

## SOUTH AFRICAN ORTHOPAEDIC ASSOCIATION (M.A.S.A.)

## REPORT OF CONGRESS AND SUMMARIES OF SCIENTIFIC PAPERS \*

The Annual Congress of the South African Orthopaedic Association was held at Cape Town from 13 to 15 October 1960, under the Chairmanship of the President, Mr. R. C. J. Hill. The meeting was preceded by a full day's instructional course at the Karl Bremer Hospital, organized under the aegis of the College of Physicians, Surgeons and Gynaecologists of South Africa. This course was the first of its kind to be organized in South Africa.

The distinguished guests from overseas were Dr. Leo Mayer (New York); Mr. F. W. Holdsworth (Sheffield), President-elect British Orthopaedic Association; Mr. R. G. Pulvertaft (Derby), Cripple Care Lecturer for 1960; Dr. Beckett Howorth (Connecticut); Dr. Paul S. Harmon (San Francisco); and Mr. E. C. Nicoll (Mansfield).

At the end of the meeting Dr. Leo Mayer and Mr. R. G. Pulvertaft were elected members of the South African Orthopaedic Association.

## INSTRUCTIONAL COURSE

## ANGLE OSTEOTOMIES OF THE FEMUR

Mr. J. C. Steytler (Cape Town) said that the aim of the operation was to stabilize a painful and unstable hip. In his series of 20 patients, 12 operations were performed for quiescent tuberculosis of the hip joint. He illustrated the technique by means of a film. He used a 35°, 6-hole plate for internal fixation and emphasized that the operation was simplified if the osteotomy was preceded by fixation of the upper half of the plate. The follow-up period varied from 6 months to 5½ years with an average of 32·2 months. Of the 14 patients analysed, 13 achieved pain-free hips.

Mr. H. Bell (Cape Town), in the discussion, emphasized that the osteotomy angle should not be greater than 35°.

## GRICE SUB-TALAR EXTRA-ARTICULAR ARTHRODESIS

Mr. G. Dall (Cape Town) described the pathological anatomy of the 'valgus foot'. In a series of 28 patients on whom he had performed the operation, the indications had been widened to include 6 patients with spasmodic flat foot and 4 patients with congenital vertical talus. He re-emphasized the importance of the correct alignment of the os calcis under the talus before inserting the tibial bone blocks. In not one of the patients was there absorption of the bone blocks or a failure of fusion.

In the discussion, Mr. N. M. Thompson (Pietermaritzburg) asked what was the lowest age at which the operation should be performed. Mr. Dall replied that it should not be done under 4 years of age.

## RECURRENT DISLOCATION OF THE PATELLA

Mr. A. W. B. Heywood (Cape Town) reviewed 103 patients on whom operations for recurrent dislocation of the patella had been performed in the Liverpool and Oswestry areas. In 53 instances the tibial tubercle-transplantation operation had been performed. The results, in general, were found to be good, with a tendency to late deterioration when done in young adults. Four out of 13 children on whom this operation had been performed developed genu recurvatum. Twenty-nine patellectomies were performed and the results were mainly fair, providing a sound alternative when tibial tubercle transplantation was contra-indicated in older patients and in those whose knees had degenerative changes. After patellectomy, recurrent dislocation of the 'patella substitute' was prevented by either plastic re-routing or tibial tubercle transplantation at the time of the operation. (This paper will be published in full in a later number of the *Journal of Bone and Joint Surgery*.)

In the discussion, Mr. C. Craig (Johannesburg) observed that very few adults with recurrent dislocation of the patella were encountered.

## PARALYTIC DISLOCATION AND SUBLUXATION OF THE HIP

Mr. B. S. Jones (Cape Town) discussed the various mechanisms whereby this condition occurred in patients affected by anterior poliomyelitis. Like Blundell-Jones, he found dislocation or subluxation only where the disease had occurred when the patient was under two years of age. In Blundell-Jones' group of patients the increase of the neck-shaft angle was attributed mostly to the pull of the abductor-adductor muscles. Mr. Jones in his series found that the commonest causes of luxation were: rotator imbalance with a vertical pelvis; lack of weight-bearing preventing the play of normal forces on the head, neck and acetabular roof of the femur; and pelvic obliquity.

