EPTEMBER, 1961

ORTHOPEDIC & PROSTHETIC APPLIANCE JOURNAL

The Journal of the Limb and Brace Profession

SCENE AT EDEN ROC HOTEL, Miami Beach, where the 1961 Orthotics and Prosthetics Assembly will meet
(For details, see Pages 281 to 284)

publisher: American Orthotics and Prosthetics Association

INVITATION TO THE 1961 NATIONAL ASSEMBLY

All persons interested in the rehabilitation of the orthopedically handicapped are eligible to attend the 1961 Assembly of the Limb and Brace Profession. This meeting, sponsored by the American Orthotics and Prosthetics Association, will be held at the Eden Roc Hotel in Miami Beach, October 19-25, 1961.

Registration information and the preliminary program of technical and professional sessions will be found on page 281 of this issue of the *Orthopedic and Prosthetic Appliance Journal.*

Orthopedic and Prosthetic Appliance Journal

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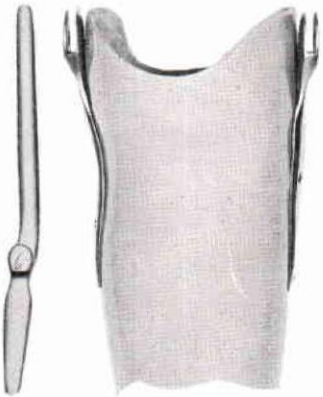

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SUPPLIERS' INDEX—SEPTEMBER, 1961

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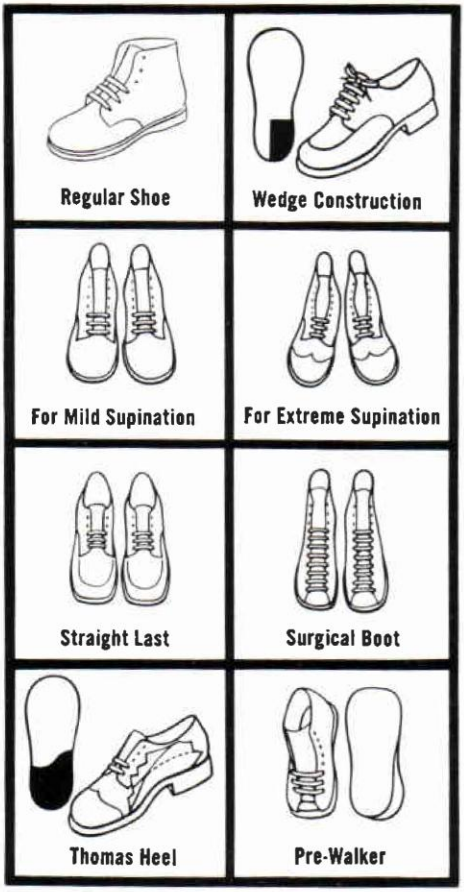

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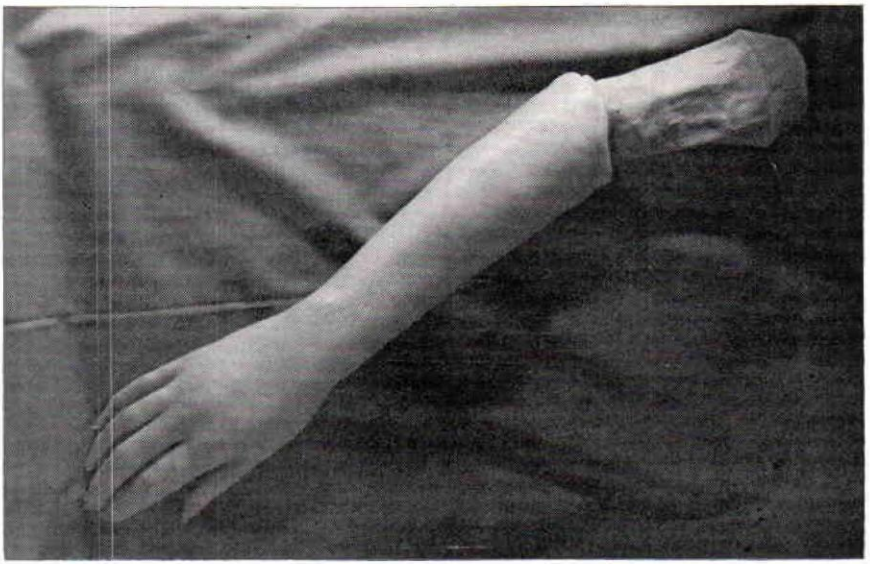

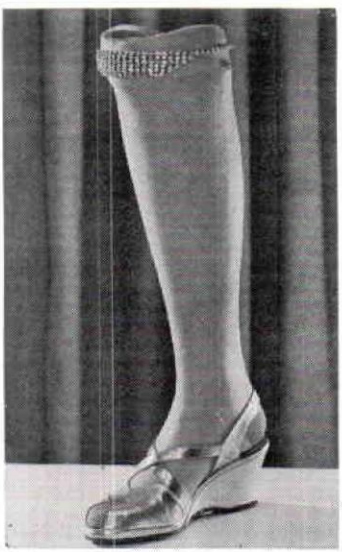

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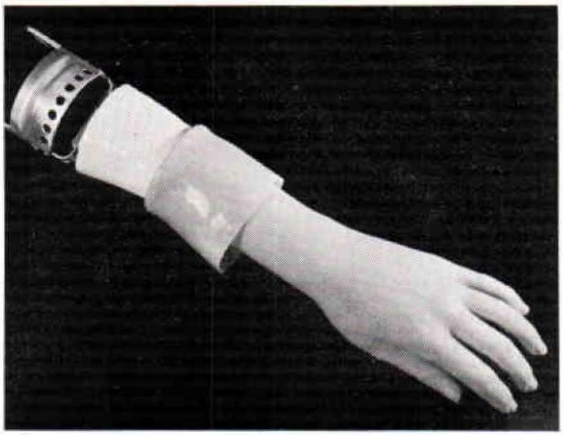

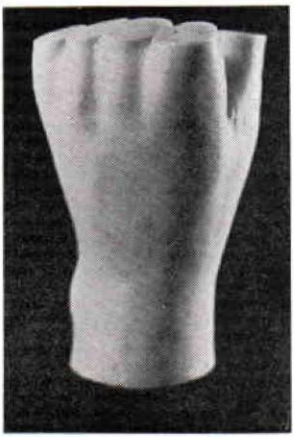

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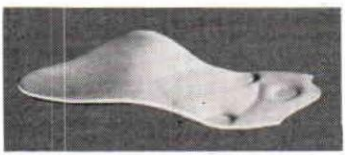

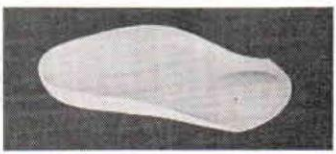

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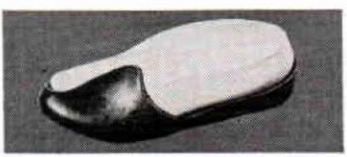

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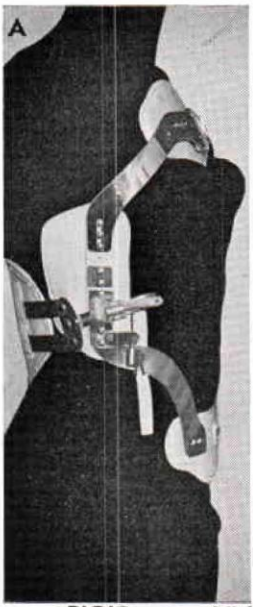

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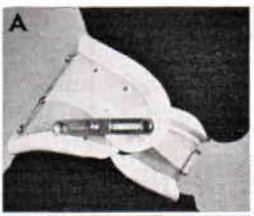

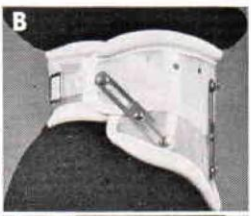

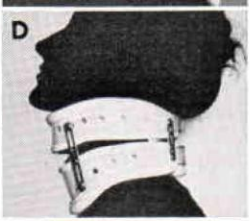

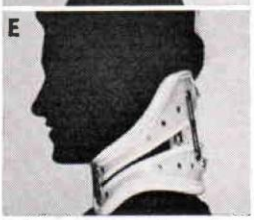

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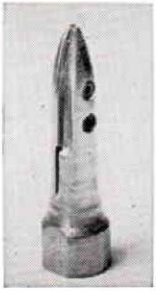

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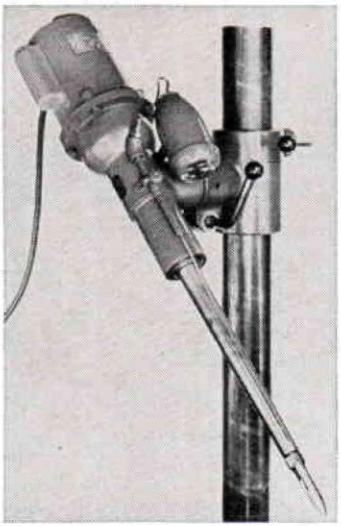

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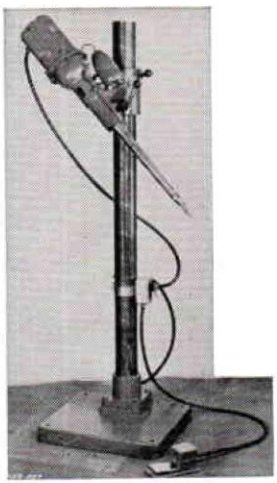

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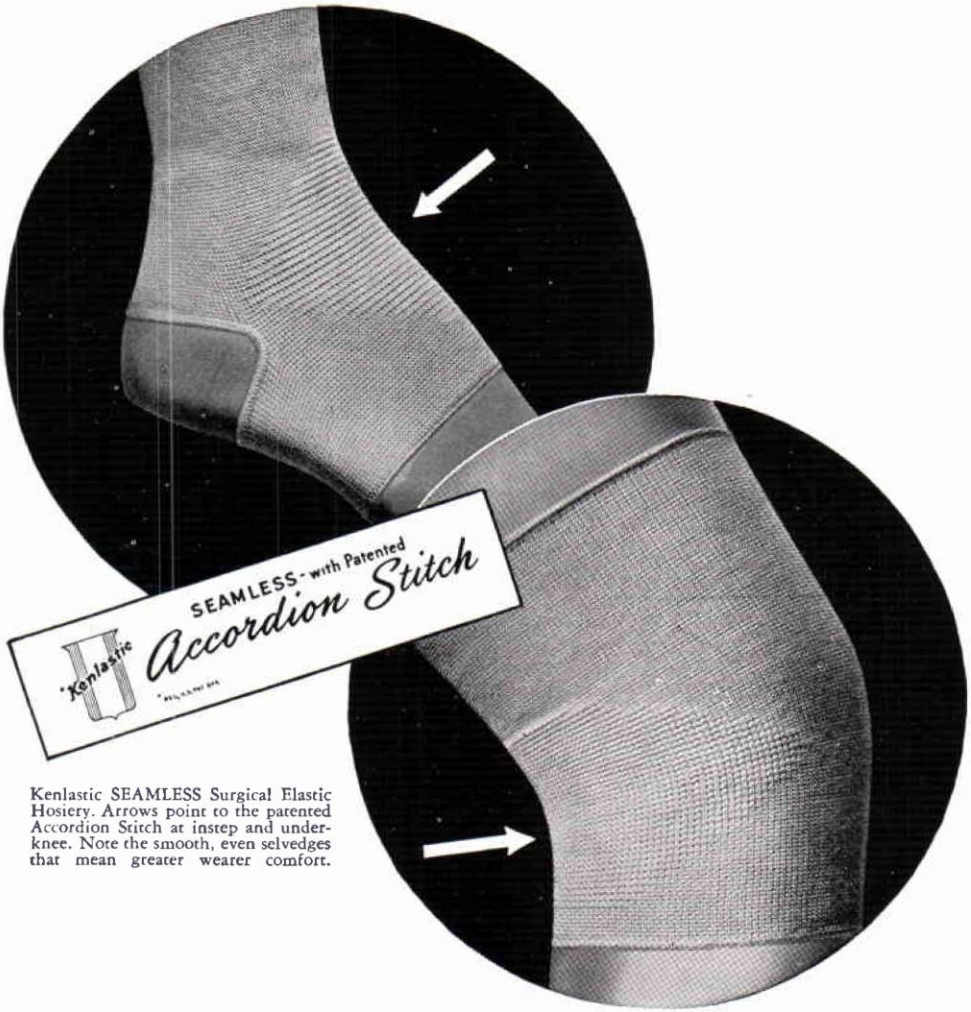

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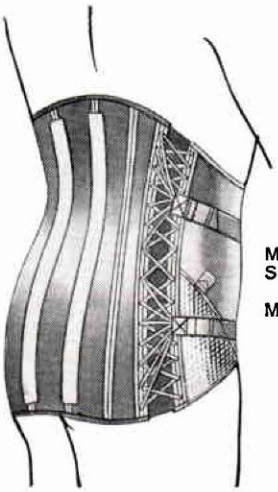

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Clinical Practice of Orthotics in Germany

EDITORIAL PREFACE:

The *Journal* is indebted to Mr. Carlton Fillauer for assistance in preparing this article for publication. It is based on a lecture by Mr. Habermann before the 1961 National Assembly of the American Orthotics and Prosthetics Association in New York City. Mr. Fillauer, Vice President of the Association, has visited the Habermann establishment in Germany and we think his comments on the establishment and on Mr. Habermann will be of interest:

During a recent return visit to Mr. Habermann's Orthopedic and Prosthetic Facility, I was again impressed by the outstanding service and the quality of work provided to the patients by this organization. It is fortunate in being located near, and associated with, the Orthopedic University Clinic in Frankfurt, Germany, because through this association many new ideas and techniques have been developed. Under the excellent leadership of the young Helmut Habermann (the long established and world renowned shop of his Father is located in Munich) the newest techniques in Germany are used here and a number of them were developed by him personally.

There is no phase of Orthotics or Prosthetics work that he has not mastered to the highest degree and yet he is continuously searching for new techniques. Even now, he is pioneering and teaching the UCB-PTB, BK Prosthesis in Germany. Few shops in Germany have adapted and utilized lightweight metals and plastics as has Mr. Habermann.

He has been a member of the Board of Directors of the Federal Association for Orthotists and Prosthetists and, under their directives, established in 1954, the Federal Professional School in Frankfurt. Since this time he has served as an Instructor of Clinical and Technical Orthopedics as well as Prosthetic Techniques. This year marks his 26th year of activities in our Profession and for 15 years he has been a member of the Masters Examination Commission.

Mr. Habermann's latest development in the field of Prosthetics is the prosthesis for bathers and swimmers which already has received wide acceptance and is known as the "Beach Boy."

CARLTON FILLAUER

A second article by Mr. Habermann, dealing with clinical prosthetics in Germany, will be published in a coming issue of the *Journal.*

Clinical Practice of Orthotics in Germany

By HELLMUT HABERMANN
Frankfurt, Germany

The 8th World Congress for Cripples and the Assembly of the American Orthotics and Prosthetics Association are convincing evidence of the firm intent of all participants not to spare any effort to help the disabled and those suffering from accident injuries in all countries of the world to the utmost extent. The large place allotted at these sessions to the technique of orthopaedics indicates the extent of this profession's participation in the care of the crippled.

I was most gratified to be invited to this session of your Association and have gladly accepted. May I take this opportunity of conveying again the heartiest greetings of the German Federal Association of Orthopaedic Mechanics and Bandage-Makers who wish good luck and success to this session. I am happy to have been enabled to join you in these days as the representative of the German Orthopaedics-Technicians.

In the following report on the development of the clinical technique of orthopaedics in Germany I shall endeavour to convey to you a general view.

The medical prescribing of orthopaedic equipment, corsets and bandages is preponderantly done by clinics and orthopaedic surgeons respectively. An orthopaedic-mechanical aid is only applied if according to medical considerations it corresponds to the aim of treatment, if this cannot be obtained by other measures.

The general therapeutic measures of the physician and the orthopaedic specialist respectively have widened and consequently offer considerably more possibilities. Surgical technique especially has become considerably more important for orthopaedics; it follows that the range of technical orthopaedics may have been restricted but has become more intricate. The character of mechanical orthopaedics has changed increasingly in recent years. No more general orthopaedic provisions are made, but a defined therapeutic result is aimed at according to strict medical and mechanical view points.

In the German technique of orthopaedics, *Hessing*, besides other important workers, especially had a decisive influence on the development of the technique of orthopaedic devices and corsets, seen in the many appliances still used today in a similar form. It is the task of all mechanical apparatus to achieve with as little expenditure in material and technique as possible the greatest possible effect. This principle is applied to the greatest extent in the mechanical care of paralysis. Patients, e.g. suffering from poliomyelitis used to be cared for principally by orthopaedic-mechanical means. Today, however, mechanical orthopaedics often takes last place within therapeutic planning.

Even so, before producing a device, the absolutely minimum mechanical aid is first tested with the aid of provisional, quickly producible means such as e.g. plaster sleeves, plaster splints, etc. in the most varied forms. This is at the same time a very efficient exercise-treatment for the patient

and reveals soon the basic characteristics of construction of the orthopaedic appliance to be manufactured. It is often surprising how little extraneous aid the patient requires for enabling him to stand and walk.

The observation of the patient in conjunction with his physician is a typical example of ideal collaboration between physician and technician. After thorough discussion the final design of the appliance is agreed upon.

As mentioned previously, no more mechanical support than is strictly necessary should be given, since by extensive rigid fixations compensatory movements required by the patient for ambulation are impeded or arrested. It is possible to make any paralyzed person stand up by extensive appliances for the trunk, by encasing him firmly from top to bottom. Hereby, however, he will stand like a statue and will be unable to move. There are many patients who are able to progress fairly well, although in positions and gait which to the eye trained in the normal order of locomotion appears to be unbearable. However, when supplied with too little mechanical support in order to avoid faulty postures and attitudes they immediately lose their security of motion. It is often very difficult or even impossible to analyze these processes in detail.

The weight of the orthopaedic appliance is a further important point. In earlier days it happened only too frequently that especially children with severe poliomyelitis of both legs were supplied with extensive appliances; by the loss of their muscle power, however, they were unable to progress, simply because the appliances were too heavy. The development of light splints is invaluable especially for patients with poliomyelitis. In this field much valuable work has been done here in America, facilitating ambulation for the paralyzed patient by light appliances.

At present orthopaedic technique has at its disposal splints made from various materials, e.g. plexidur, nirosta, light metal and plastics. They all have the advantage of reducing considerably the weight of the orthopaedic appliance, some more, some less. Partly, these light splints possess a springy, elastic property. There are cases of disablement permitting elastic torsion of the splints and in which this property is desirable. For supportive appliances these splints, however, are not utilizable. Devices for correcting faulty postures, of course, also do not permit the use of flexible splints.

Taking as an example a paralyzed leg I would like to discuss some variations in respect of the construction of appliances.

For securing the chain of joints of the leg the dorsal fixation of the ankle joint is of greatest value. It is not only used in the loss of the triceps but also for extension action of the knee joint, as e.g. in paralysis of the musculature of the thigh, thus chiefly of the m. quadriceps. This means in the construction of the appliance that by dorsal fixation of the ankle joint the knee joint can be prevented to a certain extent from flexing. This, however, induces hyper-extension of the knee-joint in the sense of genu recurvatum, which requires a thigh piece in the appliance. The mechanical knee-joint should be adjusted in such a way as to permit only as much hyper-extension as is absolutely necessary for safe-guarding the incapacitated knee-joint. (Fig. 1)

The dorsally-fixed ankle joint impairs in the same way the hip joint. The greater the pes equinus position, the greater the security of the knee. The patient, however, compensates this situation by hyper-extension in the hip joint and by pushing the pelvis forward until the line of gravity reaches again the point of support and the tip of the foot respectively. (Fig. 2)

When the entire sole of the foot carries the weight, the leg leans back-

wards and the pelvis, with the trunk, leans forward in order to maintain balance. This position is unnatural and bad for the patient, since the gluteus maximus muscle normally is unable to compensate for this posture. (Fig. 3)

In the case of simultaneous paralysis of the gluteus maximus muscle an extreme dorsal fixation of the ankle joint should be reduced and the knee joint secured in normal extension against hyper-extension. In this position the upper part of the trunk and the pelvis respectively can be raised and then extension of the hip is secured by the forefoot and the dorsiflexion stop. If necessary raising the pelvis can be assisted by traction on the gluteus muscle. (Fig. 4)

This example shows the individual interrelations between foot-knee-and-hip joints; they are important for the function of the appliances.

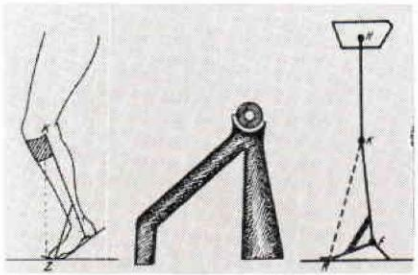


Fig. 1. This picture illustrates the knee-securing effect of the dorsally locked ankle-joint. In the construction of appliances this is mechanically achieved by means of a split stirrrup which supports the sole plate with a front piece in the rolling motion of the foot.

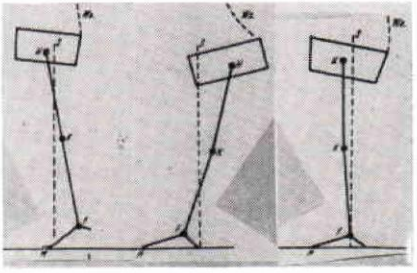


Fig. 2 Fig. 3 Fig. 4

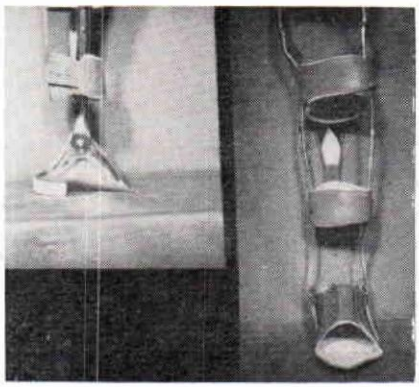


Fig. 5. The foot part of a device with dorsally locked ankle-joint. It clearly shows the sole plate of hammered metal with attached joint parts.
b. A molded shoe of leather makes possible the correction of deformities of the foot.

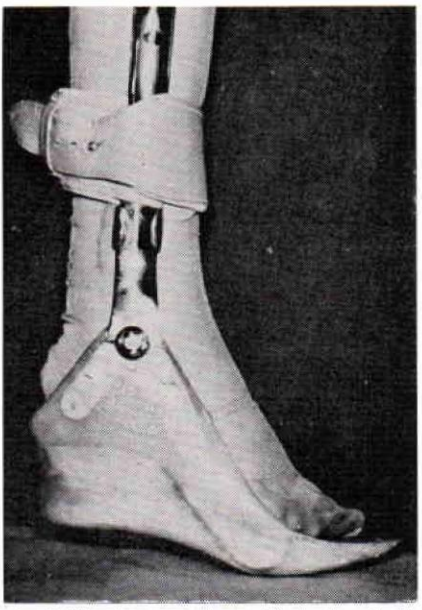


Fig. 6. The foot part is moulded of synthetic material, joint parts as well as contraction compensation are worked in.

The construction of the ankle joint with fixed dorsiflexion has cosmetic disadvantages. The forces developed through the lever action of the foot are very powerful and for the time being do not yet permit the use of light metal or similar light materials. To date steel has proved to be best.

