhibits at present.

Dr. A. W. Tucker (by invitation) presented "Some Experiences in Surgical Practice in the Orient."

OBLIQUE SUBTROCHANTERIC FRACTURE OF FEMUR

Dr. Louis H. Mutschler reported this case, not because it is of an unusual nature or of rare occurrence, but to show the excellent results that may be obtained by the open treatment of fractures in contrast to those obtained by the older methods. This woman, 35 years of age, was admitted to the Episcopal Hospital, May 29, 1913.

While attempting to alight from a wagon her skirt caught and she fell to the ground, striking her right hip. She was unable to stand and was brought to the hospital. She was poorly nourished, anæmic in appearance and extremely nervous. She complained of pain in the region of the right hip; the right foot was everted, crepitus and preternatural mobility were felt just below the joint. The right extremity was one and a half inches shorter than the left. A fracture of the upper third of the femur was diagnosed.

Treatment: a Buck's extension with weights was applied and a sand bag placed on each side of the limb. An X-ray picture was taken a few days after admission, and showed an oblique subtrochanteric fracture of the right femur.

The deformity was typical of this kind of a fracture. As is shown in Fig. 1, there was marked displacement; the upper fragment was abducted and tilted forward; the lower fragment was adducted and overlapping the upper fragment to the extent of about one and one-half inches. The line of fracture was oblique from above downward and outward, this being the usual line of direction of fractures in this location.

On June 8 an attempt was made, under chloroform anæsthesia, to reduce the fracture and the limb was again placed between sand bags, in an elevated, abducted position, with twenty pounds of extension.

A second X-ray picture, taken four days later, showed the fragments to be in about the same displaced position. He had considerable difficulty in persuading the patient to consent to an operation. After

several days, however, she decided to undergo an operation and it was done under ether anæsthesia on June 13, fifteen days after the accident.

An incision, about seven inches in length, was made on the outer side of the thigh over the seat of fracture. After exposing and freeing the ends of the fragments from soft tissues he had great difficulty in reducing and holding the fragments in proper position. A Sherman plate with two screws into each fragment held them in place, and, as an extra precaution, he placed a silver wire around the ends of the fragments and over the plate at right angle to the line of fracture. The wound was then closed and a small gauze wick inserted for drainage. The limb was placed between sand bags with light extension.

The wick was removed the third day and the patient made an uneventful recovery. She was permitted to get out of bed after a period of nine weeks and left the hospital walking with the aid of crutches.

Her limb was in good position and each lower extremity measured thirty-five inches when discharged (see Fig. 2). He saw this woman on December 12, 1913, and she was walking about without the aid of crutch or cane. She was attending to her usual housework and went up and down stairs normally. There was no difference in the length of the lower extremities and, with the exception of some slight soreness in the thigh during damp weather, she said she felt perfectly well.

Subtrochanteric fractures of the femur may occur at any age, but are uncommon. Articles describing fractures of the femur, just below the trochanter major and minor, are found among the writings of a hundred years ago. It is interesting to note in this literature how carefully fractures of this nature were studied and described and how accurate are the drawings made from post-mortem specimens. These writers dwell at length upon the marked displacement and resulting deformity and the difficulty encountered in attempts to reduce and maintain the fragments in proper position.

Sir Astley Cooper says: "The thigh-bone is sometimes broken just below the trochanter major and minor; it is a difficult accident to manage and miserable distortion is the consequence if it be ill treated."

To quote Amesbury: "When the fracture is just below the trochanter minor the retraction is sometimes not less than seven or eight inches." This amount of shortening is excessive and probably is seldom seen.

Malgaigne, after fully describing his method of treatment of the type of fracture under consideration, says: "And even with all this, success is very difficult to obtain." The foregoing quotations give a

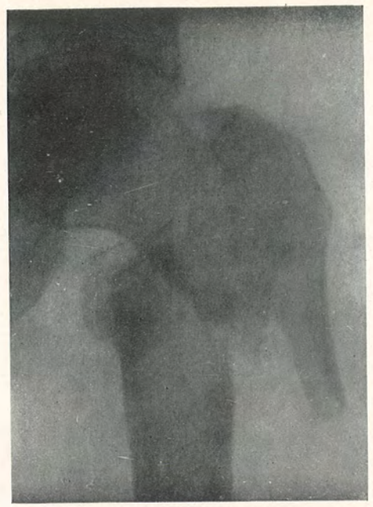

FIG. 1.—Subtrochanteric fracture of femur with displacement.

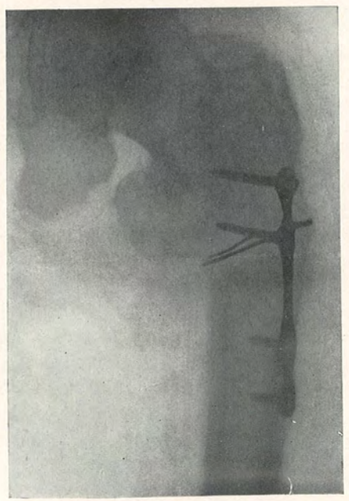

FIG. 2.—Fracture plated and wired.

good idea of the discouragement the early surgeons encountered in treating fractures immediately below the trochanters.

You could not expect, however, these surgeons to obtain better results if the surgeon of to-day, even with the assistance of the X-ray, is usually unable to obtain satisfactory results without resorting to the open treatment. By so recent and able an authority as Scudder we are told that treatment of subtrochanteric fractures by extension and counterextension and the use of the inclined plane are usually ineffective.

The displacement of the upper fragment is due to the action of the iliopsoas and to the rotators fastened to this portion and the retraction and adduction of the lower fragment to the strong muscular contraction of the adductors, probably caused in part by the irritation of the sharp end of the fractured bone. The early treatment of fixation of the pelvis, extension with counterextension, abduction, placing the thigh on an inclined plane, immobilization, etc., has continued with little or no modification up to the present time.

Much has been learned concerning fractures since the discovery of the Röntgen rays. Diagnoses of fracture have been made only to be reversed by the skiagraph. More frequently fractures have not been diagnosed and later have been demonstrated by the X-ray. It is by this means alone that we can positively tell the kind of fracture and the true position of the fragments. It is of the utmost importance, when possible, to have X-ray pictures taken in planes at right angles to each other, otherwise the true deformity is not always shown.

In many cases in which the fragments have united and resulted in good normal function of the part, the skiagraph has revealed the existence of a decided deformity.

The recent interest in and the progress that has been made in what is known as the open treatment of fractures with proper replacement and fixation of the fragments by one of the several methods have been the means of obtaining infinitely better results. The principal objection to the operative treatment is the fear of infection.

If in these days of advanced aseptic surgery we are not reluctant to open the peritoneal or cerebrospinal cavity, why should we hesitate to cut down upon a fractured bone? The X-ray will show the fragments to be in good position in many cases of fracture and obviously no operation is indicated. In those cases, however, with marked and obstinate deformity, like the one under consideration, he believed the open treatment should always be employed, providing the patient's condition permits.