He maintained that the development of a valgus neck and excessive anteversion could be prevented by early weight-bearing, and the use of a pelvic band to prevent external rotation of the affected lower limb and to encourage weight-bearing with the affected limb in slight abduction. In the established case reduction was achieved by abduction and internal rotation, and maintained by a varus-rotation osteotomy using plate-fixation and calculating the angles required on a clinical basis.

## ARTERIAL SUTURE TECHNIQUE

Mr. C. Barnard (Cape Town) traced the history of vessel repair from the time of Vesalius. The essence of the technique was precision; using waxed silk a continuous running suture was employed with the needle inserted at right angles to the vessel wall so that the opening was minimal. Great care had to be taken to ensure that the suture line was 'water-tight' and that it did not unduly constrict the lumen, and the suturing had to be preceded by the evacuation of clots and checking the efficiency of the collaterals. The paper was illustrated by a short film.

## VARIOUS IMPROVED METHODS OF TREATMENT AND SPLINTAGE FOR THE INJURED PATIENT

Mr. P. Michau (Johannesburg), illustrating his paper with slides, showed, *inter alia*, how to apply a knee back slab that 'stayed put', a practical and comfortable consulting-room cervical collar, a washable mallet-finger splint and a simple pulley for leg and neck traction.

## METHOD OF STRETCHING TENDO ACHILLIS WITH PLASTER OF PARIS

Mr. J. J. Commerell (Cape Town) showed a film which was based on the thesis that certain types of everted heels in children were caused by a 'tight' gastrocnemius or soleus muscle. In mild cases of gastrocnemius tightness active exercises were sufficient to correct the deformity. In the more severe degrees of the condition, plaster of Paris correction, combined with moulding, was required. The procedure was employed at fortnightly intervals and as a rule the condition was fully corrected at the end of 6 weeks. Where the soleus was responsible, a soleus-slide operation was performed.

## STRAPPING TECHNIQUE FOR CLUB FEET

Sister Gregg (Cape Town) demonstrated her technique of strapping to maintain the corrected position in congenital club foot.

## RECENT ADVANCES IN METABOLIC BONE DISEASE

Dr. W. P. U. Jackson (Cape Town) discussed a number of metabolic bone diseases.

*Generalized Osteoporosis*

He stated that the aetiology of this disease was still uncertain. Recently it had been suggested that the condition was a state of calcium depletion rather than that of protein. The severe but uncommon 'idiopathic' osteoporosis of young people remained a complete enigma and the treatment was most unsatisfactory. The symptoms of the common variety of osteoporosis in older people were frequently relieved, and further deterioration prevented, by the use of sex hormones and anabolic steroids.

\* Papers presented at the Annual Congress of the South African Orthopaedic Association (M.A.S.A.), Cape Town, 13-15 October 1960.

*Rickets*

This had been found to be very common among Coloured children in the Cape Province. The main factor was lack of exposure to sunlight. In the 'resistant rickets' group osteotomy was of no value unless the rachitic process had first been brought under control.

*Hyperparathyroidism with Osteitis Fibrosa*

In the diagnosis of this condition, Dr. Jackson emphasized important radiographic features such as cortical erosions of the phalanges, 'cotton-wool' skull, and loss of lamina dura of the teeth. Secondary hyperparathyroidism might occur in any variety of long-standing osteomalacia or renal failure.

*Paget's Disease*

Experimental work was being done using large doses of adrenal corticoids in certain severe cases.

*Fluorosis and 'Kenhardt' Disease*

In the Kenhardt district of the Cape Province a strange disease occurred in a Coloured community. The fluorine content of the water was high and classical fluorosis was seen in the adults. However, in addition to this, the children of the district developed pain and bowing of the legs with early bony rarefaction. This was not rickets and appeared to be related to fluorosis in some unknown manner.

## ANNUAL CONGRESS

The Congress was held at the Broadway Theatre, Cape Town, for the first 2 days and for the third day the rendezvous was the new wing of the Princess Alice Orthopaedic Home.

## THE FUNCTIONAL ANATOMY OF THE PELVIC JOINTS

Mr. G. F. Dommissie (Pretoria) showed that the symphyseal ligaments in the adult male had a breaking strength in excess of 520 lb. Using mathematical calculations he found that the symphysis was subjected to tension rather than compression and that this tension amounted to a force of 600 lb. with each stride of the athlete at full speed on the flat.