A combination of steel and laminated plastic yields a pleasant shape, the ankle joint being enclosed in the mould of the foot piece. Progress in the use of modern materials allows us to hope for even better solutions. (Fig. 5, 6, 7)

It is not always necessary to limit ankle joint movements dorsally since it happens frequently especially in poliomyelitis that the ankle joint—as a residual of the illness— has a natural buffer or that it was produced by a surgical measure—arthrodesis. Such an operation allows a simpler and lighter construction of the appliance.

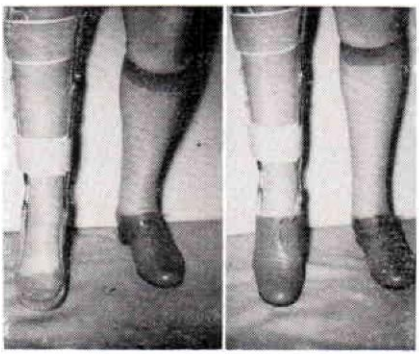


Fig. 7

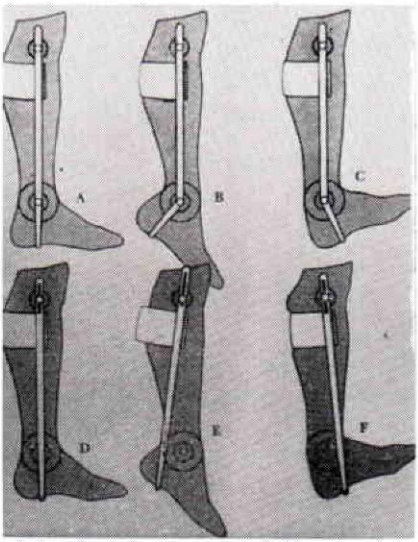


Fig. 8. This picture quite clearly shows the disadvantages of the rotation point provided on the shoe. There are shifts in vertical and horizontal directions.

In Germany, too, the principle of the shoe caliper is applied. This method however, as we know, has its advantages and disadvantages. (Fig. 8)

In deformities of the foot, e.g. paralytic club foot, an embracing mould of the sole made of plastic or leather with a correspondingly constructed metal sole permits a better correction of the foot. The walking-shoe does not permit individual correction of the foot, nor is the shoe-caliper suitable for dorsal ankle joint fixation. On the other hand there are numerous cases for which the caliper is the simplest and most adequate solution.

In many cases it is necessary to fix the knee joint of an appliance for paralysis by a lock. By an ingenious arrangement of the joints of the appliance the knee joint can be secured even without fixation. If the freely moveable ankle joints of the appliance are placed extremely forward and the fulcrum of the knee joint extremely backward, it may be possible to do without a knee joint lock, especially in a case of partial paralysis of the leg muscles. For this case we have special brace designs in light metal which have proved very efficient. There is a great difference to the poliomyelitis patient whether he can walk with an appliance with a stiff knee or with one with a freely moveable knee joint. (Fig. 9)

The extending effect can be aided by elastic traction at the knee or by special springs. The main problem in all these measures is the accurate knowledge of the degree of the paralysis; in our observations only general

guiding principles can be stated. Before the manufacture of an appliance for paralysis the orthopaedic technician, however, should always ask for accurate information from the physician in charge as to the muscle condition of the patient, and in collaboration with the physician discuss the extent of the mechanical aids.

All brace joints have the disadvantage that the mechanical stop—with ankle joint braces for dorsal fixation, with knee joints for limiting the extension—lies before and behind respectively the joint axis. The joint pin is wrongly stressed from a mechanical viewpoint. Shearing stress develops, leading after a short period to premature wear and defect respectively of the mechanical joint and joint pin. The arrangement of two joint stops lying opposite one another is much more favorable, the shearing stress being completely eliminated. (Fig. 10)

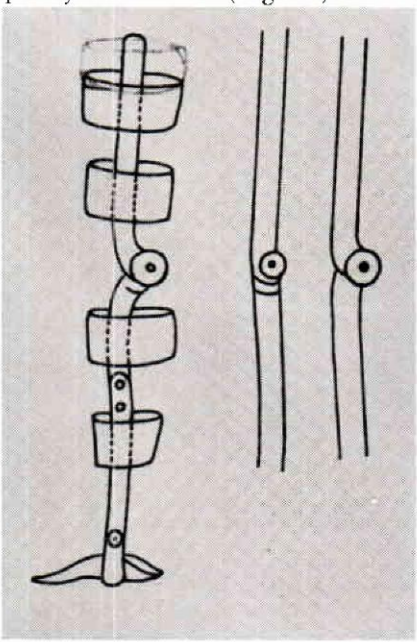


Fig. 9. Increased knee-security often sufficient in the case of partial paralysis is achieved by arranging the rotation point of the ankle-joint far to the front and by the rearward location of the rotation point of the knee-joint.

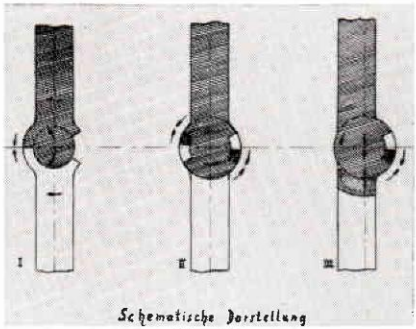


Fig. 10

In which cases the appliances should be constructed with lacers or with cuffs is a question to which there is no general answer. A combination of lacers and cuffs has proved very satisfactory. So far as I was able to ascertain, this method is also used in the United States. In the case of loss of the knee extensors accompanying a flexion contracture of the knee joint a calf cuff for the leg is insufficient. A short lacer for the leg, extending with its proximal border close to the knee joint space is preferable in such cases. (Fig. 11, 12, 13, 14)

In conclusion of my considerations on appliances for paralysis I would like briefly to discuss the indication for ischial bearing. For the paralyzed the preservation of the feeling of being in touch with the ground is valuable, he should not be deprived of it, since otherwise he feels insecure. Only in special cases, therefore, should use be made of ischial bearing tuber mount. Unfortunately there are many cases with a marked tendency towards flexion of the knee joint. In this case a short thigh lacer with ischial seat is indicated in order to diminish the thrusting force in the flexed position of the knee. In most cases a support is sufficient. The feeling of being in touch with the ground must be preserved in the patient. The band reaches approximately to the middle of the thigh and should be closed in front i.e. no lacing. Only a closed band guarantees an accurate ischial seat. It should, however, be

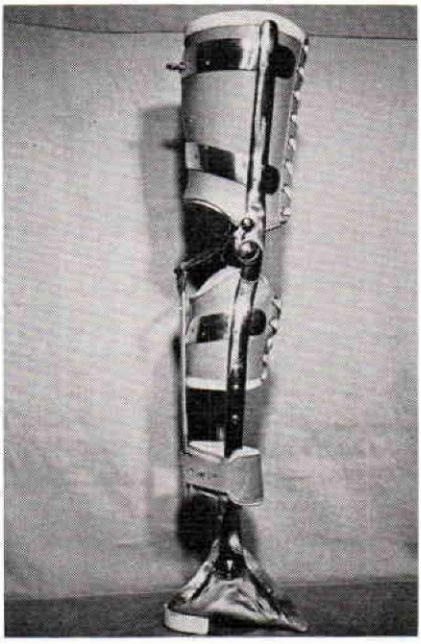


Fig. 11. Appliance with light metal splints, dorsally stopped ankle-joint, knee lock and short lower-leg cuff.

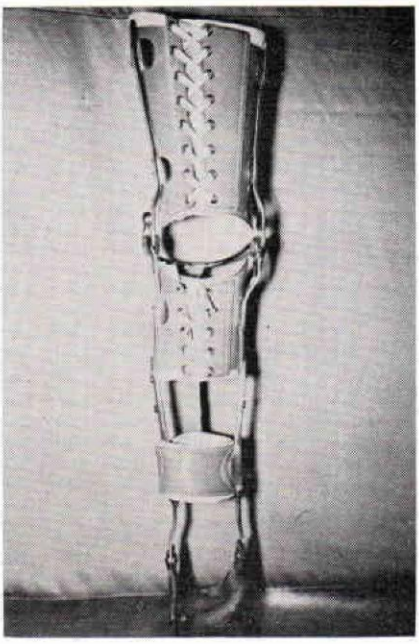


Fig. 12. The same appliance in front view, the lacers being made of leather.

taken into consideration that the ischial tuberosity lies behind the horizontal hip axis and the connecting line of both hip joint centers respectively, around which the forward and backward bending (flexion and extension) of the pelvis takes place. Consequently the pelvis supported at the ischial tuberosity will tilt forward, producing hip flexion, the consequence of which being a compensatory lordosis of the lower spine. The problem cases for which an ischial seat should be prescribed must, therefore, be answered individually and always require careful consideration.

It is not possible to demonstrate all the possible variations of the technique of appliances in the short time available. I think it is important to find the best possible appliance for each patient, in order to make him capable of carrying out his occupation with only minimum mechanical aids.

I shall say only little about providing appliances in disorders of the hip joint. In coxitis a reinforced partial mould is supplied in the recuperative phase which, above all, takes the weight from the hip joint, i.e. with ischial seat and dorsally fixed ankle joint. For immobilizing the hip joint a pelvic girdle fitting closely to the iliac crests, is attached to the appliance without a hip joint. The knee joint, too, is fixed rigidly at first, to be unlocked for movement only if recovery is satisfactory. All other disorders of the hip joint such as Perthes and epiphysiolisis yield excellent results with the *Thomas-splint.* This splint guarantees excellent relief of the weight from the hip joint and its simple construction and firmness renders it especially suitable for the young.

As an ischial ring we use about an 8-mm thick steel wire fitted individually to each patient. The ischial seat is enlarged by a suitably formed plate welded on to it. The ring is lined with foam rubber and leather and is thus well tolerated by the patients if the fitting is correct. (Fig. 15, 16)

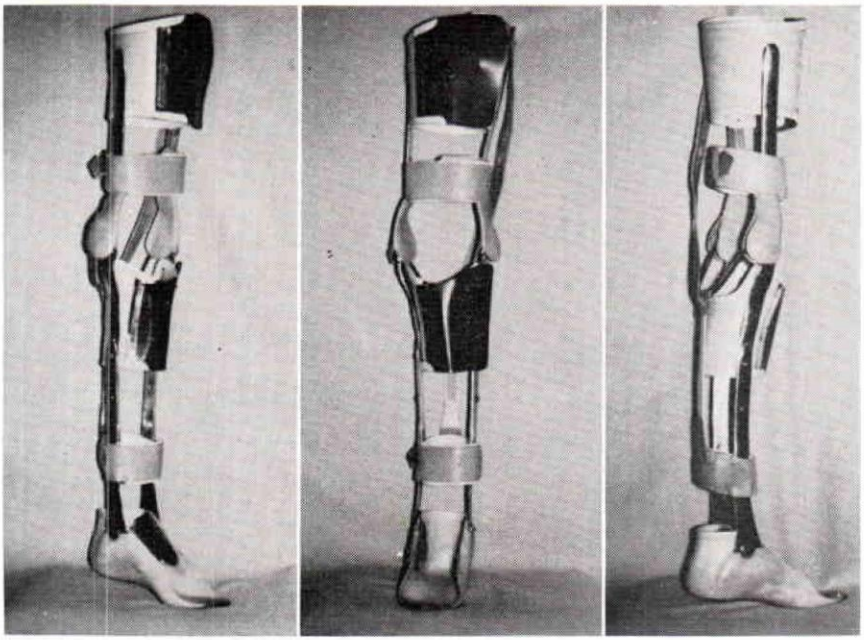


Fig. 13. Paralysis appliance with light-metal joints, foot plate and leg lacers are made of synthetic material. The lacers are fastened with synthetic flaps which are secured on studs.

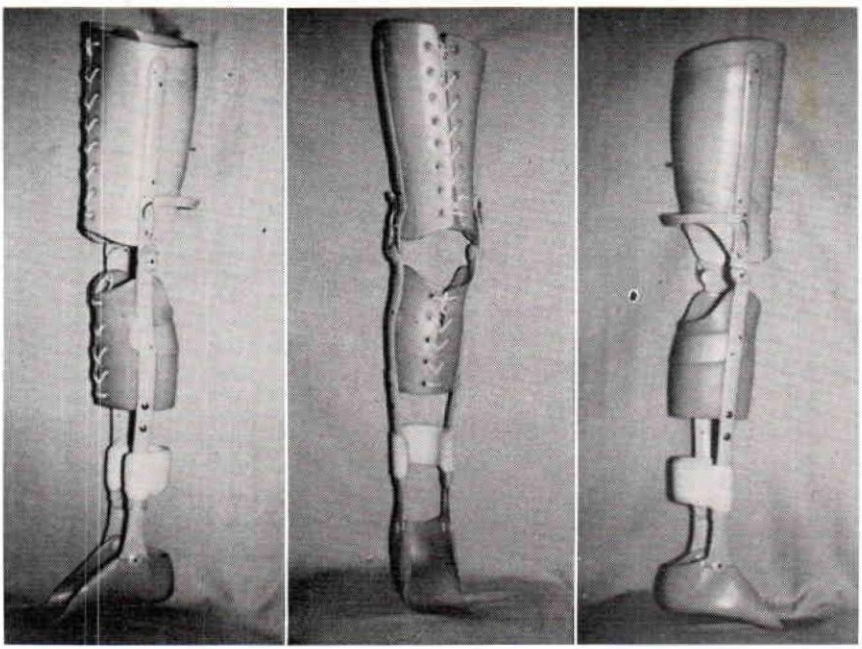


Fig. 14. Paralysis appliance with lacers and cuffs. In sitting the knee-joint lock is automatically released by this U-shaped piece.

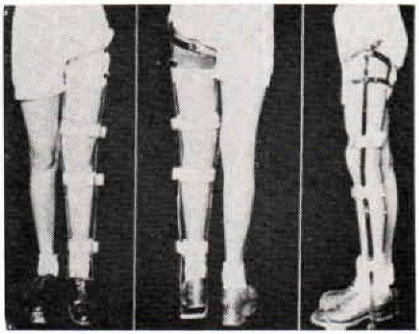


Fig. 15. Thomas-splint with short thigh cuff. This construction is in common use.

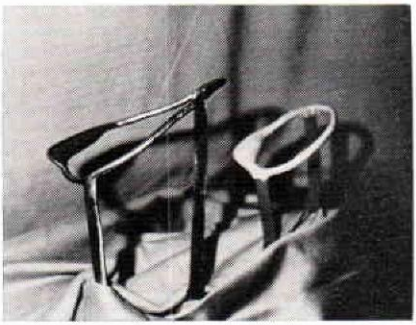


Fig. 16. Instead of the short thigh cuff, here an ischial ring only is made of wire which is widened by a plate at the tuberosity. In manufacturing the ring and seat are cushioned with foam rubber and coated with soft leather.

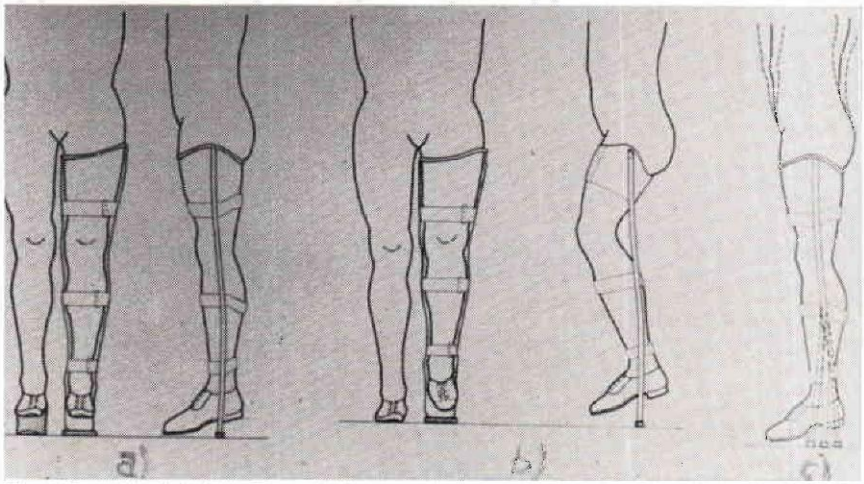


Fig. 17. a. Usual design. Through the extension, compensation by shoe is required on the sound side.
b. In this design the leg is in angled position in the splint. Shoe compensation not required.
c. The position of the tread surface may also influence the position of the pelvis. If the tread point of the splint is lying far to the front, a compensatory pelvic tilting in forward direction will take place. If the tread point of the splint is located to the back, there will be an erection of the pelvis.

In another construction the leg hangs in a flexed position in the splint; this avoids compensation in the shoe of the healthy side. (Fig. 17)

In exceptional cases the *Thomas-splint* is also used in old people, e.g. when a fracture of the thigh needs quick action. This splint may have an additional knee joint which can be fixed, also a simple pelvic girdle. Because of its numerous possibilities of variations the splint can be universally utilized.

For stiffening of the hip and for fixing residual loose movements the hip spica made of moulded resin is the most suitable. A good plaster model is a prerequisite for this, since after it is finished no major alterations are feasible. Laminated resin on account of its firmness and because it is light and hygienic is the most suitable.

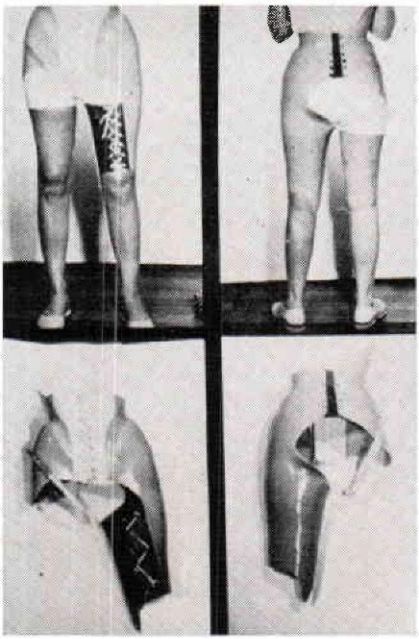


Fig. 18. This sleeve made of synthetic material encloses pelvis and thigh, it extends medially to the knee, and on the opposite side far up on the hip to ensure precise fixation with simultaneous abduction position. At the back a flexible part is cast into the pelvic portion. This renders the tightening of the hip part easier. At the front it is fastened on the pelvis and thigh by means of laces. The perineal strap is also important.

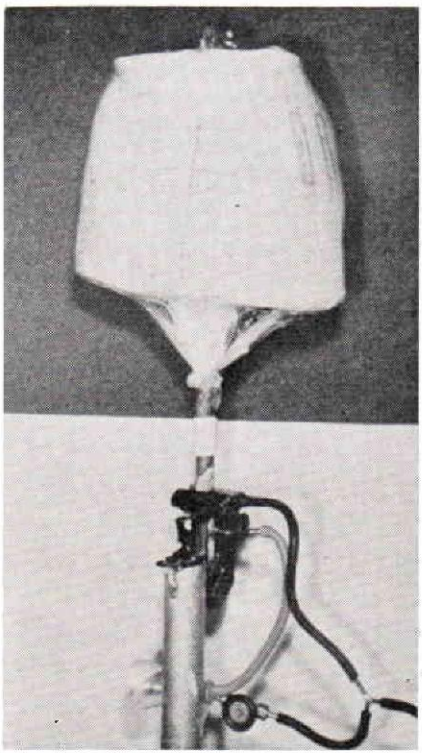


Fig. 19. Manufacture of the hip spica. On the parting film the metal parts which will be cast in later on are indicated.

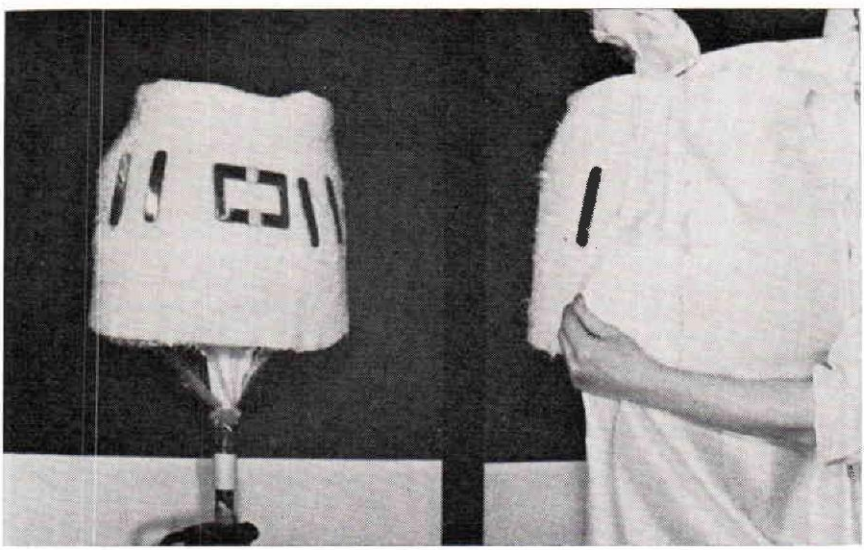


Fig. 20. The metal parts are put into the glass fiber mat and the cloth layers are applied over it.

For adequate fixation of the hip joint against any movements it is necessary that the entire pelvis be enclosed by the spica and above all that the iliac crests are specially modelled. The part for the thigh should reach to the knee, however, it must not restrict the flexion of the knee, since a free knee function is of greatest importance for compensating a stiffened hip. (Fig. 18, 19, 20, 21)

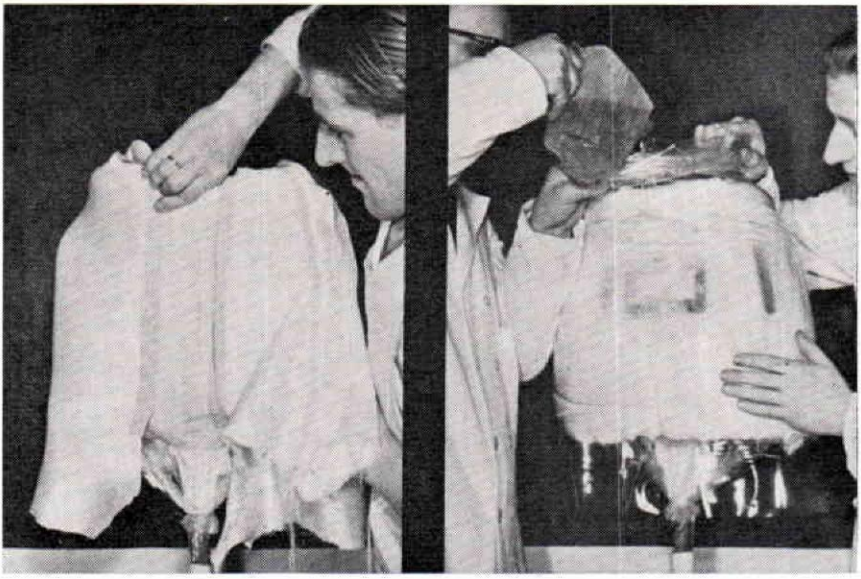


Fig. 21. After having made the final preparations, laminating can be started.

The mechanical appliance for chronic deforming arthrosis of the hip is much more difficult. This is a degenerative change in the joint with atrophy of the cartilage, constriction of the articular space, with atrophy of the joint capsule, as well as a faulty posture of the hip joint in the sense of hip flexion and hip adduction contraction. These morbid changes in the hip joint cause considerable discomfort, often with marked pain when weight bearing. The patient in this case walks with the hip joint rotated outwardly and holds the leg in an adducted position. This faulty posture of the leg induces at the same time statically conditioned muscle pain. (Fig. 22)

For this syndrome Prof. Hohmann has recommended a brace which, although it cannot cure the disorder, when properly applied considerably reduces the discomfort. The function of the hip joint brace consists in mechanical control of the movements in the hip joint, it corrects as far as this is still possible, adduction, flexed position, and outward rotation of the hip joint. At the very least however, it counteracts these faulty postures and prevents deterioration.

