Two Guest Lectures were delivered to the Society by Dr W.J.Hamilton (Seattle, USA) - 1. RECONSTRUCTION OF THE FOOTJOINT.
2. HYPERMOBILITY.

The operation emphasised pathological changes in the first tarsometatarsal joint, where normal there is little movement. Hypermobility was recognised by a dorsal bump at the joint, absence of callus under the first metatarsal head and hypervascularity of the second metatarsal. The reciprocal anatomical posture of the great toe was considered.

For hypermobility of the first tarsometatarsal joint, the operation selected transplantation of the metatarsal bone graft across the joint (not into a trough in the bone) so that distraction posteriorly was maintained, thus re-plantarflexing the talus. A distractor placed medially prevented varus deformity while the block was positioned. Two screws, fully-threaded to avoid compression, were placed from the back of the calcaneum, up into the talus.

The result was a reduction of the hallux valgus and metatarsus varus when measured in the bunion group (Table 1). However, there was no significant difference between the groups with respect to the angle between the intermediate angles in the bunion group, due possibly to a more varus alignment of the calcaneum in the bunion group.

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peripheral neuropathy; contracting with 2.5 in abdominal wall specimens.

MUSCULOSKELETAL CONSIDERATION FOR THE FOOT -

M. Sams (Cincinnati).

A rare case of mycrocystophlebitis presented in the foot was recently reported.

The patient presented a large painless rubbery swelling of the forefoot and had trouble in raising his toes. The site of the swelling was on the third metatarsal, which was tender at the distal end of the second and third metatarsals.

APPROPRIATE TREATMENT OF OSTEOSCHONITIS DISSECANS OF THE TALUS - C. Freeman (Augusta, Ga.).

A thorough discussion of osteoschonitis dissecans of the talus was made and emphasized the view that it was of traumatic origin.

Clinical lesions were usually cup shaped and laterally moved in length. Radiology procedures for diagnosis were very difficult to diagnose, especially in cases with no recognized trauma. Diagnosis was made by plain X-rays and tomograms.

MISCELLANEOUS TREATMENT WAS RECOMMENDED FOR ALL LESIONS OF STAGE IV (Saward & Harty, 1959) AND FOR LATER LESIONS OF STAGE III (Mott, 1958.

Use of tibial and calcaneus plan to allow distraction of the ankle by 5 to 10 cm. and sometimes of the talus by the osteotome. The 2.5 cm. osteotome proved unsatisfactory. Intersectional interosseous bone cuts portals were used. Loose bodies were removed with a rasp. Synovium was excised to reveal the synovial capsule, which was then pinned down to subchondral bone.

Bone grafts were done using bone (a postero-superior flap of cartilage lifted in old ankle sprains and seen only on arthroscopy) were replaced.

PHYSICIAN ANkle TROMBOSTACHYIUM WITH ANKLE BONE DISSECTION - M. Lichtenfeld (Mobile, Ala.).

The use of a pneumatic ankle tourniquet applied to the submalleolar region was a safe and highly effective method of obtaining a bloodless field during foot surgery. Both clinical and physiological evidence showed that the pneumatic tourniquet eliminated unnecessary discomfort to the patient and allowed and accurate and reproducible control of circumferential occlusion. When used with regional ankle block, it permits of patient comfort while removing the morbidity associated with general or spinal anesthesia.

Between March 1967 and October 1980, 62 foot operations were performed by the technique on 27 patients in whom a pneumatic tourniquet was used. The time of operation was determined by the patient's comfort and activity. The patient was allowed to walk on average 45 minutes (range 8-80 min), without fatigue for a period of 20 min. above arterial systole (average at 250 mmHg, range 300 to 500 mmHg)

The patient repetitive mild pain directly beneath the tourniquet after 45 and 60 minutes respectively, resulted in the need for the tourniquet to complete the operation. There were two patients with mild resolving paravasation phenomena in the foot.

The use of this technique seemed safe and a desirable alternative to the standard high tourniquet for use in surgery in the foot.

FORCE PLATE STUDIES OF "FLAT FOOT" PATIENTS - S. Honchobah (Queens).

The lighter force plate (a multipurpose measuring platform with placloedric transducers) was used to study the foot and ankle surfaces to get the corresponding moments about the axes Y, Z and I. These studies are being studied visually and by computer analysis.

Recordings were made from 20 normal adults of age 4.5 years old, normal pedobarograph studies and normal great toe activity was recorded. When the first and second metatarsal heads were being recorded, 15 patients of average age 40 years, all with abnormal foot/ground pressure readings
and great toe tests - they might be high or low arched.

Among the abnormal, the vertical and the horizontal force curves followed those of the normals in general, but side to side components were usually abnormal, showing a large side to side force at heel strike and an unsteadiness of the curve in the later stance phase. This reflected both failure of the musculonateal system to control the pressure distribution and an attempt by it to restore stability and to minimize the abnormal medial stresses, particularly by use of the long toe flexors.