Symphyseal separation in the pregnant female normally averaged about 1 cm. This was controlled by an oestrogenic hormone and was reversed during the puerperium by an unidentified hormone. This process of reversal might be delayed, defective or inhibited, resulting in symphyseal instability, together with instability at the sacro-iliac joint (or joints).

Postpartum symphyseal separation was recognized as a well-defined clinical syndrome. Radiographically it might be identified by special views of the symphysis pubis. Radiographs of the sacro-iliac joints were unlikely to be of value except in extreme cases.

A similar syndrome had been found to follow miscarriages, operations for hysterectomy, or ovariectomy and the menopause. Women after the menopause, on occasion, were found to display concomitant osteoporosis.

Mr. Dommissie stated that there was almost universal degeneration at the sacro-iliac joints after the third decade. His own experiments with macerated pelvis indicated that radiographic changes at the sacro-iliac joints were difficult, if not impossible, to detect, while changes at the symphysis could be detected whenever present.

The lumbo-sacral trunk (L4 and L5 roots) was closely related anatomically to the sacro-iliac joint, and might be partly or completely severed in fractures involving this region, or irritated by lesions of a less dramatic, but more insidious, nature, such as infections, osteoarthritis or postpartum instability of the pelvis. In this manner an extra-discogenic type of 'sciatica' might arise. An operation for the exposure of the lumbo-sacral trunk and the relief of pressure or irritation had been evolved and performed by Dr. Henkel (Pretoria) and Mr. Dommissie.

## STUDIES ON DIAGNOSTIC LOCALIZATIONS IN LUMBAR-DISC DISEASE

Dr. Paul S. Harmon (San Francisco) emphasized that clinical assessment was of prime importance. He used routine radiography, including flexion and extension films, and showed that pantopaque myelograms might be misinterpreted and that negative or equivocal results in the presence of definite disc pathology were not infrequent. He had injected physiological saline under

visual control directly into the lumbar discs during the performance of the anterior operation in 300 patients. If more than 1 ml. could be injected, this was of pathological significance. In his opinion the saline-injection test was the most sensitive and reliable method of detecting degenerated discs in the lumbar area. He came to this conclusion after comparing the saline series with pantopaque myelography in 150 of the same patients.

## INTERVERTEBRAL DISC EXCISION AND LUMBAR SPINE FUSION BY A TRANSPERITONEAL ABDOMINAL APPROACH—REPORT ON 80 CASES

Mr. S. Sacks (Johannesburg) stated that the main indication for this procedure was prolonged backache, with or without pain in the legs caused by old-standing disc degeneration, coupled with the lack of response to conservative treatment. Other indications were: mechanical instabilities of the lumbo-sacral joint such as spondylolysis and spondylolisthesis; acute prolapsed discs; Pott's disease of the lumbar spine; failed fusions previously performed by the posterior approach; and patients suffering from backache after fracture-dislocations of the lumbar spine.

The operation was described in detail and Mr. Sacks mentioned the complications, including one case of impotence. These 80 patients were all operated on during the past 2 years and he was satisfied with the results thus far. The results were assessed clinically, and on this basis 88% of the patients were asymptomatic or clinically improved. Follow-up was of less than 6 months' duration in 40 patients.

In the discussion Prof. C. E. L. Allen (Cape Town) mentioned that in this approach the posterior structures responsible for the symptoms and signs were not visualized. Mr. Hamilton Bell (Cape Town) expressed surprise at the number of patients operated on in such a short period. Dr. Paul S. Harmon (San Francisco) stated that he had performed this operation on 450 patients and had first found that the transperitoneal route was easier, but had later employed the retroperitoneal approach.

## FRACTURES OF THE SPINE AND THEIR TREATMENT

Mr. F. W. Holdsworth (Sheffield) illustrated his classification of spinal fractures into stable and unstable varieties with numerous slides. The treatment of the stable varieties was little or nothing beyond bed-rest until the acute pain subsided. The unstable varieties included fracture-dislocation—'slice' fracture with over-riding of posterior facet(s). This variety was associated with extensive posterior soft-tissue damage. The spine required operative stabilization in this variety of fracture.