The brace consists of a pelvic ring, enclosing the pelvis from behind and extending anteriorly to include the anterior superior iliac spines. This ring is built-in in a modfied corset. A leg brace wth hip joint extends laterally along the thigh up to above the hip joint enclosing there, by a well-fitted pad, the femoral head including its medial portion. This construction permits an influence on the outward rotation of the leg and counteracts adduction. A new model permits constant abduction by a spring action at the hip fulcrum. (Fig. 23, 24, 25)

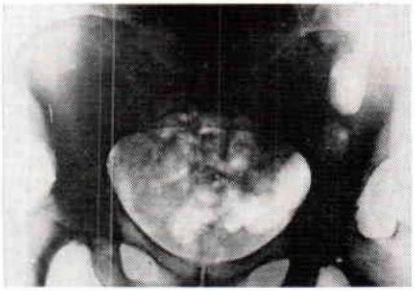


Fig. 22. X-ray picture of an iliac arthrosis. The degenerative changes of femur-head and socket of the hip-joint are clearly shown. The narrowing of the joint-gap and the jagged protuberances at the socket rim and femur-head and the mushroom changes of the head restrict the mobility of the joint and cause serious pain in walking.

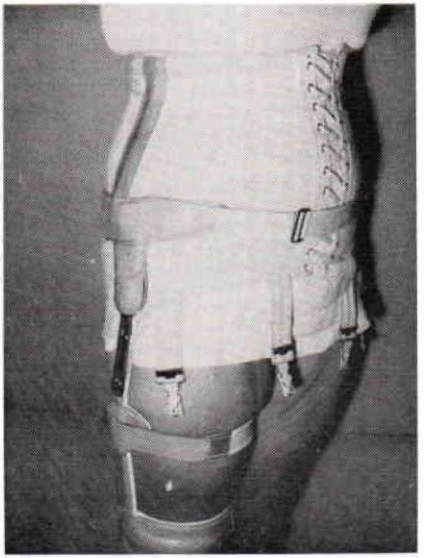


Fig. 23. This picture shows the hip-joint brace according to Prof. Hohmann. Corset and thigh brace must fit well.

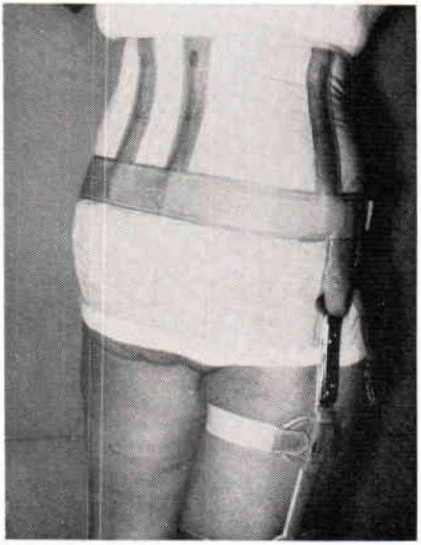


Fig. 24. Back view of the same brace. The cloth corset extends far down to give good support to the pelvis and thus to the hip as well.

In addition, the hip flexion position can be counteracted by a gluteus-extension pull strap also designed by Prof. Hohmann. This strap liberates hip extension, and prevents hip flexion according to its adjustment. The fulcrum of the brace joint is placed behind the hip fulcrum so that during extension a releasing and extending action respectively is exerted on the hip joint.

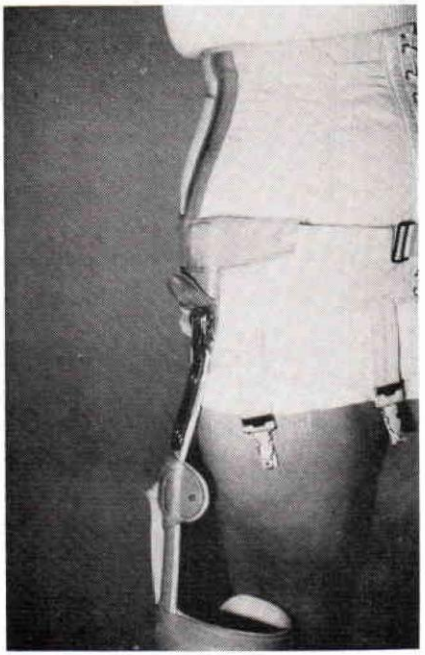


Fig. 25. The spring at the rotation point of the hip makes a constant abduction effect possible, thus favourably influencing the tilting of the leg towards the position of abduction.

The mechanical care of scolioses, critically assessed, appears to be as problematic as the purely medical treatment. True success can only be obtained in the initial scoliotic changes in posture, i.e. thus by early treatment. Once growth changes at the individual vertebrae have occurred, all there is to be done is prevent deterioration. Especially in puberty, in the course of a period of rapid growth a greater pressure is exerted on the concave portion of the vertebral body, causing the growth of the side of the vertebral body under higher pressure to stop. This results in progressive oblique growth. There is a true chance in the treatment when a scoliotic position in the initial stage can be brought to a posture opposite to the pathological curvature by physiotherapy, positioning or other mechanical aids.

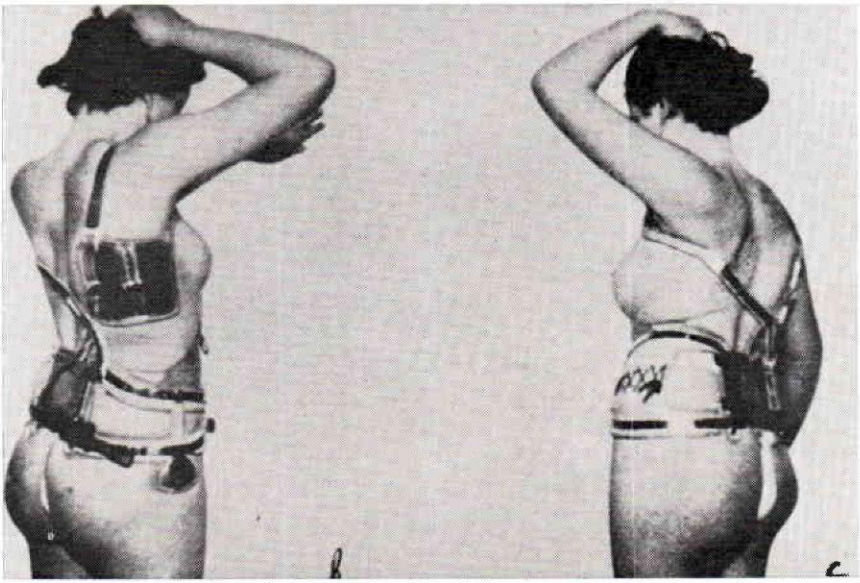


Fig. 26. This corset design is bad. The pelvic portion, above all, is much too short and consequently does not provide any basis for correction of the spine.

Supplying scolioses with adequate corsets can only prevent further deterioration since in most cases the scoliosis is already in the stage of oblique growth. The indication for a scoliosis-corset is consequently very limited. It should only be applied if a controlled improvement of the scoliotic posture can be truly achieved. For the treatment of early scolioses the fixation of the pelvis is the basis of all correcting measures. The pelvis portion, therefore must be shaped according to the scoliosis, i.e. the supporting faces must be adapted to the load pressure. Correction is carried out by the lateral lever and pad pressure respectively inducing the shift of the trunk towards the concavity of the chief curvature. This principle becomes especially effective when the scoliosis is still mobile and hyper-correction can be achieved thereby. Active auto erection via the pad pressure finally induces extensive correction of the chief curvature. It is expedient in many cases to suspend the lever of the pressure pad by firm, dosable elastic traction. The forces arising thereby necessitate in addition the application of a thigh-splint with hip joint for fixing the part of the pelvis. The construction of the active scoliosis-corset is based on considerations initially formulated by Prof. Schede, since this type of corset is used in the most varied forms.

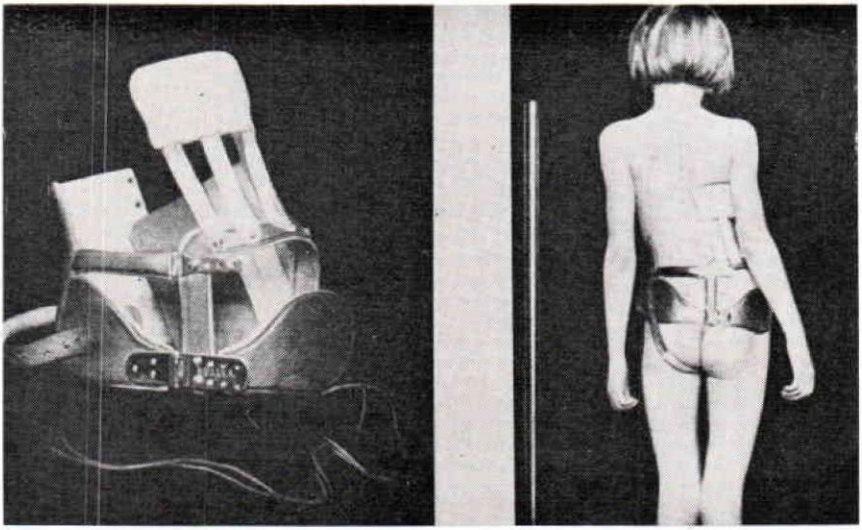


Fig. 27. This picture illustrates the active scoliosis corset. It is a right convex scoliosis which is overcorrected by the pressure pad. To maintain the balance, the patient actively raises himself above the vertical point of curvature.

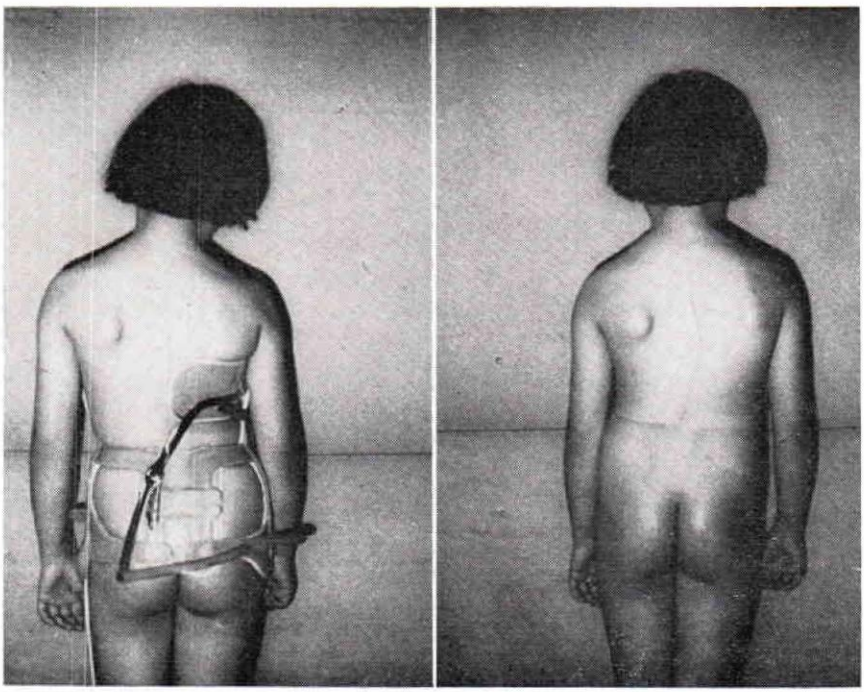


Fig. 28. A lever corset as it is now frequently used. Important is the correct location of the turning point for the lever. The leg splint is absolutely necessary for fixing the pelvic portion.

As mentioned earlier, this method is only suitable for still mobile scolioses in the young where there is a chance of correcting them. Naturally energetic physiotherapy should be carried out simultaneously. (Fig. 26, 27, 28, 29, 30, 31)

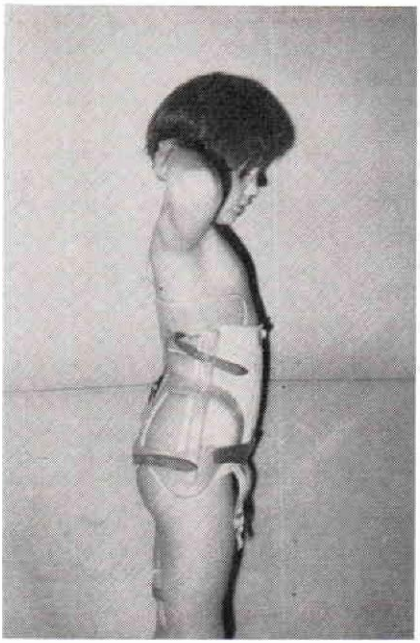


Fig. 29. The side view illustrates the extension of the pelvic portion over the trochanter major to avoid a sliding of the corset on the scoliotic side.

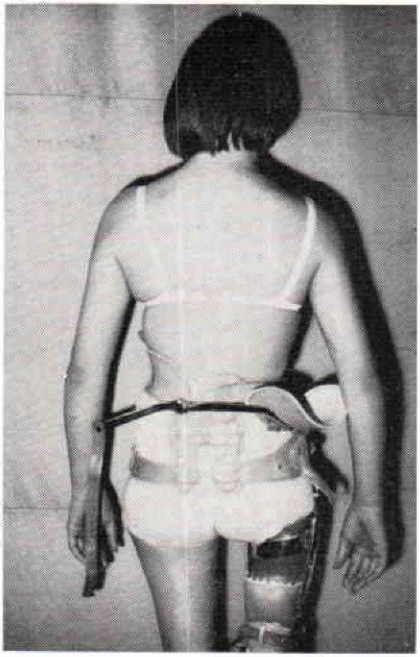
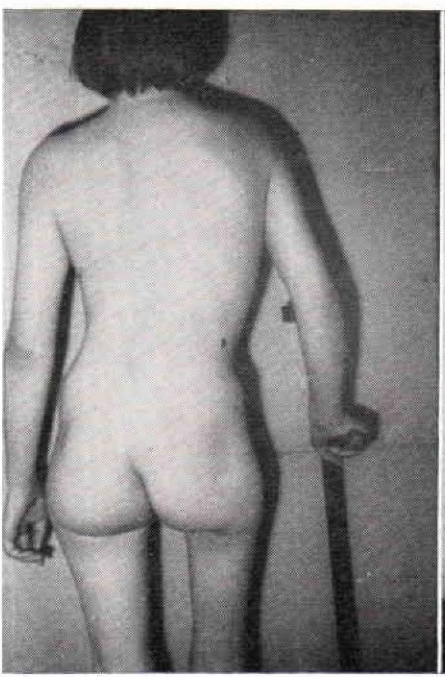


Fig. 31. The lever is swung down; very clear is the shifting of the spine into the right convex curvature.



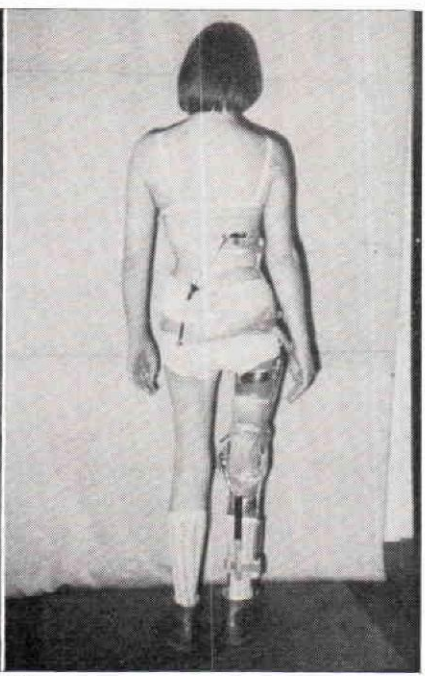


Fig. 30. Scoliosis with overhanging tendency. The leg brace is superfluous, as the corset is connected with an appliance.

The surgical stiffening of the spine, also recently adopted increasingly in Germany, is a new method of treatment, partly requiring preparation by corsets with extension. I assume that these are so well known in this country that I do not intend going into details. I would like only to mention the *Milwaukee*-brace which is used in similar form in Germany. The future will show whether surgical stiffening of the spine in the intervertebral joints will improve the lot of scoliotics.

Other morbid changes of the spine, as e.g. osteochondrosis, spondylosis, spondylarthrosis or spondylosisthesis, induce the specialist to prescribe adequate corsets. We know of a great number of more or less effective types of corsets. I, therefore, do not think it timely to discuss in detail the constructions commonly used in Germany. This alone would supply material for a discussion. As a specially good construction I would, however, designate the *Williams*-corset which is particularly suitable in cases in which the tilting of the pelvis should be raised mechanically and simultaneously increased lumbar lordosis reduced. For this the *Williams*-corset is most suitable and I use it frequently and always successfully. (Fig. 32, 33)

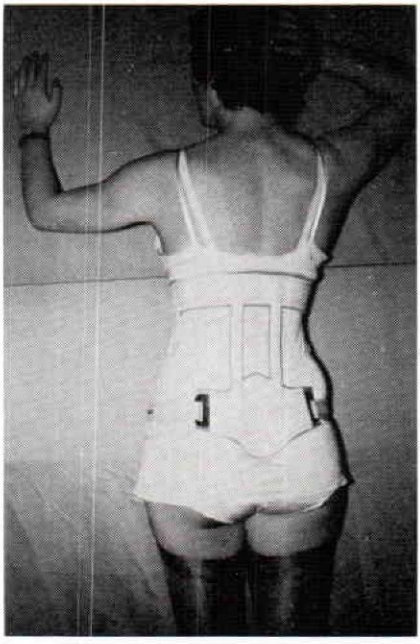


Fig. 32

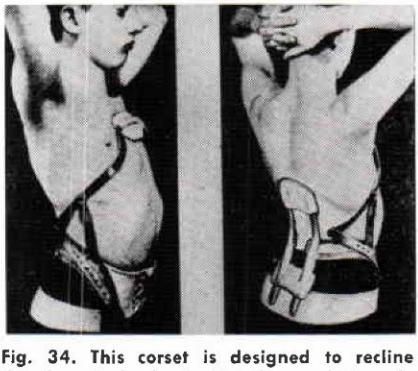


Fig. 34. This corset is designed to recline the thoracic kyphosis. But the result is only a reclination of the upper part of the body, which is compensated by an increased lumbar lordosis.

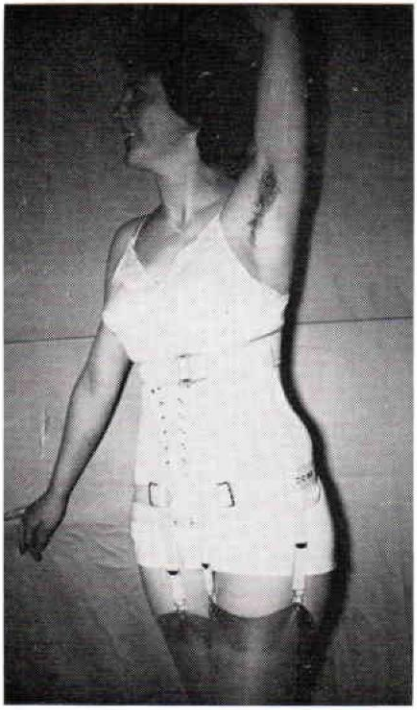


Fig. 33

For the treatment of Kyphoses of adolescents there are also a number of types of corsets aiming mainly at straightening thoracic kyphosis. It is frequently overlooked though that this apparent reclination of the thoracic kyphosis actually induces an increase of the excessive lumbar lordosis already present. (Fig. 34)

In the treatment of kyphosis in adolescents care therefore should be taken that only after raising the pelvis and fixing it in this position reclination of the thoracic kyphosis is performed. The corset designed by Prof. Hepp is very effective. Laterally above the iliac crests joints are mounted allowing the pelvis when sitting down to tip backwards, the lumbar spine being expanded. In the upright position buffers at these joints prevent lordosis of the lumbar spine, the pressure on the anterior reclination-pads being thereby increased, since a backward deflection of the thoracic spine in the sense of a kyphosis is prevented by a strong elastic strap. (Fig. 35, 36)

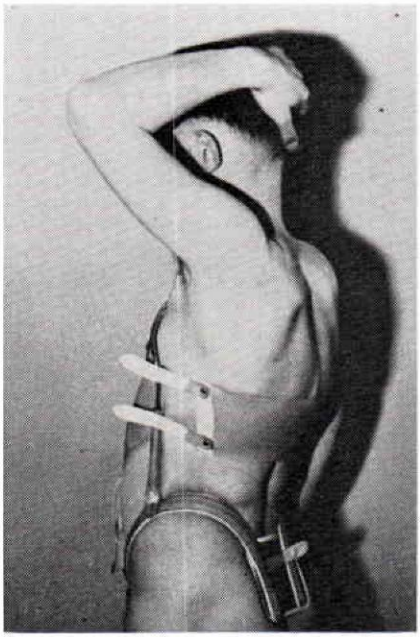


Fig. 35. Reclination corset as designed by Prof. Hepp. Real reclination of the thoracic kyphosis is accomplished and the lumbar lordosis is reduced at the same time.

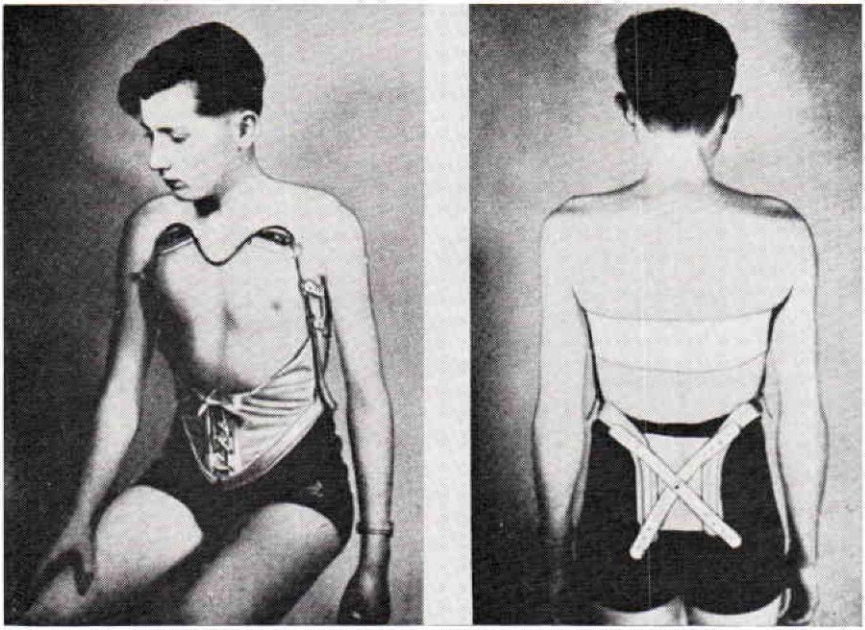


Fig. 36. The joint at the crest of ilium facilitates the sitting with the corset; the pelvis can be tilted to the back and thus reduces the lumbar lordosis, but the reclination of the thoracic kyphosis is increased. It is a very efficient design.

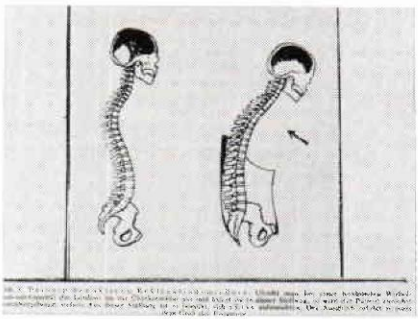


Fig. 37. Schematic illustration of an increased thoracic kyphosis with compensatory lumbar lordosis.

Fig. 38. In this posture the plaster corset is applied. Complete compensation of lumbar lordosis.