**FIRST METATARSOPHALANGEAL JOINT ARTHRODESIS USING INTERFRAGMENTARY SCREW AND SMALL PLATE FIXATION** - G.H. Holmes (Philadelphia, USA).

This paper described a new technique for arthrodesis of the first metatarsophalangeal joint using an interfragmentary screw and a small fragment, 3-hole, one-third semi-tubular plate as internal fixation.

The technique was used in five patients (six feet), three men and two women, with an average age of 50 years (range 24 to 73 yr), follow-up averaged 30 months (range 24 to 47 mo). Indications were rheumatoid arthritis, failed previous bunion surgery, hallux valgus associated with diabetes mellitus with first metatarsophalangeal joint plantar ulcer, hallux valgus associated with cerebral palsy, and severe hallux valgus associated with osteoarthritis.

Pain and walking tolerance improved in all cases. No patient reported symptoms at the interphalangeal joint. The hallux valgus angle averaged 10° (range 5 to 15°) and the dorsiflexion angle 15° (range 5 to 25°).

Arthrodesis was achieved in all patients at a mean of 10.6 weeks (range 2 to 12 wk). Only one patient required removal of a single screw due to normal prominence. In the two diabetic patients the ulcers healed completely after fusion, without recurrence or transfer union. Patient satisfaction was excellent in five feet and good in one.

The advantages of this method were secure fixation, rapid and uniform union, avoidance of any fixation device crossing the interphalangeal joint and patient satisfaction.

**FOREFOOT PLANTAR FASCITIS/PAINFUL BASEBALL CREASE CHOREL SYNDROME - D.J. Fagg, N.J. Horwell, R.H. Netherway and P.I. Porter (Chorley, Lancashire).**

The Chorley splint was developed in conjunction with the Department of Orthotics for use in this disorder.

It is a moulded shoe insert which dynamically loads the plantar fascia between heel strike and the foot-flat phases of the gait cycle. The polypropylene splint was made to a plaster cast of the foot and took the form of a heel cup with an extension forwards and a bar across the front of the heel section at a carefully selected position.

The authors reported on the design principles of the device and preliminary results of its use in a group of 20 patients with a mean age of 44 yr (range 22 to 79 yr). The average duration of symptoms prior to treatment was 21 months (range 3 months to 10 years) and the mean follow-up was 5 months.

Pain and disability were graded using a standard scoring system and on this basis improvement was noted in 18 cases (90%), with complete resolution in 25%.

The short term results were encouraging and the device provides an alternative management for this difficult condition.

**THE RESULTS OF SCREENING THE FEET OF 1000 DIABETIC PATIENTS - D. Cole, F. L. Lein, C. McDade, S. Cremera and L. Kierszen (Liverpool)**

Foot problems in diabetics cause much morbidity and mortality, and place a burden on local health resources. Prevention is more desirable than treatment of established foot problems and it is therefore important to identify those patients who are at risk of foot ulceration.

1001 patients attending the diabetic clinics at the Royal Liverpool University Hospital were randomly allocated to the study group. History included details of length and treatment of the diabetes, previous foot ulceration or operations, age, sex and smoking history. Examination included evaluation of foot hygiene, deformity and callusation, pedal pulses, and protective sensation under weight-bearing areas of the foot. Recent diabetic control was assessed by a glycosylated haemoglobin analysis.

Criteria for "at risk" status were:

- A history of previous foot ulceration; absence of both pedal pulses and of protective sensation, as assessed by the inability to feel a 5.07 (10 gm) Semmes-Weinstein nylon monofilament; the presence of severe foot deformity which prevented the wearing of ordinary footwear. The severity of the at risk status was graded according to fixed foot deformity and a history of previous ulceration.

The average age in the group was 59 years (range 17 to 92 yr, standard deviation 18.5 yr); 53% were male; 20% were classified as Type 1 (insulin dependent) diabetes and the remainder as Type 2 (non-insulin dependent).

25.9% of the group were deemed to be at risk, 21.8% of patients had sensory loss, 7.1% absent pedal pulses and 4.2% both, 2.8% gave a history of previous ulceration. There were five patients with Charcot joints in the foot. Bilateral involvement was seen in 17.3% and unilateral involvement in the remaining 82.7%. 11.9% were classified as high risk due to sensory loss and fixed deformity in the foot.

Further analysis of the at risk group showed that there were significantly more male patients at risk than female (58.3% male, 41.7% female; chi² = 8.41; 9.46; p = 0.004).

The difference of diabetes at risk (88% Type 2, 12% Type 1) at 1 d.f. = 17.21) and that the duration of diabetes was longer in the Type 1 diabetics at risk than in the Type 2 diabetics at risk (duration in Type 1 averaged 16.5 years, Type 2 7.6 years; t-test = 10.61). Surprisingly, there was no difference in making history of diabetes control between the at risk and the not at risk groups.

Diabetic sensory neuropathy was the commonest risk factor for diabetic foot ulceration seen in this population.