Mr. Hamilton Bell (Cape Town) asked what the degree of recovery was after plating for unstable spinal fractures associated with paraplegia. Mr. Holdsworth replied that the plate-fixation was intended to render the nursing of these patients easier. Mr. G. T. du Toit (Johannesburg) wondered whether the bodies in wedge-fractures (stable type) re-collapsed after reduction and immobilization for 3 months in hyperextension plasters. Mr. Holdsworth stated that a satisfactory plaster in excessive hyperextension could not be applied. The results of hyperextension plasters were worse than if the patients were left untreated. Mr. G. Bickerton (Durban) asked for how long patients with stable fractures were kept in bed and whether they were given physiotherapy. Mr. Holdsworth replied that these patients were allowed to get up when they felt like it—usually about 3 weeks after injury; very little physiotherapy was given.

## ORIGIN OF CONGENITAL ANOMALIES AND THE CONTROL OF FORM

Mr. T. L. Sarkin (Cape Town) presented experimental and clinical evidence to show that the present theories of bone growth, as originally set out by John Hunter, were only partially correct. Using a series of ingenious models and slides, he explained his views on why the maximum growth in the length of the lower limbs was from the distal end of the femur and the proximal end of the tibia, while the maximum growth in length of the upper limb was from the proximal end of the humerus and the distal end of the radius and ulna.

On the basis of his theory of helical growth he proposed new explanations for various growth anomalies.

## AN EXPERIMENT IN REHABILITATION

Dr. I. Guthrie (Somerset West) described the establishment of a rehabilitation centre for injured and ill workmen at the Somerset

West factory of African Explosives and Chemical Industries Ltd. This centre was the first started by a private industrial concern in South Africa. The initial inspiration was provided by the Vauxhall Rehabilitation Film. Unlike the Vauxhall Motor Works, there was a comparatively small number of employees and a lack of repetitive production jobs at the factory. He had the same difficulties to face concerning the attitude of the management and the trade unions. Using slides and a short film, he described the centre and illustrated the type of work performed.

#### THE EXPERIMENTAL USE OF A MUSCLE GRAFT IN THE REGENERATION OF A PERIPHERAL NERVE

Prof. J. Kirsten (*Stellenbosch*) briefly discussed the standard methods used to approximate severed nerve ends with minimal tension. Where the gap was too large to bridge successfully by these manoeuvres, an autogenous cable graft could be used. There were certain disadvantages associated with nerve grafting and much experimental work had been done to find a substitute for the nerve graft. He mentioned the Medical Research Council report of 1954 in which there were descriptions of experiments with blood vessels, synovial sheaths, plastic tubes and allantoic membrane, in an endeavour to construct a suitable tunnel along which to guide the regenerating axons into the distal Schwann sheaths. Homografts, heterografts and predegenerated grafts had also been tried. All the experiments had been without success or less successful than the standard method of autograft.

In his Hunterian Lecture in 1955 on the functional importance of the blood supply of peripheral nerves, Prof. G. Causey described his observations that nerve axons regenerate through a segment of muscle interposed between 2 cut nerve ends. It would be highly advantageous if satisfactory regeneration of a nerve occurred through such a muscle graft, since much muscle was available for use as grafting material. Professor Causey had performed a number of experiments in this direction and subsequently introduced Professor Kirsten to this subject. Although the work was still in progress he wanted to mention some of the results obtained so far. He used the nerve to the medial head of the gastrocnemius in the rabbit. After the nerve had been isolated, a segment of almost 1-2 cm. was removed. A piece of muscle 1 cm. thick was excised from the biceps femoris and the proximal and distal ends of the severed nerve were buried in the muscle graft. On one side a completely avascular muscle graft was used and on the opposite the graft retained an intact artery, viz. a small constant branch of the popliteal artery which enters the biceps femoris.

The nerve and the muscle graft were isolated at varying intervals from 10 to 40 weeks after the operation and the nerve was stimulated with electrodes, both proximal and distal to the graft. The isolation of the nerve was sometimes very difficult and often impossible, but when it could be done there was good contraction of the gastrocnemius, as well as the graft on stimulation of the nerve proximal to the graft, and good contraction of the gastrocnemius on stimulation of the nerve distal to the graft. Sections of the nerve proximal and distal to the graft were then removed and fixed in osmic acid. The nerve sections were prepared according to a modified Weigert-Pal method and examined microscopically. Professor Kirsten used slides to show the fibre population in a number of proximal and distal nerve segments in various avascular and vascular muscle grafts and at varying intervals. On the whole it appeared that the avascular graft was as effective as the vascular graft, or even more effective.