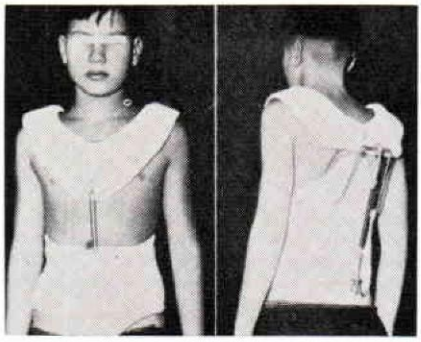


Fig. 39. Reclination plaster corset.

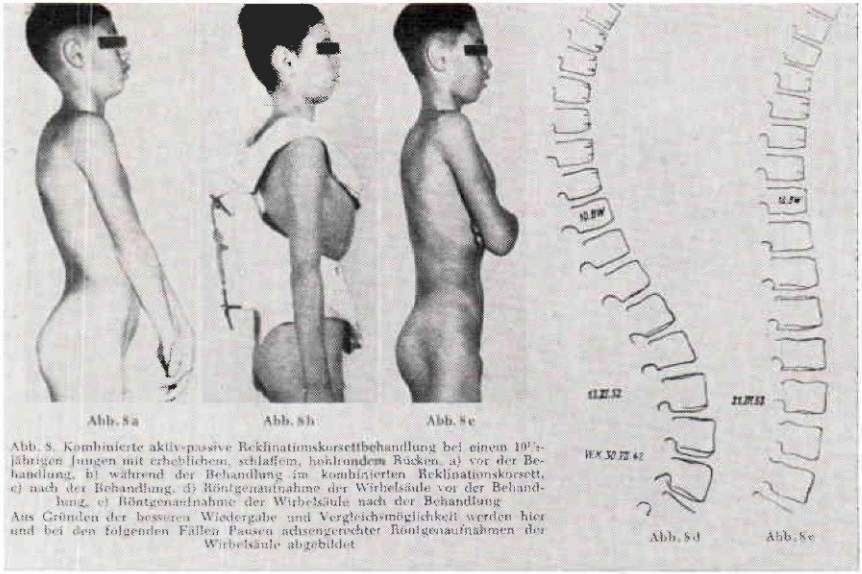


Abb. 8. Kombinierte aktiv-passive Reklinationskorsettbehandlung bei einem 10½jährigen Jungen mit erheblichem, schlaffem, hohlrundem Rücken. a) vor der Behandlung, b) während der Behandlung im kombinierten Reklinationskorsett, c) nach der Behandlung, d) Röntgenaufnahme der Wirbelsäule vor der Behandlung, e) Röntgenaufnahme der Wirbelsäule nach der Behandlung
Aus Gründen der besseren Wiedergabe und Vergleichsmöglichkeit werden hier und bei den folgenden Fällen Pausen aufgerichteter Röntgenaufnahmen der Wirbelsäule abgebildet

Fig. 40. These three pictures give an example before the treatment, with reclination plaster corset, and finally the success of the treatment. On the right X-ray films show the spine before and after treatment.

Another method of treatment according to Dr. Curt Becker, initially mostly by clinical treatment, the lumbar lordosis is extensively kyphosed by a plaster corset. At first the patient is standing in a forward-leaning position according to the degree and the fixation of his thoracic spine-kyphosis, from which he tries to raise himself actively. If the actively raising forces are insufficient despite breathing exercises and general physiotherapeutic treatment of the back, a horse-collar is placed over the shoulder girdle which assists by backward traction in a horizontal direction the active raising of the thoracic kyphosis. In order to maintain the success of treatment an orthopaedic corset is applied for some time; this, however, is confined to the raising of the lumbar lordosis compelling the patient by this position to active reclination of the thoracic kyphosis. (Fig. 37, 38, 39, 40, 41)

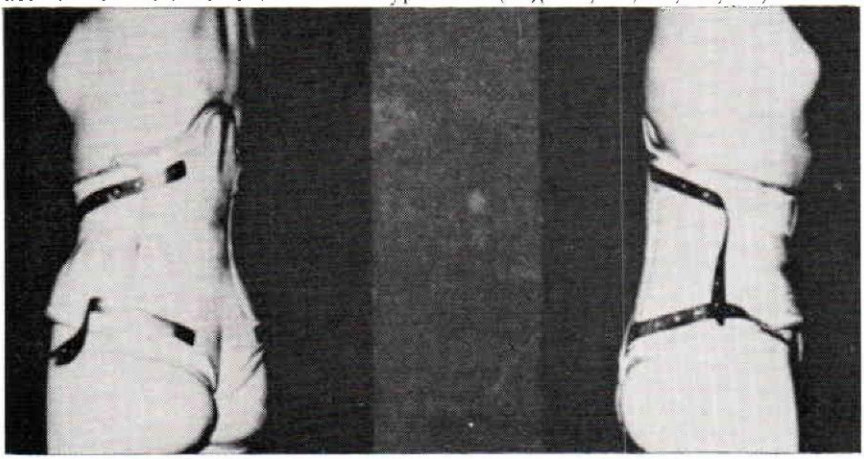


Fig. 41. The orthopedic corset which is still applied for some time in order to ensure successful treatment.

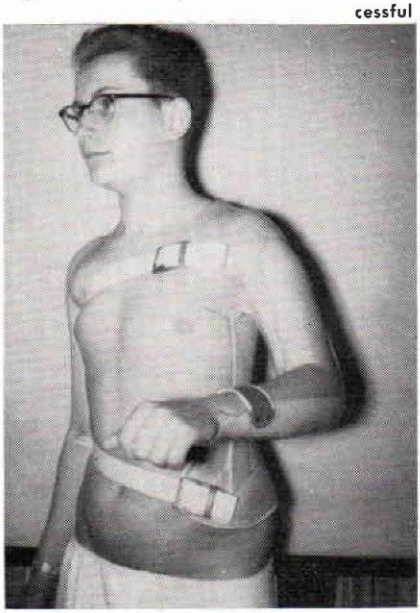


Fig. 42

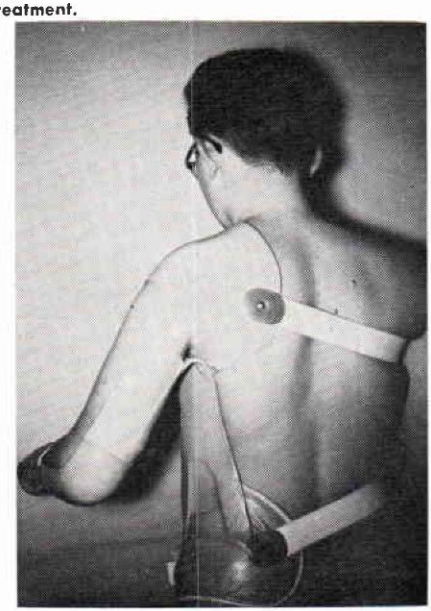


Fig. 43. The specific gravity of the arm causes good support at the iliac crest.

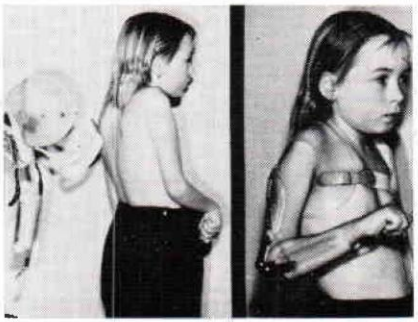


Fig. 44. In the arm splint the elbow-joint can be moved by shoulder traction.

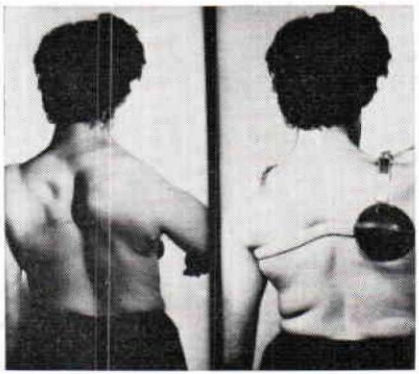


Fig. 46. Serratus bandage. By means of this bandage the shoulder-blade is kept to the rib-cage. The arm can now be raised above the horizontal line.

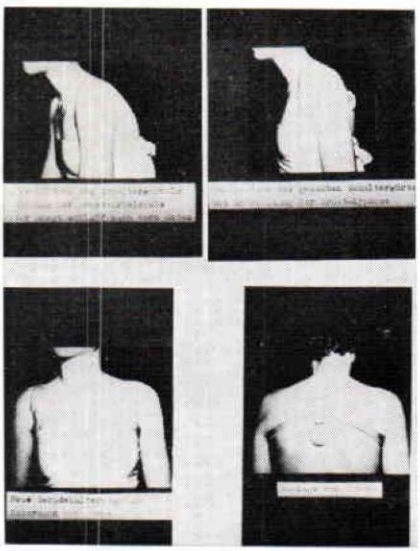


Fig. 48. Posture of shoulder girdle with and without bandage.

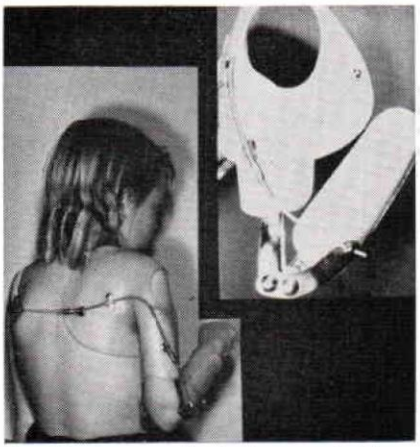


Fig. 45. As a result of the extended lever arm at the elbow-joint the force of the shoulder traction is very great.

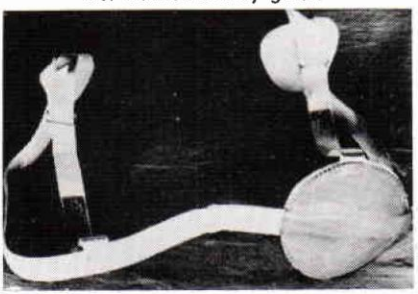


Fig. 47. The bandage alone. It is best to manufacture it from a plaster model.

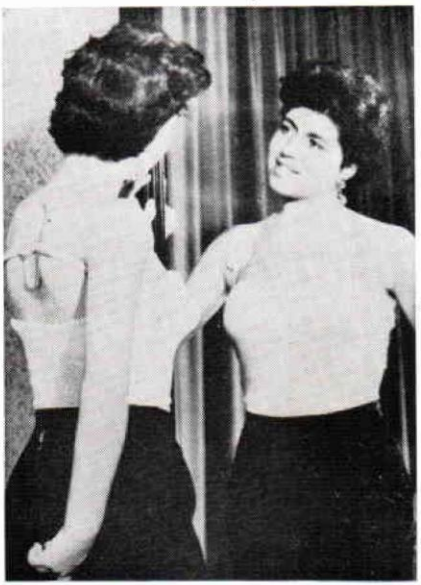


Fig. 49

For positioning braces of the upper extremities the plastic-laminate method is suitable. Splints for resting the arm, e.g. made of plastic; are very light and cosmetically favourable, since they can be worn under the clothing. They are supported by attaching them to the iliac crest. Two to three straps are then sufficient for fastening them to the body. (Fig. 42, 43)

With the aid of an arm harnessing, similar to those used in arm prostheses it is possible, for instance, to reduce the extent of an arm-paralysis. (Fig. 44, 45)

In the case of paralysis of the serratus muscle the arm cannot be raised above the horizontal line and the scapula (shoulder blade), in the attempt of lifting the arm, deviates, especially with its medial portion, from the trunk. With the aid of a simple bandage the deviation of the scapula from the trunk when the arm is lifted can be avoided and allows at the same time raising the arm above the horizontal line. Apart from the advantage of improved function the damaged muscle is thereby protected from hyperextension which is important for the recovery from the muscle damage. (Fig. 46, 47)

Fig. 50. The construction is very simple. But here, too, it is advisable to produce it from a plaster model.

The habitual weakness of posture in juveniles exhibits the picture of the shoulder-girdle hanging downwards anteriorly. The commonly used bandage-supports with shoulder and axila loops respectively are to restricting, especially in the region of the m. pectoralis which is particularly strained in this anomaly of posture by atrophy or shortening.

A new very simple bandage permits satisfactory reclination of the shoulder-girdle by means of a system of pads which especially does not restrict the axillary region including the m. pectoralis. (Fig. 48, 49, 50)

I would also like to demonstrate another bandage. There are many systems of radialis splints in which the hand is held in slight dorsal flexion. The American constructions especially have the advantage of being very effective despite simple finish.

Since often parts of splints are an impediment in the region of the volar palm in grasping with a radialis splint, a splint was constructed which is fixed dorsally, leaving the volar side completely free for grasping. (Fig. 51, 52)

There is one more very effective repositioning splint for the night, for talipes cavus, designed by Prof. Hepp.

The upright calcaneous and the highly bent internal and external longitudinal arch cannot be provided with orthopaedic supports. This defective shape of the foot, however, causes considerable discomfort and impairs ambulation. The talipes cavus lacks the elastic movements of the normal longitudinal arch. The gait resembles walking on stilts.

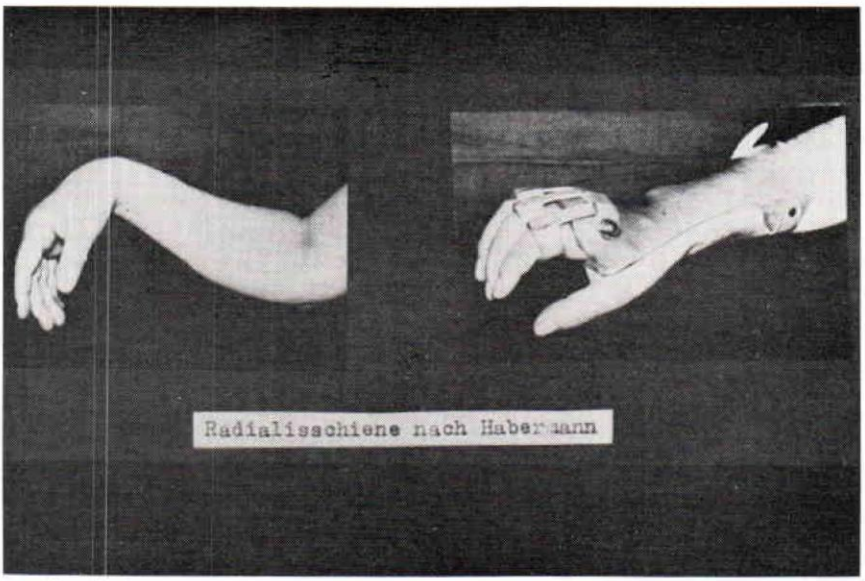


Fig. 51. The dorsal splint is made of Plexiglas (safety-glass), consequently hardly visible.

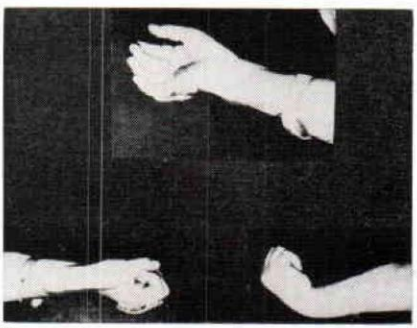


Fig. 52. The splint makes ideal full fist possible, the volar palm is free.

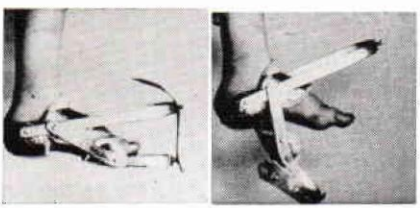


Fig. 53. Through the three pads the pes cavus is extended.

The night-splint, designed by Prof. Hepp aims at extending the front and back of the foot by a 3-pressure pad system. (Fig. 53)

Finally I would like to demonstrate one more brace, used in rupture of the symphysis. A separation of the joint of the symphysis leads secondarily also to a loosening of the sacro-iliacal joints, thereby destroying the stability of the compact pelvis girdle and inducing pain especially in the region of the transition between sacrum and lumbar region. The patient with a rupture of the symphysis has an uncertain, waddling gait. The X-ray picture reveals frequently besides the slit in the symphyseal joint also a shift in the vertical plane. (Fig. 54)

This condition can only be improved by strong pressure from the lateral side to the center. The previously used circular bandages were not ideal, since by the firm circular restriction the soft parts and the hip muscles respectively were compressed and, in addition, the bandages used to slip upwards in the sitting position. The bilateral compression of the trochanter major is very effective, since this is the only way of obtaining direct pressure on the widened symphyseal joint.

The bandage consists of 2 pads, 5 in. long and 2½ in. wide which narrow towards the front and are lined with foam-rubber. The pads enclosing the pelvis laterally are connected behind with a firm spring steel band. This forms a clamp which after applying is fastened in front with an eccentric lever clasp, thereby achieving an effective compression of the gaping symphysis. Immediately after application of the bandage the patient feels an

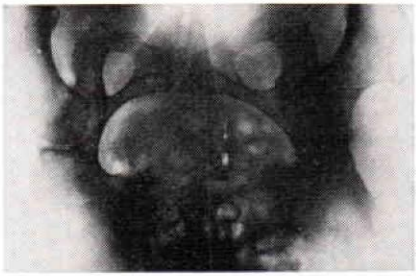


Fig. 54. X-ray picture of symphysis rupture.

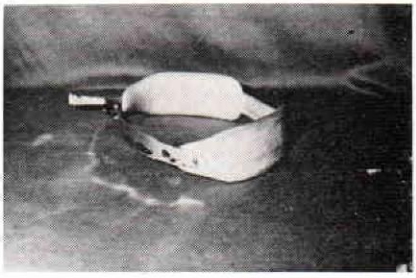


Fig. 56. The side view shows the shape of the pads.

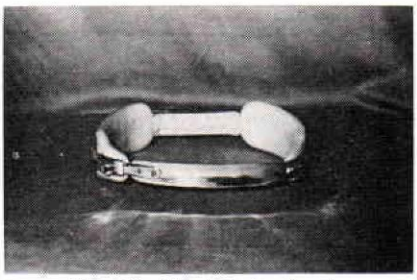


Fig. 57. The lock is closed.

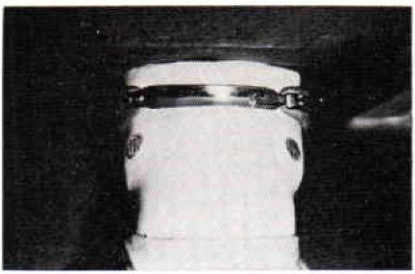
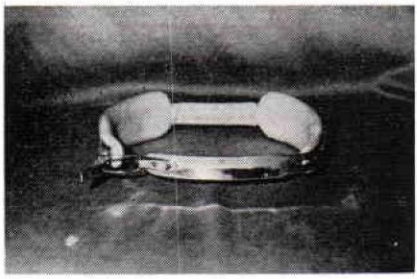


Fig. 58. The bandage is applied on a pelvis for demonstration purposes.



Rig. 55. The bandage with open lever lock.

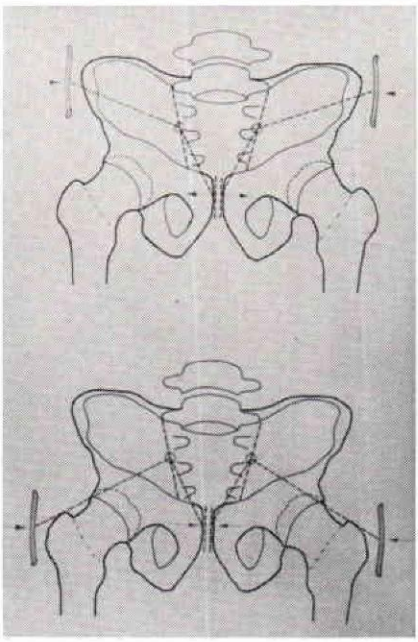


Fig. 59. The lateral pads must not be applied on the iliac crests, otherwise there will be increased gaping of the joint. If applied at a low point, the bandage has its greatest efficiency in terms of compression of the symphysis joint.

improvement in the stabilization of the pelvis and his gait becomes more secure. The symphyseal joint as well as the sacro-iliac joints become more firm. The bandage must not be applied too high at the pelvis since otherwise an opposite effect is induced, i.e. by lateral pressure on the iliac crests the gap in the symphysis is increased. (Fig. 55, 56, 57, 58, 59)

With this I should like to finish my report in the hope that I have succeeded in conveying to you a general survey of clinical-technical orthopaedics in Germany. I have demonstrated to you the most important constructions used in Germany of the individual sections of clinical-technical orthopaedics.

JERRY LEAVY AT TRADE FAIR IN POLAND—Polish Communist Chief, Wladyslaw Gomulka (center front), watches a demonstration of prosthetic devices performed by Jerry Leavy during the U. S. Exhibition at the 30th International Trade Fair, Poznan, Poland, June 11-25. The First Party Secretary was escorted through the American Pavilion by the Assistant U. S. Secretary of Commerce, Hickman Price (right, wearing lapel exhibition badge). Mr. Leavy, Vice President, A. J. Hosmer Corp., Santa Clara, Calif., showed orthopedic appliances and artificial units supplied by seven manufacturers of these products. He appeared at the U. S. Exhibition in Salonika, Greece, last year, and at the request of the U. S. Department of Commerce, he will repeat the demonstrations during the American Exhibition at Zagreb, Yugolsavia, in September.

The Use of the SACH Foot with Children[1]

By ROBERTA BRODSKY[2] and HECTOR W. KAY[3]

In August 1958 the Child Prosthetic Studies of New York University was asked to investigate the applicability of SACH feet to juvenile amputees. Accordingly a study was planned for implementation through twelve specialized child amputee clinics cooperating with the Sub-Committee on Children's Prosthetic Problems. The clinics were located in the following states: Alabama, California, Connecticut, Florida, Georgia, Illinois, Maryland, Michigan, New York, North Carolina and Washington. However, it quickly became apparent that a study comparing this foot with others in common use could not be readily conducted because most of the children in the participating clinics had already been fitted with the SACH foot. Hence, few individuals were available to be transferred from other types of feet to the SACH. In view of this fact, the comparative aspects of the study were abandoned. However, in the past two years so-called "normative" data have been obtained on more than 500 juvenile amputees, including 164 children with lower extremity amputations. These data include information on medical, fitting, checkout and training aspects of the prosthetic treatment program. This report represents experiences and reactions of 129 of these children who were fitted with SACH feet.

It is evident from these data (see Table 1) that SACH feet are being used extensively through the entire age range of the juvenile amputee population. They appear applicable to all types of lower extremity fittings, both unilateral and bilateral.

Of the 158 prostheses with SACH feet fitted to 129 children (including 29 bilaterals), 84 were new prostheses (not more than three months of wear) at the time that data were obtained. The other 74 had been worn for longer periods.

One hundred and forty-three of the 158 SACH feet examined at the clinics participating in the study were reported as being satisfactory in all respects. The defects noted in the remaining 14 feet (see Table 2) did not indicate any major problems in application, function, or durability. Four "new" feet were improperly sized or shaped, and one was not color matched to the shank—both problems readily correctable by the prosthetist. Deficiencies reported in the older feet, i.e., those that had been worn for more than three months, were again primarily matters of shoe fit (6 cases). In these instances, growth of the normal foot and increased shoe size was doubtless the significant contributing factor. In fact, the major consideration emerging from these data was that the SACH foot must be replaced with

[1]This study was performed under Contract No. C-13002 with the New York State Department of Health with funds allocated by the Children's Bureau, Department of Health, Education and Welfare.

[2]Assistant Research Scientist, Child Prosthetic Studies, Research Division, College of Engineering, New York University.

[3]Associate Director, Child Prosthetic Studies, Research Division, College of Engineering, New York University.

TABLE I

FOOT PRESCRIPTION BY AGE AND AMPUTATION TYPE

N = 164

AGE	Unilateral A/K		Bilateral A/K		Unilateral B/K		Bilateral B/K		A/K - B/K		Unilateral H/D		Bilateral H/D	
	SACH Foot	Other*	SACH Foot	Other*	SACH Foot	Other*	SACH Foot	Other*	SACH Foot	Other*	SACH Foot	Other*	SACH Foot	Other*
1	1				4				1		1			
2	3	1	1		9	1			2					
3	3	2				1								
4	2	1			4	1	3		1			1	1	
5	3		2	2	5				1					
6	5	1			7	3	1		1				1	
7	3				4									
8	3		2		3		2							
9		1		1	3	2	1		2			1		
10	4	1	1		7	2							1	
11	4				3			2						
12	3				6	1	2		1					
13	1	2	1		1	1	1			1	1	2		
14	2				3	2				1				
Totals	37	9	7	3	61	14	10	2	9	2	2	4	3	0

*The majority (22 of 34) of the feet other than SACH fitted to the sample were of wood with a two-way ankle. The remaining 12 were of miscellaneous types.

a larger size foot when the patient's shoe becomes excessively large for the foot. Otherwise, the SACH foot bends at the end of the keel and tends to break. Heel wedge wear was reported in two cases (after 16 and 17 months of wear, respectively) and heel delamination in one case (after 30 months of wear).

TABLE 2
SACH FOOT PROBLEMS
N = 14

Case	Length of Wear	Problem	Age of Patient
A	New	Did not fit shoe	2 years
B	New	Did not fit shoe	14½ years
C	New	Did not fit shoe	5½ years
D	New	Did not fit shoe	5 years
E	New	Color of foot does not match shank	14 years
F	21 months	Did not fit shoe	12 years
G	9 months	Did not fit shoe	3½ years
H	22 months	Did not fit shoe	12½ years
I	24 months	Did not fit shoe	6½ years
J	22 months	Toe turned up	8 years
K	6 months	Toe turned up	2 years
L	16 months	Heel wedge wear	14 years
M	17 months	Heel wedge wear	13 years
N	30 months	Heel delaminated	12 years

Gait evaluation data on the children in the study revealed a number of gait deviations which *might* be related to inadequacies in the foot, such as heel wedges which were too hard or too soft, improper keel length or faulty alignment of the foot (Table 3). However, in none of these instances

GAIT DEVIATION AND DEGREE OF DEVIATION

Gait Deviation	Slight	Moderate	Extreme	Possible Causes
Foot Rotation at Heel Contact	14	13	2	Excessively Hard Heel Wedge
Foot Slap	2	1	0	Too Soft a Heel Wedge
Uneven Heel-Toe Transition	7	8	2	Too Long a Keel Faulty Leg or Foot Alignment

was the gait defect specifically related to the SACH foot by clinic personnel who did the examinations.

Summary

1. On the basis of 504 juvenile cases surveyed (up to and including age 15), lower extremity amputees constitute approximately 33 percent of the total child amputee population.

2. Of 164 lower extremity cases, 129 or 78 percent were fitted with the SACH foot. Our data reveals that most clinics prescribe the SACH foot as standard procedure.

3. Of 158 SACH feet examined after periods of wear ranging from one to 30 months, only a small minority (approximately 10%) were regarded as unsatisfactory.

4. SACH foot fittings for child amputees do not appear to pose any special gait or fitting problems. However, replacement of the SACH foot to match changes in shoe size is desirable to avoid bending and possible breakage at the end of the keel.

Conclusion

On the basis of the available evidence, it appears that the SACH foot constitutes a satisfactory fitting technique for juvenile amputees.

New Members of CPRD Named

The Committee on Prosthetics Research and Development of the National Research Council has named four new members who will serve for three years each. The new members are:

Edward W. Snygg, President of the R. E. Huck Company of San Francisco. Mr. Snygg is Chairman of AOPA's Committee on Education and a former member of the American Board for Certification.

Robert L. Bennett, M.D., Medical Director, Georgia Warm Springs Foundation, Warm Springs, Georgia.

Maurice J. Fletcher, Col. MSC, USA, Director, Army Prosthetics Research Laboratory, Walter Reed Army Medical Center, Washington, D. C.

James B. Reswick, Sc.D., Director, Engineering Design Center, and Professor of Mechanical Engineering, Case Institute of Technology, University Circle, Cleveland, Ohio.

Chairman of the Committee on Prosthetics Research and Development is Howard D. Eberhart, Professor of Civil Engineering at the University of California at Berkeley; and Vice Chairman is C. Leslie Mitchell, M.D., Surgeon-in-Charge, Division of Orthopaedic Surgery, Henry Ford Hospital, Detroit, Michigan.

Stride Length Control for Hip Disarticulation Prostheses

By RALPH DeGAETANO, Prosthetist
Limb and Brace Section, VA Prosthetics Center

Prostheses for disarticulation of the hip and amputations through the neck of the femur have for many years routinely used a positive hip lock joint to facilitate functional control. In early 1954 the Prosthetics Service Center of Toronto, Canada, reported the development of a new type of prosthesis for hip disarticulation amputees. This prosthesis was designed to provide adequate stability by clever alignment; stride length control was provided by a properly-located elastic strap. After several fittings at the VAPC it was noted that the stability and control provided were inadequate for unrestricted use, i.e., over rough terrain. An additional or different means of controlling hip stability was required.

In 1955, we developed a spring-loaded stride length control mechanism which permitted a desired amount of motion of the hip joint and prevented over-flexion of the hip (excessive stride length), substituting for the simpler but less effective elastic strap. This aluminum control mechanism can be utilized on types of hip-disarticulation prostheses other than the Canadian.

The characteristics that distinguish this device are:

a. Free motion of hip to desired stride length;

b. May be used on *all* types of hip disarticulation prostheses;

c. Bulk in lateral socket area, as in conventional types, reduced due to location of control;

d. Increase in security with no loss of good gait pattern.

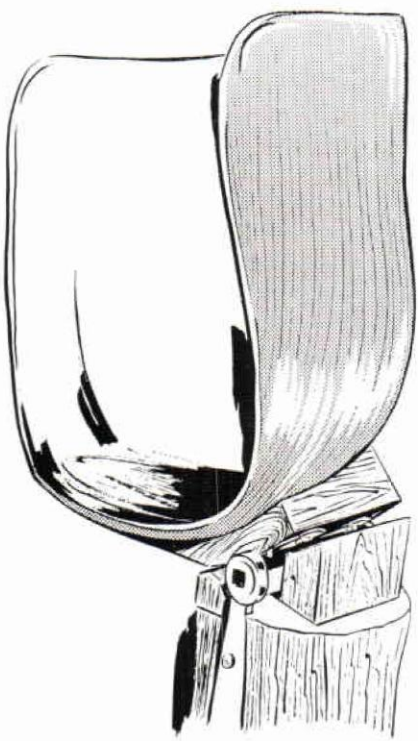


Figure 1. Set-up of socket on thigh piece for dynamic alignment prior to installation of Stride Length Control.

To summarize, the purpose of the control is to provide the required amount of hip flexion for a desired stride length without loss of stability under any circumstances. Its application is universal for hip-disarticulation amputees and, in some cases, for amputees with very short above-knee amputations.

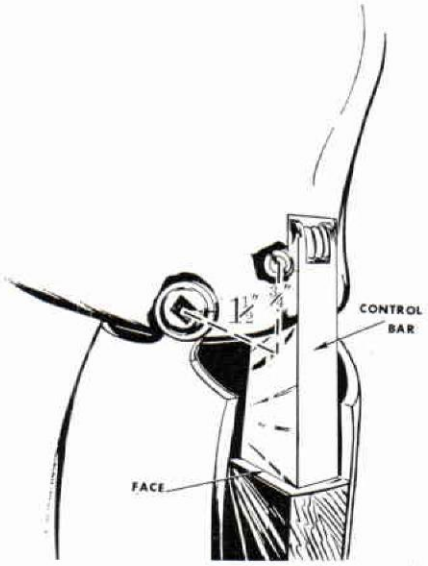


Figure 2. Position of Stride Length Control in prosthesis.

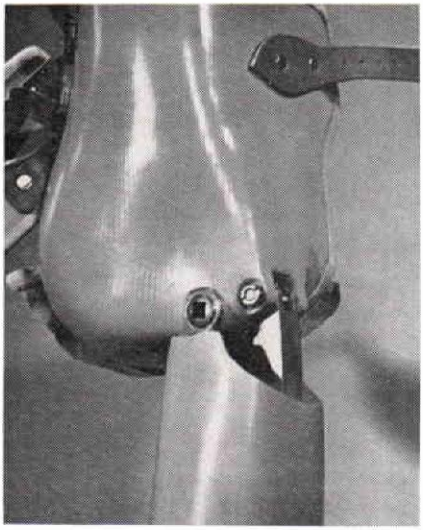


Figure 3. Stride Length Control as installed in finished prosthesis.

Installation of the device is fairly easy. The hip joint is attached to the socket in the usual manner. Placement of the joint is made as far posterior as possible so that, in sitting, the socket, rather than the thigh piece, rests on the chair.

When the prosthesis is prepared for fitting and alignment, a piece of wood is attached to the thigh piece as a temporary stride length control (See Fig. 1). A space is left between the wood block and the socket to permit hip motion. After the fitting is accomplished, a mounting for the stride length control is prepared on the socket. This mounting is located so that the axis of the stride length control is parallel to the axis of the hip bolt joint and approximately 1½" forward of and ¾" above the hip bolt joint (See Fig. 2). Suitable clearance is provided for the control bar so that when it is pushed back or released for sitting, the thigh piece may be flexed upon the socket without interference. The socket is finished in the usual manner but with extra reinforcement in the area of the joint and the stride length control (See Fig. 3). Range of hip motion is controlled by increasing or decreasing the space between the face of the control bar and the thigh piece. Detail drawings and an assembly drawing are shown in Fig. 4.

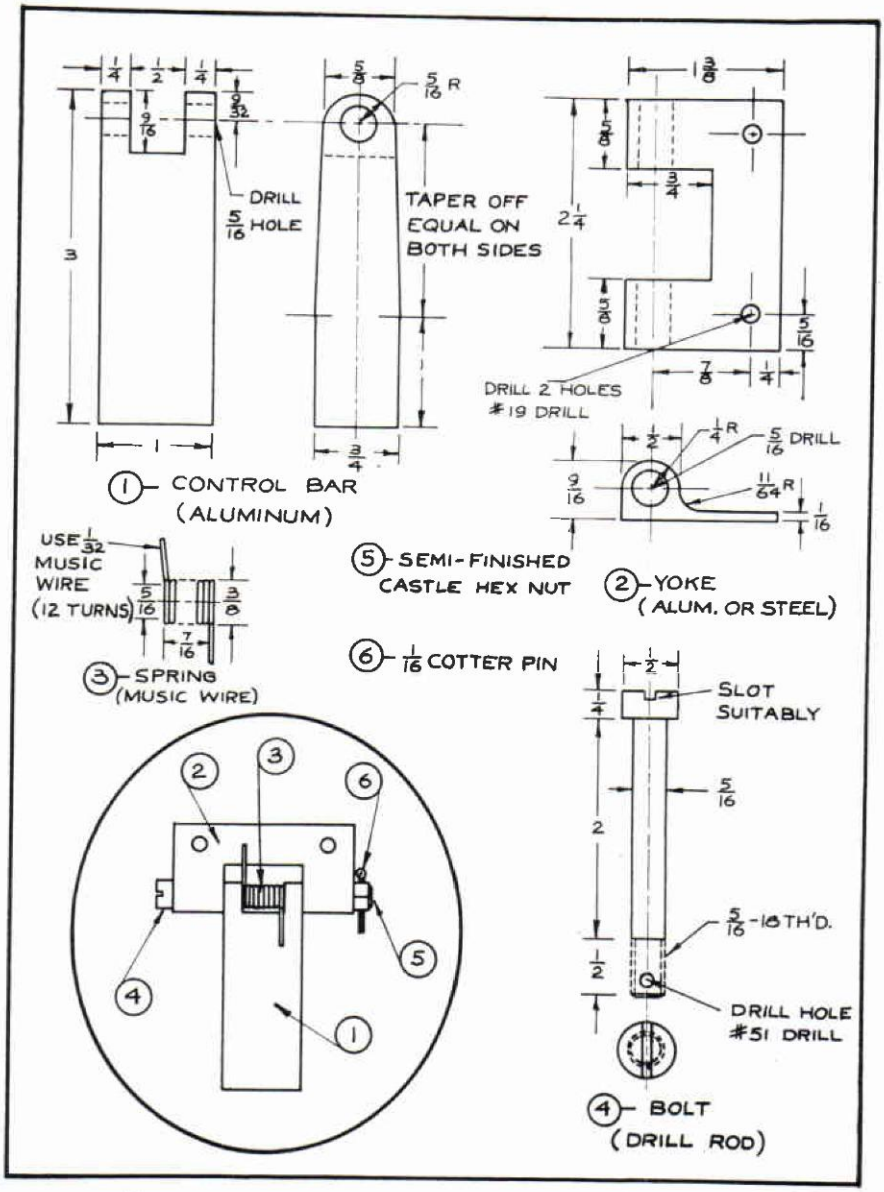


Figure 4. Details and Assembly drawings of Stride Length Control.

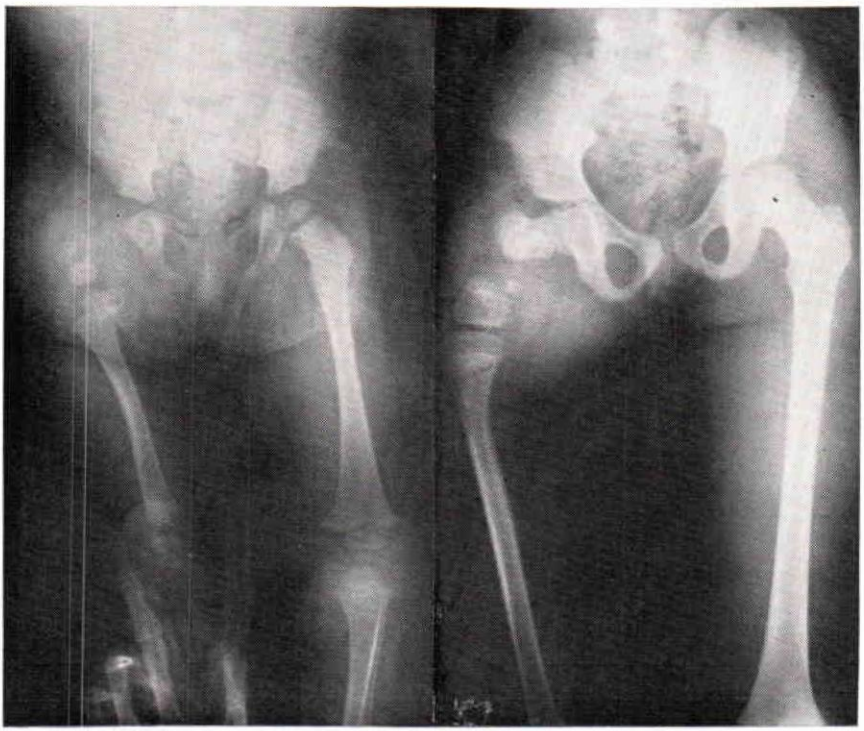
CONGENITAL ABSENCE OF FEMUR AND FIBULA

Report of Two Cases

Reprinted by permission of the author and publisher from Clinical Orthopædics, *Philadelphia, J. B. Lippincott Co., 1959, 15, 203-207.*

By ROBERT B. ACKER, M.D.

Congenital deformities of the leg are multiform, and almost any pattern may be encountered. Total absence of the femur and the fibula is a pattern that is not common. Two cases of this unusual developmental anomaly are reported here.



Figs. 1 and 2, Case 1. Fig. 1 (Left) Roentgenogram of the pelvis and the legs taken at 1 year of age. The fibula is completely absent, and the tibia is smaller than in the normal leg. The ankle and the foot are normal. A center of ossification, above the tibial epiphysis, is the only representation of the absent femur. The tibia does not form a joint with the pelvis. acetabulum shows fair development. (Right) Roentgenogram at 7 years of age. A rudimentary head and neck of the femur have now appeared, developing from a center of ossification that developed after the initial roentgenogram was made (left). The acetabulum is deep and contains the head of the femur. The initial center of ossification above the epiphysis of the tibia has developed into a bone mass that probably represents the condylar area of the femur. It has no definite structure, and there is no connection between the neck of the femur and this bone mass.

Clinical Description

Case 1. A Negro female child first seen at 2 years of age. An otherwise healthy child with a congenital defect of the right leg. Roentgenographic examination disclosed complete absence of the femur and the fibula, the upper end of the tibia occupying a position in proximity to the acetabulum but not forming a joint. There was indication of a fairly well-formed acetabulum. Later, a center of ossification appeared in the hip area, and, as the child grew and bore weight, this center developed into a recognizable head and neck of the femur, the head articulating with the acetabulum and the acetabulum showing more development. The right leg extended as far as the knee of the opposite leg and was movable in all directions but not with the same range as a normal hip. The leg was reasonably stable, there being some lateral thrust when weight was borne. The foot was of normal contour and functioned well.

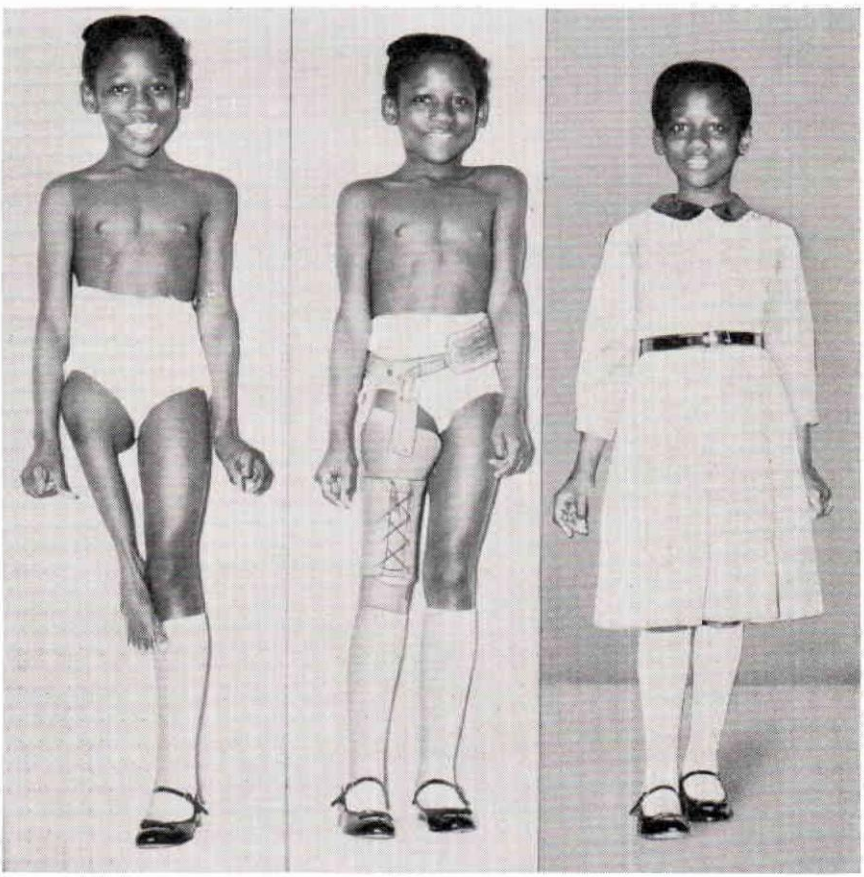
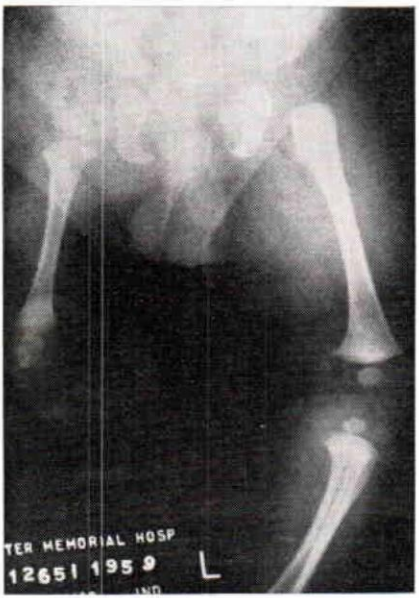


Fig. 2. (Left) Congenital absence of femur and fibula. The deformed leg has a normal foot and ankle joint. It is smaller and less muscular than the lower extremity in the normal leg. Knee and hip joints are absent. Otherwise, the child is well developed and active. (Center) The second type of prosthesis furnished this girl—a well-contoured, nicely fitting apparatus that gives good support. It is tolerated well. (Right) With clothes, the prosthesis is scarcely noticeable. She is a normal, healthy youngster and participates in most activities.

Case 2. A white male child first seen at 3 years of age. An available roentgenogram made when he was 3 months old showed a congenital deformity very similar to that of Case 1. There was a complete absence of the femur and the fibula, the upper end of the tibia being below the acetabulum area and not contacting it. In this case the acetabulum was not developed.

A center of ossification was seen in this early roentgenogram, above the proximal end of the tibia, which center later developed into a segment of bone of no specific contour. There is no direct resemblance of this fragment to femoral condyles or femoral neck, but most likely it represents femoral condyle area. Placement of this bone has a tendency to stabilize the hip area more than before. The foot accompanying this short tibial leg possessed all its components but was a marked clubfoot of the equinovarus type. It became necessary to correct the position by wedging in plaster before the prosthesis could be fitted. The deformed leg was freely movable in all directions, but, as in Case 1, the range of motion was not normal.



Figs. 3 to 5, Case 2. Fig. 3. Roentgenogram made at age of 3 months. The left side appears as the right here. The absence of the femur and the fibula is apparent. The foot is in equinovarus position. The pelvis is very shallow on the deformed side. There is no hip or knee joint.

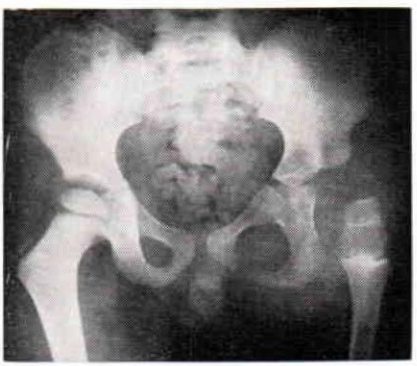


Fig. 4. Roentgenogram at 7 years of age. The left side of the pelvis is not as fully developed as the right side. On the left, the epiphyseal line between the ilium and the pubis and the ischium is open, and the inferior rami of pubis and ischium are not joined. The acetabulum is fairly deep but is not normal in contour. A bone mass has appeared at the upper end of the tibia. It is difficult to evaluate this. It may represent tibial epophysis or condylar area of the femur.

Comments

Before a prosthesis was fitted in these cases, the favorite means of locomotion was by bearing weight on the foot of the short leg and the knee of the normal leg, thus equalizing the weight distribution.