#### RECURRENT DISLOCATION OF THE SHOULDER JOINT

Mr. T. B. McMurray (*Cape Town*) stated that the present view concerning the question of recurrence was that the fate of the shoulder was settled at the time of the initial trauma. The extent of the tear in the capsule or labrum determined the possibility of recurrence. He contended that there were 2 additional factors which might increase the likelihood of recurrence. Kocher's method of reduction forced external rotation of the shoulder as part of the classical manoeuvre. This forced rotation could cause the extension of an initial trivial capsular or labral tear, and so increase the possibility of recurrence. Of 64 dislocations of the shoulder reduced by Kocher's method, 27 recurred—a recurrence rate of 40%. Of 112 dislocations reduced under general anaesthesia by simply lifting the head of the humerus into place, there were 13 recurrences—a recurrence rate of 12%.

The after-care of dislocations of the shoulder often took little account of the fact that there might be a tear in the anterior aspect of the capsule or labral attachment. Early exercises and physiotherapy were used in 70% of the cases of recurrence and it was possible that this early return to full function may have militated against the healing of the torn tissues on the anterior aspect of the joint.

Mr. McMurray briefly discussed the disadvantages of the Bankart and Putti-Platt operations. He went on to describe the preceding history of his own procedure, starting from Hybbinette's use of a tibial graft as an anterior bone block, and ending with the transplantation of the free tip of the coracoid process as carried out by Bristow. His procedure is a modification of Bristow's operation, in that he transplants the distal half inch of the coracoid process, with its 3 muscular attachments, through a transverse slit in the subscapularis muscle into the glenoid rim. He uses a single screw to fix it against the 'rawed-up' surface.

Of the 73 operations performed since 1948 there were only 2 recurrences. Both of these were caused by unusual and severe trauma.

#### THREE CASE HISTORIES ILLUSTRATING SOME OF THE HAZARDS IN ORTHOPAEDIC SURGERY

Dr. J. S. de Wet (*Pretoria*) discussed these 3 patients.

The first case history concerned a European male aged 39 years. Twenty-one years previously this patient had had a septic arthritis of the left hip joint. This resulted in pain and stiffness which forced him to seek advice. Five years ago a McMurray osteotomy had been performed (with minimal displacement). He had some relief and was able to continue farming until 1960 when pain, including nocturnal pain, forced him to seek advice once again. Clinically the hip had only 30° of flexion and special investigations, including radiography, revealed no signs of activity. A Charnley-type arthrodesis was performed; during the operation, when dense fibrous tissue was being separated from the edges of the acetabulum, the surgeon's finger penetrated the external iliac artery. After abdominal exposure a 7-inch woven teflon graft was used to reconstruct the artery. The entire procedure lasted 7½ hours and 11 pints of blood were given. The patient survived after a stormy convalescence. Four months later there was a bony ankylosis of the left hip joint and both anterior and posterior tibial arteries were still pulsating.

The second patient was a female, aged 42, who presented with intermittent pain and stiffness in her neck. Later she developed numbness of the whole of the right arm and weakness of the grip. On examination she had limitation of cervical and spinal movements in all directions, with wasting of intrinsic muscles, especially the thenar eminence. There was hypoaesthesia of the whole of the right hand. Radiography showed narrowing of the disc spaces between C5 and C6 and between C6 and C7. After conservative treatment a manipulation under general anaesthesia was performed, producing some relief for 2 days. After myelographic and angiographic examinations, a neurosurgeon diagnosed syringomyelia. Five months later, after the patient had developed a spastic quadriplegia, she died. An autopsy revealed a meningioma about the size of a half-crown in the posterior fossa of the skull close to the foramen magnum.

As his third case history Mr. de Wet quoted the history of an 83-year-old lady who presented with an acute exacerbation of long-standing osteoarthritis of the left knee. The knee was aspirated and 1 ml. 'codelcortone' was injected with prompt relief of her pain. A week later she returned for an injection into the opposite knee because of pain. This was done, but 3 days later the patient developed a fulminating septic arthritis of the knee and died of a staphylococcal septicaemia 48 hours later.

#### SCALENOTOMY AND ITS PLACE IN THE CERVICO-BRACHIAL GROUP OF SYMPTOMS

Mr. L. Mirken (*Port Elizabeth*) reviewed 50 scalenotomy operations performed in the last 10 years. He considered the most important positive sign in the diagnosis to be tenderness over the insertion of the scalenus anterior and the reproduction of symptoms by digital pressure over the insertion at the first rib. He performed a complete section of the scalenus anterior over the subclavian artery and stripped the artery at the level of the arch.

This paper will be published in full at a later date.

## TREATMENT OF FLEXOR TENDON INJURIES IN THE HAND

Mr. Guy Pulvertaft (*Derby*) said that our concern today was to establish a plan of treatment which could be expected to offer results of a good general standard. He pointed out the difference in approach to the repair of a single tendon injury in an otherwise normal hand and the tendon division in a severely damaged hand. With a single injury, restoration to normal, or near normal, should be achieved in approximately 75% of cases, but with severe damage improvement might be slight, though any improvement was of value. The principles and techniques of repair in the different areas of the hand were discussed. Primary repair of flexor tendons, when wound conditions permitted, was advisable for profundus divisions distal to the sublimis insertion, flexor pollicis longus in the distal part of the thumb, divisions in the palm and at the wrist level.

Skin suture only and secondary repair by tendon grafting was recommended for tendon divisions between the distal palmar crease and the insertion of sublimis, and for divisions of flexor pollicis longus in the palm and at the base of the thumb.

The operation of tendon grafting to restore profundus in the presence of an uninjured sublimis was described and illustrated by a film. Grafts were shown to demonstrate the standard of result achieved in these cases, and also for grafts performed for sublimis and profundus divisions within the digital theca.

The advantages of using plantaris as a graft were mentioned. The bridge-graft technique for closing gaps between tendon ends in the palm and above the wrist was mentioned. The problems of injuries occurring in infancy and the time lag between injury and elective repair were discussed. Several examples were shown with satisfactory results even when the delay had been more than 10 years. The importance of testing the amplitude of movement of the original muscles was pointed out, and the advice was given that sublimis of another finger should be used if the original motor appeared to be ineffective.

In conclusion Mr. Pulvertaft said that the treatment of these injuries would always present a difficult technical problem and quoted the words of Leo Mayer (1938): "Reconstruction of severed tendons constitutes one of the most delicate problems in surgery—a challenge to the ingenuity and dexterity of the operator".

In the discussion Dr. Leo Mayer (*New York*) thanked Mr. Pulvertaft for his masterly presentation and excellent results. Mr. J. J. Commerell (*Cape Town*) asked whether early or later movement after tendon grafting was advisable for the average operator. Mr. Pulvertaft replied that late movement was safer and as satisfactory. Mr. C. Moller (*Johannesburg*) wanted to know the minimum number of pulleys considered advisable. Mr. Pulvertaft replied that one over the middle of the proximal phalanx was the minimum. Mr. G. T. du Toit (*Johannesburg*) asked whether Mr. Pulvertaft was in favour of postoperative cortisone administration. Mr. Pulvertaft replied that he was not in favour of this because of the danger of interference with healing. In reply to Dr. Leo Mayer, Mr. Pulvertaft stated that he sutured digital nerves at the time of primary treatment.

## PELVIC OBLIQUITY IN POLIOMYELITIS, ITS RECOGNITION AND TREATMENT

Dr. Leo Mayer (*New York*) emphasized that he was dealing only with 2 types of fixed paralytic pelvic obliquity. In the first type there was a disturbance in the kinesiology of the iliac-femoral group of muscles. Paralysis of the adductor muscles accompanied by overaction of the abductor muscles caused a fixed abduction of the femur which, in time, could create a pelvic obliquity of 2-4 inches. He cut away the gluteal muscles and pyriformis attached to the tip of the greater trochanter. In addition he excised a portion of the hip-joint capsule to permit complete correction of the deformity. He then transposed a long strip of fascia lata dissected upwards from the distal half of the thigh to the inguinal ligament. The tension of the fascia had to be sufficient to maintain the limb in a neutral position.