The problem was to supply a suitable prosthesis so designed that sacrifice of any part of the short leg was not necessary, and the foot, a fairly good one, could be used comfortably to assist in weight-bearing and balance. Amputation of the foot, if it seems to be necessary, should be deferred until full skeletal growth has been accomplished. We find the short leg with foot attached to be a very desirable *stump*, free of pressure or

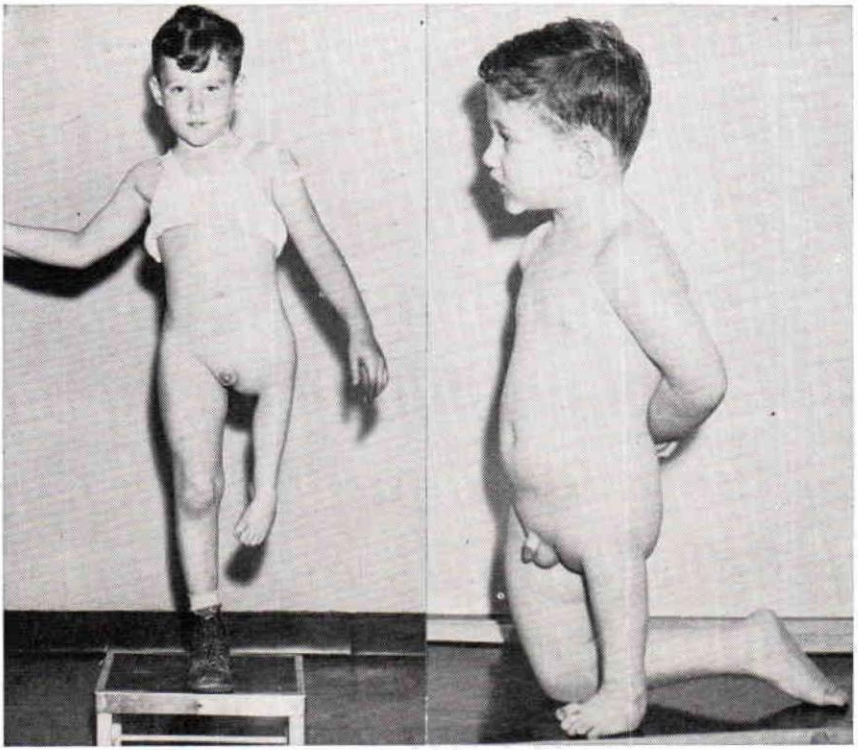


Fig. 5 (Top, left) The relationship of the deformed left leg is well shown here. It is about one half the length of the normal leg as measured from the anterior superior spine to the internal malleolus. Except for the left extremity, the boy was normal physically and quite active. (Top, right) This is the position that this child, as well as the one depicted in Figures 1 and 2, assumed in walking before prostheses were supplied.

abrasion, and comfortable, with weight-bearing at its end. It supplies the prosthesis with more power and easier mobility than a short stump. The chief handicap, with the foot in place, is to devise a workable *knee bend.*

The two main difficulties in function of such a prosthesis are:

1. The problem of a loose *joining* in the hip region, not a true joint; consequently, an unstable point of body support with side thrust.

2. The problem of the foot, which is an important asset in stabilizing and controlling the prosthesis. On the other hand, it is unsightly cosmetically, especially in a female, and adds a difficulty in locating a satisfactory knee-joint bend. However, it is thought that when adult stature is reached, the foot on the short leg will be on the level or above that of the knee of the normal leg, thus solving the proper location of a knee bend in future prosthesis.

The initial prosthesis (Fig. 6, *bottom left*) consisted of a pelvic band—a laced leather cuff enclosing the leg and a shoe for the foot, riveted to a metal plate attached to the side bars. Below this, a contoured artificial leg and foot were attached with a second shoe for weight-bearing. In Case 2, the foot was in equinovarus and was wedged in plaster for better fitting in the shoe. The children learned to walk and balance well with these appliances.

At 6 years of age a better-proportioned, neater and improved fitting prosthesis was supplied: in Case 1, without bend; in Case 2, a bend below the foot. These are now being tested. In both cases the foot was wedged into equinus for better position before applying the last prosthesis.

Summary

Congenital absence of both femur and fibula is a relatively rare condition. Search of the literature disclosed its rarity: references to this particular anomaly were meager. Doctors should be encouraged to report congenital anomalies. Such reports are desirable; they would serve as a valid basis for statistical study.

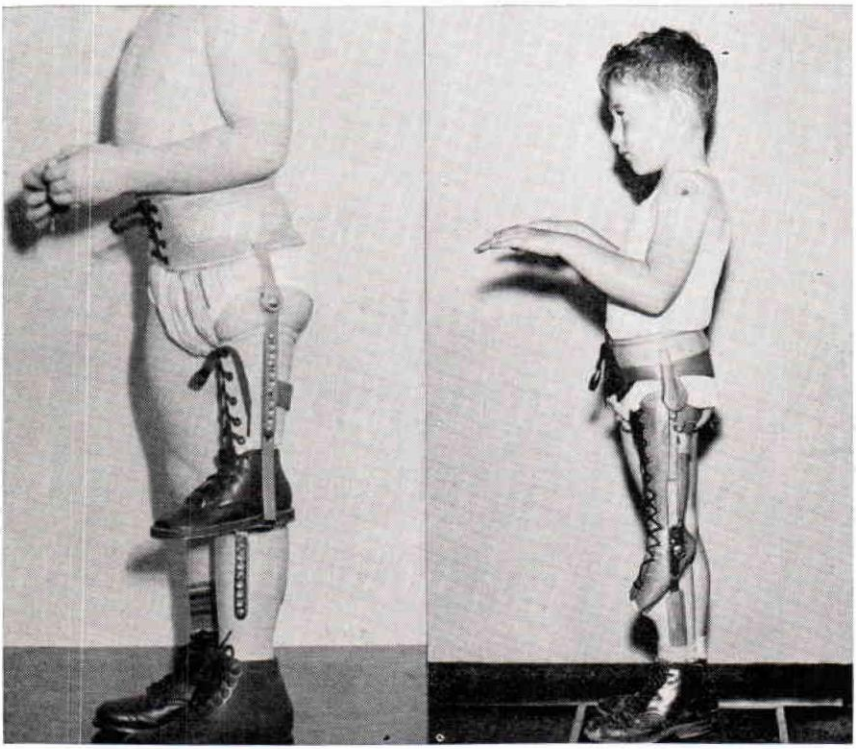
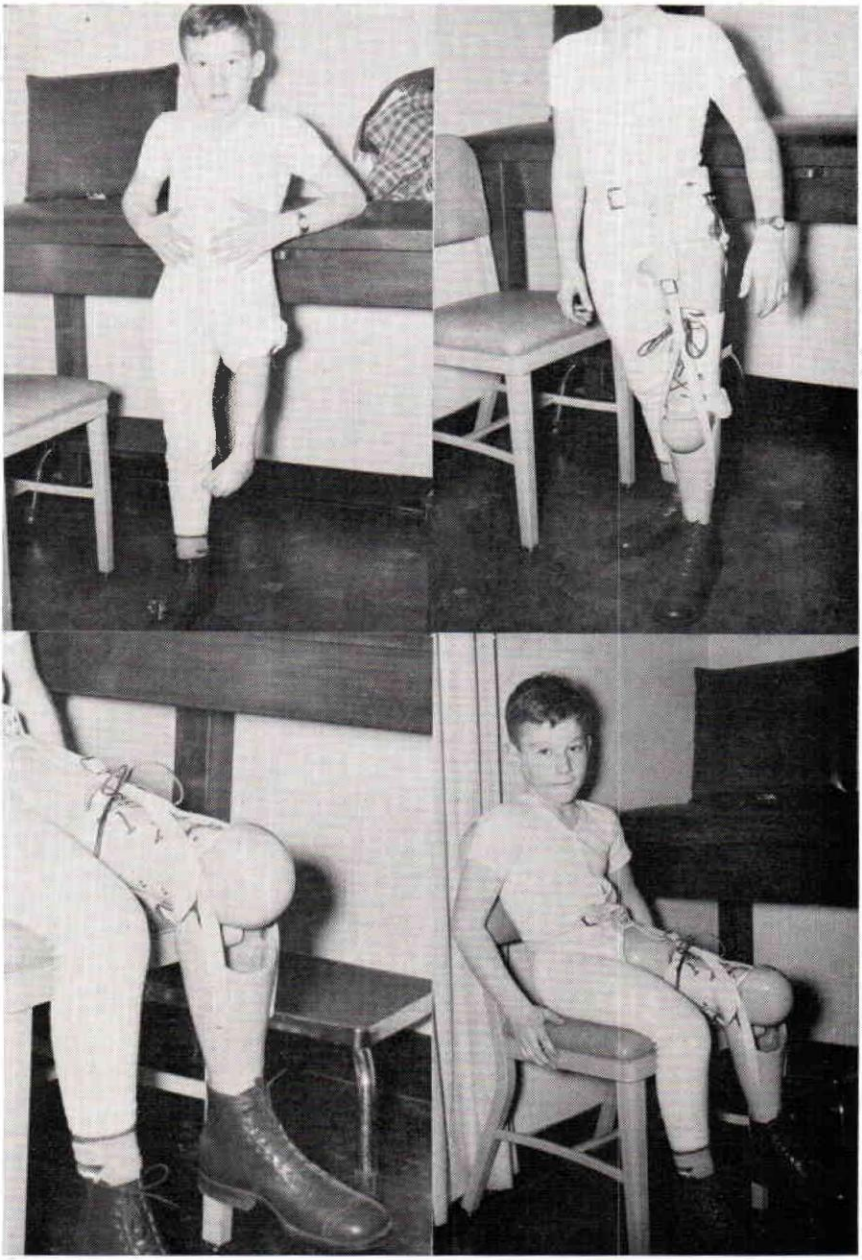


Fig. 6. The initial prosthesis with which Cases 1 and 2 were fitted. They learned to balance and walk quite well with this appliance. (Bottom, right) The second type of prosthesis with which Case 2 was supplied. It differs in construction from the apparatus supplied Case 1. The leg is enclosed in a laced leather boot. The foot has been wedged in equinus and a knee lock put in below the foot with a wire cable release.



EDITOR'S NOTE: The prostheses of these cases were made and fitted by Mr. Walter Pawlowski, C.P., of the Calumet Orthopedic Appliance Company of Gary, Indiana. Mr. Pawlowski is an AOPA member.

The *Journal* is indebted to Mr. Pawlowski for the additional pictures which appear on this page.

Committee on Prosthetics Education and Information

National Academy of Sciences—National Research Council

A Report

Prosthetics "Grass-Roots" Programs for Physicians

By HAROLD W. GLATTLY, M.D.

Executive Secretary

Committee on Prosthetics Education and Information

In the Committee report appearing in the June issue of this *Journal*, mention was made of the series of national surveys of physicians and therapists conducted by the Committee on Prosthetics Education and Information to obtain information concerning the status of services that are presently available for non-veteran amputees in the United States.* Questionnaires were mailed to physicians, physical therapists and occupational therapists who had taken one or more of the formal prosthetics courses presented by the University of California at Los Angeles, New York University, and Northwestern University. It was believed that there was no better source of information with respect to the problems relating to amputee rehabilitation services than those members of the medical and paramedical disciplines who had evidenced their interest in this field of disability by attending the courses presented by these schools.

The answers to these questionnaires gave abundant evidence that the major obstacle to improving services for the non-veteran amputees is the lack of understanding, on the part of the surgeons and general practitioners who perform amputations, of the modern concepts of amputee care and management that have stemmed from the Artificial Limb Program over the past fifteen years. The following quotations are typical of the comments contained in the survey forms of the physicians who are graduates of the prosthetics schools:

> "The standards of prosthetics could be best improved in this area by wider dissemination of present-day knowledge of this problem to those doctors who perform amputations but take little interest in the proper prosthetic fitting and training of the amputee."
>
> "We need a strong advertising campaign (re prosthetics) among members of our own profession."
>
> "I do not think many physicians are aware of the value of organized amputee clinic teams . . . There is a great need to educate the average physician with respect to prosthetic services."

In such fasion did the report of this questionnaire survey emphasize the

* *Editor's Note:* The Surveys of Physicians and Therapists referred to in this article were conducted by CPEI. They are not to be confused with the "Survey of Services Available to Amputees and Other Orthopedically Disabled Persons" R.D. 430 which is being conducted by the American Orthotics and Prosthetics Association under a grant from the Office of Vocational Rehabilitation. The latter is an interview type of survey of Prosthetic and Orthotic facilities.

need to develop a "grass-roots" type of prosthetics informational program that would reach the physicians who have occasion to perform amputations in the conduct of their practices.

The Committee early recognized that their broad objective of achieving a more general application of the fruits of research to the care and management of our amputee population required the development and concurrent implementation of dual programs. Although historically the field of prosthetics has always had a relationship to medicine, it has not been in the past generally identified with the processes of medical education. A need exists, therefore, to introduce into graduate and undergraduate medical education appropriate materials relating to the management of individuals with this form of disability. Such a program is essential to the training of the oncoming generation of physicians. For a more immediate improvement in prosthetics services, a means must be found to indoctrinate the individuals of that discipline who are already out in practice. It is to this latter effort that the term "grass-roots" program has been applied.

In the past two and a half years, CPEI has sponsored a number of prosthetics informational programs for practicing physicians. The initial effort was on January 16, 1959, at a regular meeting of the Washington County Medical Society in Abingdon, Virginia. Although the weather was extremely inclement, the roads being covered with ice and snow, some 55 physicians from a dozen neighboring towns attended. The program was conducted by Dr. Roy M. Hoover, Dr. Frederick E. Vultee, and Mr. Carlton Fillauer, and utilized a variety of amputees. It was evident to all of the observers that the material presented generated a high degree of audience interest. This observation is very important, since there was an element of doubt in this regard on the part of some of the committee members prior to the meeting. The Chairman of the Society's Program Committee, in a letter following the meeting, wrote, "I wish to thank you and your group for coming to Abingdon in such miserable weather to put on one of the best programs our Washington County Medical Society has ever had. Our members found the meeting to be extremely interesting. They were impressed by the degree of rehabilitation that an amputee can achieve who has had the benefit of clinic team management." A similar result was achieved in May 1959, at a county medical society meeting in Norfolk, Virginia. These two efforts demonstrated that prosthetics, when properly presented, is a subject that is of interest to the medical profession. In a well-planned program, the following concepts can be effectively presented in an hour and a half to two hours:

1. The importance of the type of operation, together with the postoperative management, in providing the patient with the opportunity of achieving the maximum functional regain.
2. The need to condition the amputee psychologically with respect to his rehabilitation possibilities since his motivation is all-important in achieving the most satisfactory results. This is possible only if the physician himself properly understands what can now be accomplished through proper management.
3. The value of the multidisciplinary clinic-team approach to the fitting and training of the amputee.
4. Brief mention of the special considerations that apply to the congenital child amputee and the geriatric.

Since a national prosthetics educational program conducted at the level of the county medical society is beyond the personnel and fund resources of the Committee, thought was given to holding state meetings that

would be under the auspices of local medical organizations. On May 1, 1960, a full day's program was presented in San Antonio, Texas, for the University of Texas Post-graduate School of Medicine. Dr. Charles O. Bechtol headed the team for this occasion and was assisted by Dr. Lewis A. Leavitt and Mr. Alvin L. Muilenburg, both of Houston. The following is a typical comment received from a physician located in Blanco, Texas:

"The seminar which was held at the Robert B. Green Hospital on May 1, 1960 concerning modern prosthetics was a very remarkable program and one which I greatly enjoyed. It should be recognized that the subject matter was one which has been shunned more or less and perhaps few of the GP's like myself have ever had any orientation to the field of amputees and prosthetics."

Dr. Bechtol and Dr. Cameron Hall, presented a similar program for the physicians of Oklahoma in October 1960, which was sponsored by the Department of Orthopedic Surgery of the University of Oklahoma Medical School. In April 1960, Dr. Clinton L. Compere, Dr. Frederick E. Vultee, and Mr. Blair Hanger of the Northwestern University Prosthetics School conducted a prosthetics orientation at the regional meeting of the American College of Surgeons in Minneapolis before some 300 surgeons.

From all of these pilot-type programs, there has developed in the minds of the participants certain general principles that the Committee should follow in planning future activities designed to inform the medical profession at large concerning the modern concepts of amputee care and management:

1. A stereotype program should be developed that will effectively present those principles of amputee management with which practicing physicians should be familiar. The material should be adaptable to programs ranging from two to four hours in length. It is essential that the presentation use well-trained amputees and that there be available a display of the standard prostheses. A limited use of audio-visual aids may be permitted.

2. A small group of interested orthopedic surgeons and physiatrists, who are well-distributed geographically, should be recruited for the presentation of programs in their respective areas. Since the technique of the participant in presenting the material is all important in determning the success of the meeting, it would be advisable to assemble this group for a short course on the instructional methods to be used.

3. It is of paramount importance that meetings be sponsored by effective local medical organizations that would be responsible for the necessary publicity and promotion of the program.

4. The effectiveness of the program would be materially enhanced by the availability of a "hand-out" in the form of a well-illustrated brochure that would recapitulate the material covered at these meetings. The Committee now has such a brochure in preparation. It has been decided that no effort would be made to schedule future "grass-roots" meetings until after the publication of this pamphlet.

5. Concurrent with a "grass-roots" program in a state, plans should be made to organize prosthetics clinics that would be available to the local physicians for the referral of their amputee patients.

6. The state's Bureau of Vocational Rehabilitation plays a major role in the determination of standards of prosthetics services. It is essential that close liaison be maintained with these agencies.

It will be noted from the foregoing summary of the physicians' prosthetics informational program that CPEI has been, to a large extent, dependent upon a very few devoted individuals for the conduct of these meetings. No future extended program of this character will be possible

until the base of support in terms of participating orthopedic surgeons and physiatrists can be very materially broadened. Quite a number of physicians have indicated to the Committee that they are available for this purpose.

In this national prosthetics educational program, members of the relevant paramedical disciplines can also play an important part. Many prosthetists are regularly invited to speak to medical students, residents, and the local physicians at their hospital and county medical society meetings. The Subcommittee on Prosthetics in Medical Education is planning to assemble an appropriate set of slides to assist these prosthetists in their presentations. Special sets of slides will also be made available to physical therapists, occupational therapists, and vocational counselors for meetings of the members of their disciplines. CPEI believes it can best serve this national effort by assisting, within the limits of its fund resources, the various interested organizations, groups and individuals in this country that are endeavoring to improve rehabilitation services for our amputee population. The Committee's Chairman, Dr. C. Leslie Mitchell, therefore, invites individuals who are presented with prosthetics educational opportunities to communicate their needs to the Washington Office.

The Director of the Office of Vocational Rehabilitation, Miss Mary E. Switzer, at the September 22, 1959, meeting of CPEI, in addressing the Committee concerning the research and education elements of the Artificial Limb Program, stated that "although through this program there is an ever-growing number of trained individuals with the ability to translate newer prosthetics knowledge into better services at the local level, nevertheless, in the national effort we have just scratched the surface . . . A major mission of the Committee should be to develop and implement plans that will narrow the gap between what is known today in the field of amputee rehabilitation and what is currently practiced." In this endeavor, physicians, physical and occupational therapists, prosthetists, and rehabilitation personnel can make their individual contributions.

In Memoriam

LEO WALLER

Mr. Leo Waller, Vice President of the Hersco Arch Products Corporation, died in New York City on September 18th. He was a member of the *Journal's* Committee on Advertising, and of the American Orthotics and Prosthetics Association. A biographical sketch will appear in the next issue of the *Journal.*

Report on South American Trip

By CHARLES A. HENNESSY
American Specialist in Prosthetics

Editor's Note: Mr. Hennessy, a past president of the American Orthotics and Prosthetics Association, visited South America last February and March, lecturing on prosthetics and fitting difficult cases. The following article is excerpted from his report on that trip.

The trip to South America was sponsored by the Department of State of the United States Government. Its purpose was to visit hospitals, lecture on prosthetics, and to provide for the prosthetic rehabilitation of Edgar Gonzales by replacements for the hands he lost in a fight with a shark.

The writer arrived in Caracas on February 12, 1961, to meet and examine Edgar Gonzales. Measurements and casts were taken of the patient's stumps and sent by diplomatic pouch to A. J. Hosmer Corporation of Santa Clara, California, for the fabrication of the two prostheses. The United States Embassy at this time arranged a press conference for the writer which was covered by all of the seven Spanish newspapers of Caracas, and by the

HENNESSY RECEIVES AWARD FOR OUTSTANDING CONTRIBUTION TO INTERNATIONAL GOODWILL—Charles A. Hennessy, former AOPA President, who recently completed a prosthetics demonstration and lecture tour of several South American countries under a Specialist Grant from the State Department, received the award from General Melvin J. Maas, Chairman of the Committee for the Handicapped. left to right, seated: Dr. Robert E. Stewart of the VA, Winfield S. Smith of the Committee for the Handicapped, General Maas and Mr. Hennessy, and Mrs. Phyllis W. Francis of OVR. Standing: Ralph Storrs, President, and Lester A. Smith, Executive Director, of AOPA.

one English paper. At this time I also visited the "Hospital Ortopedico Infantil" where I met Mr. Harold Jones, C.P., an American prosthetist who has been operating a brace shop at the hospital for the last one and a half years.

On my return later to Caracas to complete the fitting of Edgar Gonzales' prostheses, another press conference was held at the Orthopedic Hospital. Over 100 people, representing a variety of specialties within the medical field, attended this three-hour conference, which was held entirely in Spanish and which was televised. On the day that Gonzales received his prostheses, the English "Daily Journal" carried front page coverage of the event with pictures. On March 18, the "Daily Journal" carried another full picture review which was video-taped. While in Caracas, I visited Dr. Tomas Irsay, an Associate Member of AOPA, who had been a former student of mine at the University of California. He operates an orthotic and prosthetic facility in Caracas and is doing a commendable job.

On February 14 I went to La Paz, Bolivia, to meet with Doctors Adalid Carrasco and Walter Arteaga Cabrera, both of whom specialize in orthopedics. At the hospital "Victor Paz Estenssoro" I conducted a two and a half hour lecture and seminar in prosthetic rehabilitation for physicians, technicians and staff of the hospital. On February 17 another two and a half hour conference and lecture was held at the Rehabilitation Center. On my last day in La Paz I was invited to meet with members of the Bolivian Cabinet. At that time, the principal speaker for the Cabinet members was the "Minister of Work." He emphasized that technical assistance in the fields of orthotics, prosthetics, and rehabilitation is desperately needed and that training in and application of these skills is desired far more than monetary assistance.

My next stop was in Santiago, Chile, where I arrived on February 28. My first consultation was with Dr. Agustive Fricki, the Minister of Health, and Dr. Sebastain Navaez, Consultant to the SNS(National Health Service). We visited and toured all the hospitals in the city, including the two children's hospitals. On March 1 we began a three-day technical conference consisting of instruction, training courses, and lectures for the 12 students attending a prosthetic training course sponsored by the World Health Organization and directed by Eric Jensen, Prosthetic and Orthotic Specialist. In addition to conducting lectures and technical seminars, one of my major projects here was to fabricate a patellar tendon bearing prosthesis for Mrs. Oriano Castro, a patient at the Institute. Press conferences in Santiago produced considerable coverage of events in that city.

Two lectures and seminars were conducted in Valparaiso, Chile, at the Chilean-North American Institute, and a third lecture was given on March 6 during the "Chilena-Norteamericana" week in Vina del Mar. This last lecture consisted of a 45-minute discussion with the general public on rehabilitation.

In Quito, Ecuador, which I reached on March 8, we had a discussion which lasted for several hours on the Mexico City Rehabilitation Center and the proposal to send Latin American students there to receive training in prosthetic rehabilitation. I would be very skeptical of such instruction unless it is well organized, and feel this entire matter, including the educational material, should be thoroughly evaluated. After this conference it was arranged for me to meet with representatives of the "Point 4 Program" to discuss employment of the handicapped to assemble transistor radios, a means of communication and instruction which could prove extremely valuable to the people of this country.

Major Accomplishments

While on this South American detail, a total of four prostheses were fabricated: 2 below-knee and 2 above-knee prostheses, the latter consisting of an above-knee suction socket and an above-knee congenital.