The second type of pelvic obliquity was caused by unilateral paralysis of the external and internal oblique muscles of the abdomen, almost always associated with paralysis of the quadratus lumborum.

This type of contracture could be corrected by Roger-Anderson push-pull apparatus. Sometimes operative division of tight bands of fascia or muscle was necessary before correction could be

secured. After the obliquity of the pelvis had been corrected, a transplantation of fascia lata was done, joining the 9th rib to the crest of the ilium on the paralysed side. Dr. Mayer concluded by pointing out that Clarke of Britain and Axer of Israel left the fascia lata attached to the tensor fascia muscle when transposing the fascia to the 9th rib, hoping in this way to achieve active correction. He reported that he used this method in his last 5 patients and achieved even better results than with the free fascial transfer.

## MID-CARPAL INSTABILITY

Mr. A. J. Helfet (*Cape Town*) discussed the anatomy of the mid-carpal joint. He stated, *inter alia*, that at most one-third of flexion-extension and a lesser amount of abduction and adduction took place in the mid-carpus. The rest of the movement of the wrist took place in the radio-carpal joint. In disorders of the midcarpus the limitation of movement was always less than one-third of the normal range of flexion-extension, and a painless arc of these movements was always present, pain occurring at the extremes. Tenderness was felt in the anatomical snuff-box and on the dorsum of the wrist over the mid-carpal joint.

In the first stage of instability the signs and symptoms were present but the radiographic picture was normal. The treatment required for this was a simple manipulation under general anaesthesia. In the second stage, erosion of the articular cartilage in the mid-carpal joint had occurred and these changes might show on the radiograph. Mid-carpal arthrodesis was successful in relieving symptoms and restoring painless function. In the third stage, the same clinical disabilities were associated with an ununited fracture of the navicular. He suggested that the ununited fracture had similarities to a stress fracture and became a painless pseudo-arthritis; the disabling symptoms were derived from the mid-carpal joint. Mid-carpal arthrodesis, in his opinion, was effective in restoring stability of the wrist and union of the fracture. He had performed 28 mid-carpal arthrodeses in 91 patients with mid-carpal instability. In the discussion Mr. S. Sacks (*Johannesburg*) pointed out that bilateral os centrale had been found to be a cause of painful wrists.

## THE UNIVERSITY OF CAPE TOWN ARTIFICIAL LIMB

Prof. C. E. Lewer Allen (*Cape Town*) described and demonstrated the new limb and discussed its principles and the advantages at the hip, knee and ankle-joint levels. Only one limb was in full use so far. The limb had been fully described in a previous paper.\* In the discussion Mr. H. Bell (*Cape Town*) asked how the weight of the new limb compared with that of the standard limb. Professor Allen replied that the weight of the new limb was just over 7 lb. (The standard limb weighs 7 lb.)

\* Published in this *Journal* on 13 February 1960 (34, 125).

## THE INFERNAL FIXATION OF FRACTURES—IS IT WORTHWHILE?

Mr. R. C. J. Hill (*Durban*). This paper will be published in full at a later date.

## DOUBLE OBLIQUE TELESCOPING OSTEOTOMY

Mr. J. J. Commerell (*Cape Town*), by means of a film, showed his technique of correcting deformity using a double oblique telescoping osteotomy.

## THE FIBULA BYPASS OPERATION FOR NON-UNION OF THE TIBIA

Mr. H. Bell (*Cape Town*) first used this technique in children with defects in the tibia from osteomyelitis and sequestration, where the standard grafting techniques had failed. He was so impressed with the results in these patients that he extended the operation to any patient with a fracture of the tibia where there was loss of bone or skin or infection which would prevent grafting. He also used it in failed tibial-graft operations. He stated that in performing the operation it was important to perform the osteotomy just below the neck of the fibula. The obliquity was downwards and inwards so that a larger raw surface was opposite the tibia; it was also easier to insert the fibula into the tibia. The fibula was held in position with one screw. Where the non-union was firm and fibrous, an osteotomy of the fibula lower down was obligatory. Mr. Bell then showed slides of 8 patients in whom this operation had been performed.

## ANTERIOR CERVICAL SPINAL FUSION

*Dr. Paul S. Harmon (San Francisco)* showed a film demonstrating his technique for anterior cervical spinal fusion.

## CASE DEMONSTRATIONS

*Mr. Alec Singer and Mr. Martin Singer (Cape Town)* demonstrated and reviewed patients who had undergone various orthopaedic procedures.

*Tibialis Posterior Tendon Transfer*

Six patients who had had this operation were shown. They had congenital club feet, which had previously been treated by conventional methods and which had all relapsed. Before the operation they had been corrected by a modified Kite's technique. The longest follow-up in this group was 4 years and the shortest 1 year. These children belonged to a series of 36 on whom this operation had been performed. They also demonstrated 3 adults on whom the operation had been successfully performed for traumatic lateral-popliteal-nerve paralysis and discussed the results of this procedure in 8 patients where the operation had been performed after anterior poliomyelitis.

*Perthes' Disease*

Using slides *Mr. Alec Singer and Mr. Martin Singer* reviewed 16 patients with Perthes' disease with 24 hips involved. They found 4 unusual modes of presentation in this series in addition to the classical onset: (a) unilateral signs with bilateral radiographic changes; (b) unilateral limp, no signs, and bilateral radiographic changes; (c) pain in the left iliac fossa; and (d) intermittent limp and slight limitation of movement and no radiographic changes for 2 months.

They employed 4 different methods of treatment (non-operative) and found the end results were the same. Like Evans and Roberts they found that the nearer the age of 3 years the onset was, the better the prognosis. They maintained that the fate of the head of the femur was predetermined.

*Rotation-varus Osteotomy*

Two examples were shown. In one the operation had been performed after successful reduction (on a frame) of a unilateral congenital dislocation of the hip in a child untreated until the age of 4 years. One year after the operation the hip was still stable.

The other example *Mr. Alec Singer and Mr. Martin Singer* demonstrated was in a patient who had had paralytic dislocation of the hip (poliomyelitis). The interesting feature was that the plate was removed 1 year after the operation. Union was rapid and after 2 years the hip was still stable.

*Moore's Two-stage Osteotomy Osteoclasia*

They also showed two patients in whom Moore's two-stage osteotomy osteoclasia had been performed for gross valgus deformity of the tibia after rickets and trauma respectively.

They concluded their lecture-demonstration by showing 6 cases of severe injuries involving the ankle joint and os calcis and the results of the different methods of treatment employed.

## REHABILITATIVE SURGERY IN CEREBRAL PALSY

*Mr. T. L. Sarkin (Cape Town)*, in his preliminary communication on this subject, stated that it had been constantly observed that spasticity in this connection is restricted to certain muscles and is not generalized. He showed a patient in whom he had excised the sublimis tendons with marked improvement in the function of the hand.

## A METHOD OF LOCALIZED FUSION OF THE WRIST JOINT

*Mr. S. Schwartz (Cape Town)* discussed the principles of a new method of localized fusion between the distal end of the radius and the navicular bones. This fusion had all the advantages of an arthrodesis of the wrist joint and none of the disadvantages. It preserved the inferior radio-ulnar joint and triangular fibrocartilage, so that pronation and supination were unimpaired. The intercarpal and carpo-metacarpal joints were not interfered with, so that movements were preserved at the joints.

The range at these joints was 20° and was of great significance to the skilled worker. The column of bone bridging the radio-navicular joint had been found to be adequate even in those doing strenuous physical work. The indications for the operation were: (a) flail wrist, and (b) wrist-joint injuries, especially ununited fracture of the navicular. He described the technique in detail—the use of a half-inch Forstner auger bit which created a cylindrical cavity, centred on the radio-navicular joint, was important. This cavity was bounded proximally by the radius and distally by the residual rim of the navicular and extended down to the capsule on the palmar aspect of the wrist. The adjacent intercarpal joints were left intact. The cavity thus formed was filled with autogenous cancellous bone. He had performed the operation on 16 patients and bony fusion had occurred after approximately 3 months in all of them.

## AORTO-ILIAC OCCLUSIVE DISEASE

*Prof. J. H. Louw (Cape Town)* presented this paper which was prepared in conjunction with *Mr. W. M. Roberts (Cape Town)*. It has been published in full in this *Journal* (35, 346, 367, 385—29 April, 6 May and 13 May 1961).