Publications distributed to key personnel in each of the countries visited included 10 above-knee manuals, 4 below-knee manuals, 6 upper-extremity manuals, 5 copies of the *Orthopaedic Atlas,* Volume I, 8 copies of Volume II of *Artificial Limbs,* 2 hip-disarticulation manuals, and 9 *Orthopedic & Prosthetic Appliance Journals.* In addition four complete sets of technical photographs and slides covering all phases of fabrication were sent to each Rehabilitation Center.

Materials for 2 below-knee prostheses were left with Mr. Erik Jensen in Santiago, and similar material left at the Orthopedic Hospital, Caracas. Two arms were completed for Edgar Gonzales, as well as two APRL mechanical hands and 2 extra cosmetic gloves.

Mr. C. O. Anderson of the San Francisco Prosthetic Services donated approximately $800 worth of cosmetic hands, gloves, leg build-ups, etc., of which $200 worth was donated to each of rehabilitation centers or hospitals in La Paz, Santiago, Vina del Mar, and Caracas. Arrangements also were made for Dr. Luisa Romero de Johnston to receive training in the field of physical restoration at the C. O. Anderson Laboratory in San Francisco.

During the trip, a total of eight press conferences were held in Caracas, Quito, Santiago, Vina del Mar, and La Paz. Accounts of my State Department-sponsored activities appeared 39 times in a total of 20 newspapers, all but one of which were written in Spanish. Over 300 people attended the series of lectures and seminars.

The writer's activities were broadcast by radio on six different occasions, and TV coverage was provided on three instances. A total of 48 amputees were examined in the tour, and 44 manuals were distributed. Over 50% of these publications were donated by UCLA, University of California at Berkeley, the Prosthetic and Sensory Aids Service of the VA in Washington, D. C., and the American Orthotics and Prosthetics Association.

In summary, I would like to report that I was graciously received in all of the countries. All of my lectures and seminars were well attended. There is a sincere desire in all of Latin America to implement the establishment of adequate prosthetic and rehabilitation centers. All lectures, seminars and conferences were held in Spanish. I feel that a speaking knowledge of the language of the people in these countries is a definite asset in creating better relationships between the United States and the Latin American countries. Everywhere I was aware of the great hunger and need for technical assistance and instruction in prosthetics and orthotics in the countries visited.

Details of this nature have an immediate public relations appeal, but if cultural and technical exchange are to be at all meaningful, there should be a continued long range program allowing for the teaching, development and application of these basic skills to daily living and the vocational rehabilitation of the peoples of Latin America.

Finally, I cannot close this report without expressing my appreciation of the excellent cooperation I received from all of the embassy officials who were assigned the responsibility of arranging my itinerary and press conferences in the Latin American countries visited. A great deal of credit for the success of this trip is properly theirs.

INVITATION TO THE
1961 NATIONAL ASSEMBLY

All persons interested in the rehabilitation of the orthopedically handicapped are eligible to attend the 1961 Assembly of the Limb and Brace Profession. This meeting, sponsored by the American Orthotics and Prosthetics Association, will be held at the Eden Roc Hotel in Miami Beach, October 19-26, 1961. Registration forms and additional program information may be obtained by writing to: A.O.P.A., 919 18th St., N.W., Washington 6, D. C.

PRELIMINARY PROGRAM

SUNDAY, OCTOBER 22

Exhibits open 8:30 A.M.

Sunday Morning

10:00 A.M.

AOPA Business Meeting

Note: This information session has been arranged so that AOPA Members may hear the reports of their elected officers and discuss official Association business. Non-members registered for the Assembly will be seated in a special "Visitors' Section."

Reports to be heard:

1. AOPA's President Reports to Members—Ralph Storrs, President of the Association.
2. The Assembly Program—A Report by Richard G. Bidwell, Program Chairman.
3. The Assembly Exhibits—A Report by George H. Lambert, Exhibits Chairman.
4. Report from Washington—Lester A. Smith, Executive Director of the Association.
5. AOPA's Finances and The Year Ahead—A Report by M. P. Cestaro, Secretary-Treasurer.
6. Survey of Orthotic and Prosthetic Facilities—LeRoy William Nattress, Jr., Project Director, Bertram D. Litt, Associate Project Director.
7. The National Census of Amputees—A Cooperative Project of the National Research Council's CPEI and AOPA—by Harold W. Glattly, M.D., Secretary, Committee on Prosthetic Education and Information. National Research Council.
8. Professional Practice Protection for the AOPA Member—E. D. Davis, E. J. Davis and Company, Chicago, Illinois.
9. AOPA and Life Insurance Including Hospitalization and Surgical Benefits—Protection Against the Hazards of Life—Joseph Dara, Vice President, Eastern Division, Group Insurance, Continental Casualty Company, New York.
10. Financing the Appliance—Stanley Hedges, Indianapolis, Indiana.

11:00 A.M.

"For the Ladies" a meeting of all women attending the Assembly. Presiding, Mrs. Pearl Leavy, President, AOPA Ladies Auxiliary.

Sunday Afternoon
1:00 to 5:00 P.M.

Note: This program was developed and coordinated as a part of the total program of Prosthetic Education at Northwestern University. Jack D. Armold, Ph.D., Arrangements.

Following is the agenda for the two sessions of the children's prosthetics program:

Prosthetic Habilitation of Children with Post-Traumatic Congenital Limb Deficiences. (Note: This program will be presented in two sessions; the second of which is scheduled for Monday morning, October 23).

Introduction by AOPA President Ralph Storrs.

Philosophy (The problem, growth and its relation to surgery, and the prosthetic management of abnormalities.) Presented by George T. Aitken, M.D., Medical Co-Director, Area Child Amputee Center, Grand Rapids, Michigan.

Problems of prosthetic restoration for congenital limb deficiencies (including a simple terminology) presented by Charles H. Frantz, M.D., Medical Co-Director, Area Child Amputee Center, Grand Rapids, Michigan.

Growth (General discussion of the motor-skeletal development of the child, with particular reference to its influence on training) presented by Frederick E. Vultee, M.D., Head of Dept. of Physical Medicine and Rehabilitation, Medical College of Virginia.

Patellar-tendon bearing fitting and follow-up—presented by Dr. Claude Lambert* and Mr. Blair Hanger, Associate Director and Chief Prosthetist, Prosthetics Education, Northwestern University.

Canadian hip disarticulation fitting in children; prosthetic follow-up—presented by Charles H. Frantz, M.D., and Vance Meadows, C.P., Prosthetist, Grand Rapids, Michigan.

Combined upper and lower extremity standard abnormality prosthetic fitting, with slides—presented by Claude Lambert, M.D., and George T. Aitken, M.D.

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*Dr. Lambert is Professor of Orthopedic Surgery, University of Illinois College of Medicine; Attending Orthopedic Surgeon, Research and Education Hospitals, University of Illinois; Attending Orthopedic Surgeon at the Presbyterian-St. Luke's Hospital; Lecturer in Orthopedic Surgery, Northwestern University.

MONDAY, OCTOBER 23

Exhibits Open 8:30 A.M. until 4:30 P.M.

Monday Morning
9:00 A.M. to 12:00 Noon

Clinic—Under the direction of Newton C. McCollough, M.D., Chief, Florida Juvenile Amputee Clinic of the Florida Crippled Children's Commission. This is Part II of the session on "Prosthetic Habilitation of Children with Post-Traumatic Congenital Limb Deficiencies," continuing Part I which was presented on Sunday, October 22.

Monday Afternoon
1:30 P.M.

Luncheon sponsored by the American Board for Certification; open to all. Howard Thranhardt, C.P., presiding.

3:30 P.M.

Official Meeting of the American Board for Certification.

Note: Attendance is open to all who registered for the Assembly; however, voting is restricted to representatives of Certified Facilities.

Monday Evening

Free for individual conferences, committee sessions, etc.

TUESDAY, OCTOBER 24

Exhibits Open 8:30 A.M. to 4:00 P.M.

Tuesday Morning
9:30 A.M. to 12:30 P.M.

1. Ankle Dysfunction; Biomechanical Research and Bracing Implications.
   Edward Peizer, Ph.D., Elliot Denber, B.M.E., M.I.E. and Charles Fryer, RPT, New York University
   Coordinator: Sidney Fishman, Ph.D., Director of Prosthetic Education, New York University.
2. Patella Tendon Bearing Prosthesis "Follow-Up Clinic."
   Charles A. Hennessy, C.P.O., Moderator.
   John Bray, C.P., University of California, Los Angeles.
   H. Blair Hanger, C.P., Northwestern University, Chicago.
   Basil Peters, C.P., New York University, New York.
   Miles H. Anderson, Ed.D., University of California, Los Angeles, Coordinator.

Tuesday Afternoon
2:00 P.M.

Second Business Session of the American Orthotics and Prosthetics Association. *Members only.* (AOPA Membership Badge Election of Officers and other Association business).

Tuesday Evening

AOPA Board of Directors meets with new Officers of the Association.

WEDNESDAY, OCTOBER 25

8:30 to 12:00 Noon

Wednesday Morning
9:30 A.M.

Session on Cerebral Palsy.

1. "What We Are Trying to Brace"—Robert Keiser, M.D., A.A.O.S., Coral Gables, Florida.
   Panel Discussion:
   John Glancy, C.O., Boston, Massachusetts.
   R. W. Goldsby, C.O., Mobile, Alabama.
   Arthur Finnieston, C.O., Miami, Florida.
   Marion E. Miller, C.O., Indianapolis. Indiana.

Wednesday Morning

2. Recommended Quadrilateral Socket Procedures.
   Bruce Scott, C.P.O., Denver, Colorado, Moderator.
   John Bray, C.P., University of California, Los Angeles.
   Alfred Denison, C.P., Northwestern University, Chicago.
   Ivan Dillee, C.P., New York University, New York.
   Miles Anderson, Ed.D., University of California, Los Angeles, Coordinator.

Wednesday Afternoon
2:00 to 5:00 P.M.

I. Simple Management of the Spine.
   Demonstration with Comments—Charles E. Yesalis, Jackson, Michigan.
   Panel Discussion:
   M. J. Benjamin, C.O., Los Angeles, California.
   William Bartels, C.O., Portland, Oregon.
   Elizabeth O. Hanicke, C.O., Kansas City, Missouri.
   Henry Saur, C.O., Philadelphia, Pennsylvania.
   Rudolph Weber, C.O., New Orleans, Louisiana.

II Porous Laminates.
   Fred Leonard, Ph.D., Chief, Plastics Research Development Branch, Army Prosthetics Research Laboratory.
   Marcus Shields, C.P., Moderator, Atlanta, Georgia.

Wednesday Evening
7:30 P.M.

Reception and Assembly Banquet.

Presiding: Ralph Storrs, C.O., President.

Address: "Motivation for Professional Behavior," by J. Warren Perry, Ph.D., Assistant Chief, Training Division, U. S. Office of Vocational Rehabilitation.

Installation of Officers for the Year 1961-1962.

Entertainment: Hawaiian Dance Program, presented by the Maryen Lorrain Dance Studios. Arrangements, Mrs. Selvie Reid.

Dancing.

(Note: The Assembly Banquet is the final event of the Assembly Program. The U. S. Veterans Administration in cooperation with The American Orthotics and Prosthetics Association will present a seminar on Fluid Control Mechanisms. October 26, 27, and 28 at the Eden Roc and Montmartre Hotels, Miami Beach, Florida).

Nelson Gadgets

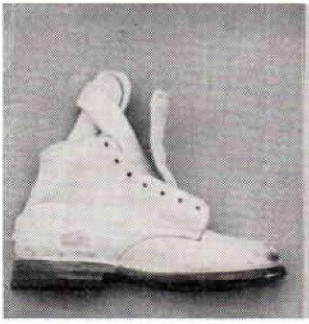
By K. B. NELSON, C.O.

Nelson Orthopedic Company, Pittsburgh, Pa.

Gadget No. 7—The Nelson Shoe Horn Brace

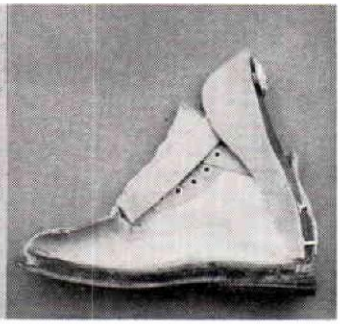
This is one of the oldest Toe Drop braces in use today, designed by the author immediately after World War I and used ever since without any troubles. It is simple, inexpensive and inconspicuous. It is being used on high top shoes as well as on low cuts.

The shoe horn itself is made from ¼" Oak Sole leather, cut to shape and sanded down about one third to use only the strongest part of the leather. It is then soaked in warm water to soften and dried on a cast or other means to get the shape of heel and ankle. Next it is attached to back of shoe with copper rivets and large washers on outside.



Shoe Horn
Toe Drop Brace

Leather
Shoe Horn



Cross Section
Shoe and Brace

The elastic is cut long enough to reach from lower part of tongue of shoe, around shoe horn and to the starting point (make it long enough). Find center of elastic and make a hole with an awl (do not use punch) and push the base section of quick rivet through hole. Drill through leather of shoe horn for top of quick rivet about one inch from top, attach elastic on outside of horn.

Then bring the elastics around to front of shoe and sew them in, right and left elastics side by side. Last, glue a piece of ⅛" hard wool felt inside shoe horn.

The pictures show the leather shoe horn, sanded down, with trimmed down edges, shaped and dried, ready to use. The cross section view is a shoe with the brace, split through to show the details. We have found two pieces of elastic the best but one or three may be used.

There have been some modifications made on this brace and we shall be happy to publish them in a later issue if our readers so desire.

A Surgeon Comments

By EVERETT J. GORDON, M.D.

Washington, D. C.

Although the past summer has been rather moderate, the usual problems resulting from excessive perspiration of an amputation stump enclosed in a prosthetic socket have again been encountered. We have found some improvement with the daily use of Phisohex, which often minimizes stump irritation from excessive perspiration. In addition, daily dusting of the stump with 2% Prantal powder has been used with variable response. The results so far are insufficient to warrant a true evaluation of this product, but it does appear to have some merit with routine use. However, the time honored principles of cleanliness and strict hygiene of both the stump and socket will minimize or eliminate the skin irritation resulting from excessive perspiration in a majority of cases.

We have recently had a communication from one of our prosthetist friends, Jack Virando, formerly associated with Universal Limb Co. in Washington, D. C. Jack has returned to Norway to continue his work at the Sophies Minde Orthopaedic Hospital in Oslo. He reports tremendous success with the fitting of the patellar tendon bearing prosthesis, with resultant great demand for it throughout the country. They are now fitting seamen employed on fishing trawlers, bilateral amputees, and children. Although perspiration is a problem, they find it less serious than in Washington, D. C. because of the climatic differences. He finds skin problems appear to be more frequent because of differences in skin texture. They have encountered little difficulty with exostoses of the stump interfering with prosthetic use, attributed by their chief surgeon, Professor Ivar Alvik, to an osteoplastic bone graft type of amputation, with resultant increased facility for weight bearing on the distal end of the stump.

Jack reports an unusually wide variety of amputations in Norway, requiring an amazingly large variety of prostheses. His main assignment is to instruct Norwegian prosthetists in the latest methods and prosthetic techniques. He keeps his hands busy, however, by reserving the more difficult cases for his personal attention. Anyone interested in receiving more information about prostheses and braces in Norway can write directly to him at Sophies Minde Orthopaedic Hospital, Trondheimsveien 132, Oslo, Norway.

The assistance program to foreign countries in setting up prosthetic and orthotic programs has also been extended to Yugoslavia. Anthony Staros and Henry Gardner, from New York Veterans' Administration Prosthetic Center, old friends to most prosthetists, have now been assigned to that country. They certainly should provide Yugoslavia with much stimulus for research and development and modernization of their prosthetic techniques.

An interesting communication was recently received from Roy Wing, Chief of Prosthetic and Sensory Aids Unit in the Veterans' Administration Regional Office of Cleveland, Ohio regarding the latest type of BK prosthesis. They have not encountered any bone spurs on amputees using patellar tendon

bearing prostheses, similar to the report received from Norway. He writes, "This station is prescribing a considerable number of patellar tendon bearing prostheses, having supplied 25 such appliances out of 66 below knee prostheses prescribed during the preceeding year." None of their patellar tendon bearing wearers had returned to their conventional prostheses. A web belt was furnished with each patellar tendon bearing prosthesis, but its use was optional with the amputee. However, none had discarded the belt—indicating an oft-repeated experience that it is more difficult to discard an extra aid which has been habitually used, than not to have used it at all.

The phantom phenomena occuring after the amputation of a limb still presents an unsolved problem. The sensation was first described in the 16th century by Ambroise Pare, the French military surgeon, who made significant contributions to surgical amputation of injured limbs. An excellent review of this syndrome was recently given in Spectrum, Vol. 9, No. 11, published by Charles Pizer & Co.—anyone interested would find this article worthwhile. It has been our experience that the best treatment is achieved with regular and active use of a prosthetic limb, which stimulates normal function of the remaining portion of the limb.

This column has noted with interest the proposed amputee census of the United States, to be sponsored by the Committee on Prosthetic Education and Information, with the cooperation of the American Orthotic and Prosthetic Association. Such a census would have considerable value by providing an accurate statistical analysis of each classification of amputee, and the various types of appliances prescribed and in current use. It would also give us information regarding the use of prosthetic appliances by the ever increasing number of geriatric amputees, who are becoming more cooperative as they are provided with proper appliances. The frequent prosthetic courses and training of surgeons and physiatrists who treat our senior citizens has resulted in wider prescription of appliances for the older amputee, many of whom were formerly relegated to a wheel chair.

This column is very appreciative of the several communications forwarded to it since our last issue. We hope the interest will continue and that our readers will forward information and comments such as those included in this report, so that they may be passed on to you for your interest and guidance.

Several of our readers have requested reprints of articles published by the author—we are glad to send them along if you will write to the *Journal.*

We know that if you see enough amputees you must have problems—let us hear about them and how you have solved them. Some of the suggestions are quite unique and very stimulating.

A REPORT BY THE PRESIDENT OF AOPA

This has been a year of change and and development for the American Orthotics and Prosthetics Association. Since many of the readers of the *Journal* are not members, I believe it worthwhile to devote my column this month to a brief report on the Association's activities.

Educational Programs—The Association's members are divided into eleven regions. Each region conducted a three-day technical session this spring. With the helpful cooperation of the VA Prosthetics Research Center in New York City and the three universities offering courses in our field, these sessions featured educational programs of unusual merit. Attendance, in addition to members of the Association, included physicians and key rehabilitation officials.

National Amputee Census—The Association is cooperating with the Committee on Prosthetics Education and Information of the National Research Council on plans for a National Amputee Census. This spring the directors took part in a trial "pilot" run of this census. The national census will be conducted among the various prosthetic establishments in the United States, with the results being sent directly to the National Research Council.

Publications—This *Journal* is one of three publications of the Association. The others are: (1) Orthotics and Prosthetics Yearbook and (2) AOPA *Almanac*. The Yearbook includes a comprehensive listing of orthopedic-prosthetic supplies and suppliers in this country. Other features of the Yearbook are a history of the Association, the by-laws and a list of members. The *Almanac* is a monthly bulletin prepared especially for the managers of member firms. The manager of the orthopedic or prosthetic facility has exacting responsibilities. It is the stated purpose of the *Almanac* to assist him in meeting these responsibilities by placing on his desk current information of value.

National Orthotics and Prosthetics Assembly—Elsewhere in this issue will be found the preliminary program of the Orthotics and Prosthetics Assembly, sponsored by this Association. Attendance is open to all who are interested in the rehabilitation of the orthopedically handicapped.

Survey of Services Available to Orthopedically Disabled Persons—A grant from the U. S. Office of Vocational Rehabilitation to the Association has made it possible to establish a survey of the services now available in this country to amputees and other orthopedically disabled persons. Work on the survey is well advanced and the first prosthetics report is expected this fall. Surveys of spinal orthotics and lower extremity orthotics will follow.

Liaison Activities—The Association maintains Washington Headquarters to serve its members. Here are coordinated the efforts and activities of the Association's Committees. Close contact is maintained with agencies of the Federal Government and with other organizations in the rehabilitation field.

All of the activities of the Association are planned to help members serve the orthopedically handicapped.

RALPH STORRS

A REPORT TO *JOURNAL* READERS

by the President
of the
American Board for Certification

Gentlemen:

May I take this opportunity to thank the Members of the Board of Directors of ABC for their willing acceptance to serve on the various Committees and the various members of the Certification movement who have served on these Committees the past year.

The Board Members along with several Orthopedists in the Chicago and adjacent areas will be giving the Certification Exam at Northwestern University in mid-September.

Once again the Examinations have been given a thorough going over in an endeavor to make them fair but very comprehensive.

We sincerely hope that we will be able to machine grade the Examination and thus give a much quicker report to the Certifees having taken the Examination than we have in the past.

Many of you have commented already concerning our new monthly news letter, the "Mark of Merit." We think that a monthly report of this type will be informative and therefore keep you up to date on the happenings of ABC.

It was very gratifying, indeed, to receive reports of the get-togethers that were held during the Regional Meetings. We hope that these meetings will bring Certification to each and every Certifee.

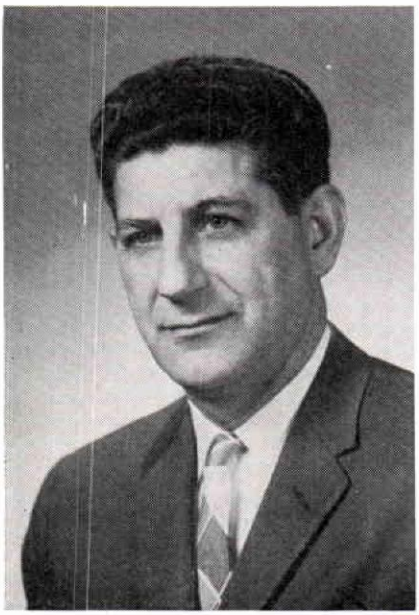
Following the annual ABC luncheon in Miami we will hold a business meeting.

I am looking forward to seeing as many of you as possible at the ABC Meeting in Miami. I sincerely hope that you will take pride in displaying your "Mark of Merit" and will ever be aware of the responsibility entrusted.

Sincerely,
H. R. THRANHARDT

Biographical Sketches of New Members of AOPA

Sketches of other new members will appear in later issues of the Journal



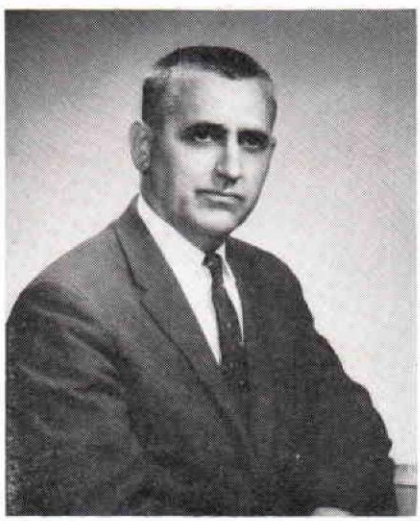
TONY ARCURI

A. A. (Tony) Arcuri, President of the Mountain State Artificial Limb Company, Johnstown, Pennsylvania, is a comparatively young man but he is now in his second decade in this field.

Mr. Arcuri is a native of West Virginia, graduated from the West Fairmont High School and attended West Virginia University. He later studied Cost Accounting with the ICS of Chicago, Illinois. He entered the military service in January, 1941, was wounded in action in France in February 1945, and was discharged in July 1945 with the Purple Heart and the Bronze Star.

Mr. Arcuri began his training in the orthopedic field in 1949 with Perry E. Wilson who operated the Mountain State Artificial Limb Company, Fairmont, West Virginia. The shop in Johnstown, Pennsylvania, was established in 1954 and the next year Mr. Arcuri became the sole owner of this establishment. He has been active in organizing the Orthopedic services of the Rehabilitation Center, Johnstown, Pennsylvania, and in developing the clinic team approach at the City County Clinic in Johnstown.

He also has orthopedic services at the Lawrence Flick State Hospital at Cresson, and with the United Mine Workers, U. S. Steel, Bethlehem Steel Corp. and the Lee, Memorial and Mercy Hospitals plus other agencies serving the handicapped.



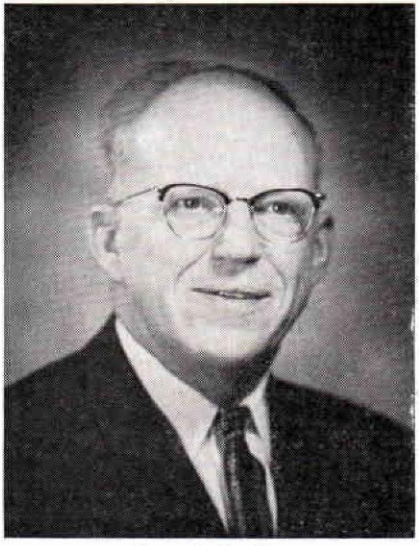
MICHAEL ANDRUSKY

Michael Andrusky, C.P.O., of the Lynchburg Orthopaedic Center, has been active in the profession since 1944. His service from that date has

been chiefly with the Army as both orthotist and prosthetist. He has been connected with Lawson General Hospital in Atlanta, McGuire Hospital in Richmond, and has served as Orthopedic Technician-Supervisor at Camp Pickett in Virginia. In addition he has been connected with C. H. Davies in Philadelphia and was co-owner of the Richmond Artificial Limb Company.

The Lynchburg Orthopaedic Center, which has been in operation for six and a half years, is located at 2815 Campbell Avenue, Lynchburg, Virginia. (Telephone: VIctor 6-1803). Mr. Andrusky has been certified as both orthotist and prosthetist since 1949 and holds Certificate Number 209.

Mr. Andrusky's years of experience and training in Army hospitals and in private facilities make him well qualified to render modern, up-to-date service to limb and brace wearers in the Lynchburg area. He is a highly competent member of the profession, and a welcome addition to the Association.



Ernest Baehr

Mr. Baehr is president of the Flint Limb and Brace Company, 409 West Third Avenue, Flint, Michigan. (Telephone: CE 4-4431). He and his father have operated this facility together since 1939. Mr. Baehr writes us:

"I am the son of the son of a bracemaker. My father received his training in Cologne, Germany, and worked in his father's orthopedic business in Solingen, Germany. He established himself in Chicago where I was born in 1913.

"My first connection with the limb and brace business, away from my father, was with Ray Trautman in Minneapolis in 1930. In 1939 my father and I joined together and established this present company in Flint. In 1950 I raided the Dietetic staff of the local hospital and now I have a ten-year-old and five-year-old trainee to try for four generations. The eight and nine-year-old girls think it would be fun to be dietitians."

A. H. Hodges

Mr. Hodges is the owner of Hodges Orthopedic and Surgical Services, Ltd., located at 54 Main Street, Bula-

wayo, Southern Rhodesia. His business establishment, which was opened in 1957, was the first private organization of its kind in the Federation of Rhodesia. It supplies the Federal Health Department, and Rhodesian railways and mining groups in addition to private practice.

Mr. Hodges writes that at present he is in the process of forming an association of technicians in the Central African Federation which has the interest of the Health Department and support of the medical profession. He hopes to develop a similar training scheme to that used in the Union of South Africa.

Mr. Hodges has a long and notable record of service in limb and brace making. He began his career at the age of 15 as the first trainee in a program set up in 1921 when the Government of South Africa decided to establish its own Artificial Limb Centre in Johannesburg and began a training program with instructors from England. Mr. Hodges' career has since included both private and government service.

While in business in Cape Town, 1948-1956, Mr. Hodges was appointed in his private capacity to act as Adviser to the Director of Hospital Services, Cape Provincial Administration, in regard to orthopaedic workshop matters. At that time he drew up a training scheme for Orthopaedic Technicians which was examined by a committee of professors of Orthopaedics and Surgery, Physical Medicine, heads of Nursing Services and Technical Engineering Colleges. The training plan has been accepted by the South African Medical and Dental Council, which carries a voluntary register for qualified persons. Mr. Hodges states that it is hoped that this registry will one day become compulsory.

Mr. Hodges is married, and has two young daughters.

Charles Neal

Charles D. Neal, still a comparatively young man, is one of the leading Prosthetists on the West Coast. He is the founder and senior partner in three establishments, all of which have applied for membership in the American Orthotics and Prosthetics Association:

Adroit Prosthetics Mfg., a certified Prosthetic facility at 2224 W. 7th St., Los Angeles 57, California.

Adroit Prosthetics Mfg. at 16112 Sherman Way, Van Nuys, California.

Adriot Prosthetics Mfg., Bakersfield, California.

Mr. Neal began his training with the Adams Orthopedic Company in Little Rock, Arkansas, received additional training with Snell's in Shreveport, Louisiana, and various establishments in Southern California. He was certified in 1948.

He opened his first company in 1953.

A special interest of Mr. Neal's is prosthetic appliances for children. The Editor of the *Journal* recalls vividly a visit to his facility several years ago in which he saw him busily engaged in fitting a young girl. This young lady, all of three years old, was having a wonderful time playing

with a long decorated cane and teasing the talented young prosthetist who was fitting her. It was evident that a close rapport of friendliness and professional concern existed between the young patient and the prosthetist. The Editor has already regretted that he did not have a camera with him to snap the scene.

John Neilson

Mr. Neilson is the owner of Neilson's Prosthetic Center, 284 Troy-Schenectady Road, Latham, New York (Telephone: STate 5-8711). He has completed both the A/K and B/K courses at New York University and has just finished a further A/K course this spring. He writes:

"My becoming a prosthetist is a bit different than most prosthetists, I am not an amputee. I had not seen a prosthesis until I enrolled in the prosthetic course at I. C. & D. (Institute for Crippled and Disabled). It came about as a result of my taking an I Q and aptitude test.

"I had no particular interest in limb making until I talked with limb makers and was informed of the problems and impossibilities of the profession, which both presented a challenge and created an interest.

"Upon completing the nine-month's course at I. C. & D. I was employed at a limb shop for three months, after this I was unable to find employment because of lack of experience. Being unable to find a job I decided to create one and opened my own shop. After two years I have two employees and a very successful business.

"I have completed both the A/K and B/K courses at N. Y. U.

"We are most proud of the fact that after two years we have had only one dissatisfied customer.

"I am married and have two children. Mrs. Neilson is also a full time employee of the organization."

James C. Russ

Mr. Russ is the owner of Modern Orthesis, Inc., 4615 Prospect Road, Peoria Heights, Illinois (Telephone: 682-0431) He formed this firm in 1960.

Mr. Russ entered the Georgia Warm Springs Foundation in the summer of 1953 upon graduation from high school in Toledo, Ohio, at the age of 18. After four years of training he passed the Certification Examination in Washington in 1957 at the age of 21. (Incidentally, we believe this makes Mr. Russ the youngest Orthotist ever to obtain cer-

tification.) Immediately after this he was sent to the J. E. Hangar facility in New Orleans, where he worked until the summer of 1958. He then moved to the Institute of Physical Medicine and Rehabilitation in Peoria, where he was employed until August 1960, at which time his present firm was formed.

Although he contracted multiple sclerosis in the spring of 1959, Mr. Russ has continued his work and has successfully established his own business in Peoria Heights.

A. B. Warren

Mr. A. B. Warren of A. B. Warren Orthopedic Appliances located at 212 South Ohio Street, Sedalia, Mo., entered the appliance field in 1952. Prior to this he had practiced as a Registered Pharmacist since 1931. He graduated from the Bowen Institute of Pharmacy with the degree of Registered Pharmacist. Mr. Warren had managed the Main Street Drug Store in Sedalia for four years prior to this time.

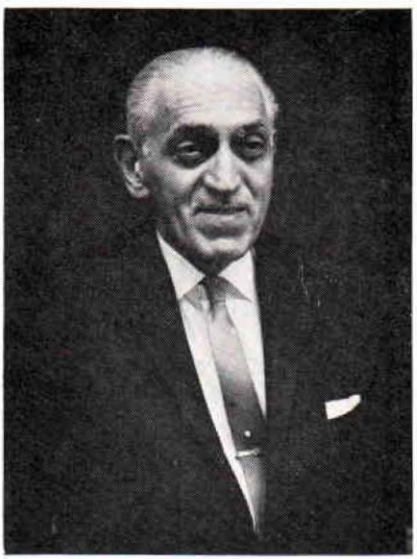
He saw the need in his community for an orthopedic appliance facility, and after talking with his friends in the medical profession, he decided to expand his service to include the fitting and application of orthotic appliances.

In the initial stages, he worked under the guidance of orthotists Ted Smith and Kenneth McConnell at the Isle's Company facility in Kansas City. There he learned to measure, fit and adjust various types of spinal and extremity braces and other orthopedic appliances.

Mr. Warren has more recently expanded the scope of his service to include surgical supports and now has a lady assistant for this department.

Mr. Warren has completed a number of courses of orthopedic study, including night classes in Anatomy and Kinesiology, offered by the Kansas University Extension Services. These classes were held in Kansas City, 90 miles from Sedalia. The location of his facility has made orthopedic services readily available to the area.

Mr. Warren was one of the founders of the Crippled Children's Center of Pettis County, and has served for a number of years on the board of the Pettis County Cerebral Palsy Association.



Lester H. Weitsen

The Eneslow Shoe Company was founded in 1928 by Mr. Sol Low with the specific purpose of serving the

Orthopedic needs throughout the Metropolitan area. This specialty was scientifically designed shoes, arch supports, foot moulds and partial foot prostheses.

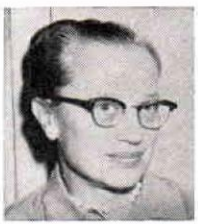
In 1933, Mr. Lester H. Weitsen became associated with the Eneslow Shoe Company serving in the capacity of General Manager and member of firm. His duties entailed the direction of policy as well as technical improvements of products.

Today the Eneslow Shoe Company fills thousands of prescriptions annually for individuals and for numerous institutions, distributing its products to all parts of the world. Its facilities have also been used to design and test some of the outstanding orthopedic shoes on the market. Shoe modifications and mechanical corrections have been devised and used experimentally to formulate many types of foot therapy that are in common use today by the orthopedist.

LIMBS FOR OVERSEAS—A young Chilean amputee at the Lionel Cooper Hospital, Valparaiso, examines a ship ment of used but serviceable, prostheses sent to the hospital through a joint project of the Committee on the Handicapped, Peope-to-People program; Veterans Administration; Office of Vocational Rehabilitation, Department of Health, Education and Welfare; CARE; Church World Service; Catholic Relief Service; the National Catholic Welfare Conference; the World Rehabilitation Fund and the American prosthetic and orthotic industry. Thus far, approximately 5,000 prosthetic and orthotic devices have been shipped under this program to 21 nations.

To The Ladies:
FROM AOPA'S AUXILIARY

Mrs. Pearl Leavy
President



Mrs. Margaret Brownfield
Vice President

Mrs. Lorraine Scheck
Secretary-Treasurer

Mrs. Margaret Peters
Past President

These past months have flown by and here we are with our Miami Beach trip just around the corner. I'm sure we'll all agree Miami can be a real vacation spot. We are anticipating our meeting with you.

For those of you who were unable to attend the 1958 meeting held at the Eden Roc, and plan to attend in October, we can only tell you to come prepared to visit a real paradise.

The lush vegetation against the rows of beautiful white homes along the waterways is a sight to remember. We hope to take a boat tour down to Vizcaya, passing through some of this area. This tour through the castle and grounds has been highly recommended.

You may be interested to know an Hawaiian dance group, including the daughter of Mrs. Selvie Reid, one of our members in Miami, will be entertaining us at our banquet on Wednesday evening. They are a group of teenagers who have previously entertained at Cape Canaveral and before numerous medical groups.

Many of you will be pleased to learn we have been asked to help serve refreshments for the children at the Crippled Children's Clinic presentation on Monday, October 23rd. Any ideas from anyone? We will ask for a volunteer committee at the Assembly.

As you have guessed by now, your cotton dresses, playclothes and informal wear in general will be just the ticket. You might want to pack something to wear in case one of the deep sea fishing trips sounds inviting.

Since the meeting is a little longer this year, we hope to have time for seeing and doing a variety of things.

As we count the days off, let's concentrate on making this the best attended assembly yet.

This is a great opportunity to combine a vacation with the business of AOPA. While the main interest is in learning about the latest developments in the limb and brace field, we feel there should be ample time for all of us as a group to avail ourselves of the many recreational facilities in the Miami area.

Be seeing you soon. Until October.

Sincerely,
Pearl Leavy

BOOK REVIEWS

SPECIAL EDUCATION OF PHYSICALLY HANDICAPPED CHILDREN IN WESTERN EUROPE
By Wallace W. and Isabelle Wagner Taylor. Published by International Society for the Welfare of Cripples, New York City. 487 pages. Reviewed by Sallie A. Nattress.

As education is important to the preparation of prosthetists and orthotists in order that they may take their place in serving the disabled, so education is important to disabled children so that they may take their place in society. This same society, as it varies from one country to another, places varying emphasis and varying restrictions on education. Thus we find a field of specialization within the field of education referred to as "Comparative Education." The book on which we are reporting to the readers of the *Journal* represents a major contribution to the field of comparative education for it is the first known work which reports in comparable form on the educational opportunities for disabled children in Western Europe. In addition this book offers a broad view of special education which is another area of specialization.

The authors of this study, a husband and wife team, report on their observations in twenty-one Western European countries. They have attempted to describe special education services and how they have developed as well as the administration and organization of such services, the relation between these services and medical and social services, the legal basis for special education, methods of financing programs, the incidence and definition of disabling conditions, and the education and employment of teachers for disabled children.

While disabilities such as blindness and deafness are considered along with orthopedic disabilities, it was generally observed that the latter group received instruction in one of the following situations:

1. Regular schools without special adaptations.
2. Special classes in regular schools.
3. Special day schools.
4. Special residential schools.
5. Hospital schools.
6. Correspondence.
7. Homeboard.

These situations vary as to the severity of the disability and are quite similar to the situations in which disabled children in America are instructed.

While this book is of interest to the prosthetist and orthotist it is basically a reference volume for teachers of disabled children.

KOSMETISCHE UND ORTHOPADISCHE KUNSTSTOFFERZEUNISSE. Cosmetic and Orthopedic Plastic Products. By:F. Pueschel 1956. (147 pages with 45 illustrations). Reviewed by Carlton Fillauer and H. R. Lehneis.

The subject of this book deals with a relatively new field for the Prosthetist-Orthotist. The author has recognized this to be such a new field that it is necessary to explore it extensively.

More and more patients desire to have a natural appearing cosmetic replacement. This book treats practically every aspect of cosmetic partial replacement. The author also devotes a large section of the book to descrip-

tion of the chemical composition of the available plastics as well as their trade names and uses.

There are also two chapters on Orthopedic aids of Plexidur, its application and fabrication techniques. A special chapter deals with artificial eyes. Most interesting are the charts on various facial shapes—shapes of various noses and fingers.

Over all, this book clearly describes techniques of making a cosmetic replacement. Starting with chapter two, it describes measuring and the different casting techniques. In the author's own words, "although my efforts were to make this book as comprehensive as possible, it cannot be considered complete because inventors and researchers are further developing ideas and thoughts for practical applications."

Orthopaedic Appliances Atlas Volume II—Artificial Limbs

Reviewed by ALVIN MUILENBURG, C.P. & O.

As stated in the Preface of The Orthopaedic Appliance Atlas Volume II, it is designed to meet the needs of those interested in management of Amputees. It's purpose is to bring up to date the state of the Art which includes technical procedures, prescription techniques and training methods directed toward establishing a common nomenclature that will be understood and interpreted alike by all who are professionally interested in prosthetic restorations. The authors and editors achieved that goal. It is a pleasure to read the carefully compiled information that begins with history dating back to 500 B.C. and brings us up to date wtih the most modern prostheses and methods of fitting in 1960. The entire Volume of 14 chapters is of vital interest to the prosthetist.

Upper Extremity Prosthetics is covered in detail under four separate headings: 1. Upper Extremity Components; 2. The construction and fitting of Upper Extremity Prostheses; 3. Harness Patterns for Upper Extremity Prostheses; 4. Anatomical and Physiological Considerations in the Clinical. Special appliances for partial hand amputations are also well described and illustrated.

Lower Extremity Prosthetics is well illustrated showing the various component parts and complete prostheses which have been available through the years with detailed descriptions of all. It cannot and was not intended to be used in lieu of a complete text book for fitting and fabrication procedures however. Textbooks now available for above knee and below knee prosthetic fitting are still necessary for the practicing prosthetist. A section on prosthetic knee joints for both below knee and above knee amputations is filled with valuable information.

Chapters in Physical Treatment and Training of Amputees and Anatomical and Physiological Considerations are as important reading for the prosthetist as the more technical Chapters on fitting and fabrication. This section gives the prosthetist a chance to review prosthetic training and gait analysis, the details of which we should never neglect.

Other chapters on Principles of Amputation Surgery, Cineplasty, Prescriptions, Special Problems of the Juvenile Amputee, and Clinic Team Procedures are equally of interest to the prosthetist.

The complete Volume is excellently illustrated throughout and each chapter is appended with complete bibliographies. The Orthopaedic Appliance Atlas Volume II is a reference book that should be in the possession of every Certified Prosthetist or applicant for certification.

Code of Ethics for the Artificial Limb and Brace Profession

The Federal Trade Commission has approved fair trade practices for the field of artificial limbs and for orthopedic appliances. Both codes have been adopted by the American Board for Certification as a guide for the Certified Prosthetist and Orthotist. The full text of the codes may be obtained from the Board's Headquarters. The following digest is printed for ready reference.

It is an unfair trade practice:

(1) To deceive purchasers or prospective purchasers as to any of the qualities of a prosthetic or orthopedic appliance, or to mislead purchasers or prospective purchasers in respect to the service of such appliances.

(2) To infer an artificial limb is equivalent or nearly equivalent to the human limb, complies with any government specifications, or has the approval of a government agency unless such be wholly true or non-deceptive.

(3) To fail to disclose to a purchaser, prior to his purchase of a prosthetic appliance, that the degree of usefulness and benefit will be substantially dependent upon many factors, such as the character of the amputation, condition of the stump, state of health, and diligence in accustoming oneself to its use.

(4) To promise that any product will be made to fit unless such promise is made in good faith and industry member is possessed of the ability to fulfill such guarantee. A prosthetic device or an orthopedic appliance is not to be considered as fitting unless properly shaped for the body member to which it is applied, and in proper alignment and conformity with the physique of the person to wear such a product, and affords the optimum of comfort and use on the part of the wearer.

(5) To deceive anyone as to his authority to represent and make commitments in behalf of a member unless such be fully true.

(6) To use any testimonial or use any picture which is misleading or deceptive in any respect.

(7) To demonstrate any appliance in a manner having the tendency or effect of creating a false impression as to the actual benefits that may be reasonably expected from it.

(8) To use any guarantee which is false or misleading.

(9) To represent that any appliance conforms to a standard when such is not the fact.

(10) To publish any false statements as to financial conditions relative to contracts for purchase of appliances.

(11) To engage in any defamation of competitors or in any way to disparage competitors' products, prices, or services.

(12) To use the term "free" to describe or refer to any product which is not actually given to the purchaser without cost.

(13) To *wilfully* entice away employees of competitors, with the purpose of injuring, destroying or preventing competition.

(14) To take part in any concerted action with other members to wilfully fix prices.

(15) To promote the sale of any appliance to any person who can not be expected to obtain reasonable benefit from such appliance.

(16) To refrain from giving every assistance to doctors before and after amputation or crippling condition, or to fail to do everything possible to promote mutual trust and confidence between members and the medical profession.

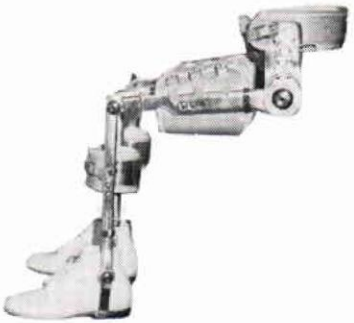
(17) To undertake to supply an artificial limb by mail-order specifications without personal fitting thereof unless conditions are such which make an exception desirable, and in any case, no misrepresentation shall be made as to fit.

(18) To unduly exploit features of appliances less important than proper fit and alignment.

(19) To fail to recognize that the interest of the amputee and the handicapped is the first concern and therefore any failure to make available to all of its members and the general public any improved technique that may be used as to making, fitting, aligning or servicing products shall be an unfair trade practice.

(20) To pay anything of value to any doctor for the purpose of obtaining a referral of a patient by the doctor.

Further, the limb and brace profession desires to be an active and cooperative factor in all progressive developments of improved techniques that will contribute to the welfare and comfort of all who use its services.



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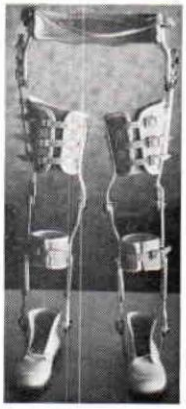

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GLOSSARY OF GERMAN NAMES FOR BRACES

A SUPPLEMENT TO THE GLOSSARY PUBLISHED IN MARCH 1960:

EDITOR'S NOTE: The Glossary of German Brace Names compiled by George W. Fillauer, Sr., which appeared in the March 1960 *Journal* (pp. 58-59) has attracted considerable attention. The supplementary list which follows has been prepared by Erich Hanicke of Kansas City, Missouri. The *Journal* will be pleased to receive additional lists of terms which have not yet appeared.

Leather Wristlets	Leder Handgelenk Manchetten
Elastic Stockings	Gummistruempfe
Elastic Knee Cap	Gummi Kniekappe
Elastic Anklet	Gummi Fussgelenkstueck
Leather Anklets	Leder Fussgelenk Manchetten
ACE Bandage (no rubber)	Elastische Bandage
Rubber Bandage	Gummi Bandage
Plastic neck collars	Plastische Halzkragen
Leather neck collars	Leder Halzkragen
Airfoam neck collar	Schaumgummi Halzkragen
Calcaneus Braces	Hackenfuss Apparate
Inner shoe elevations	Innere Verhoeherungs Apparate
Outer Shoe elevations	Hochschuhe oder Erhoehungsschuhe
Custom Built Shoes	Spezial Angefertigte Schuhe
Hyper Extension brace	Ueberstreckungs Apparate
Aluminum Cock-up Splint	Aluminium Handgelenk Streck Apparate
Tuberosity Weight Bearing Brace	Gewicht-Entlastungs Geh-Apparate
Leg Extensions	Beinverlaengerungs Apparate
Leverage type braces	Hebel Apparate
Immobilization braces	Immobilization Apparate
Finger Extension Splint	Finger Extensions Schiene
Short Legs	Kurze Beine
Brace Joints	Schienengelenke
Hip Joints	Hueftgelenke
Knee Joints	Kniegelenke
Ankle Joints	Fussgelenke
Backbars	Rueckenstebe
Under arm crutches	Unter Arm Kruecken
Adjustable bars	Verlaengerungsschienen
Plaster of Paris Model, Negative	Gipsabdruck
Plaster of Paris Model, Positive	Gipsausguss
Crutches	Kruecken
Crutch tip	Gummi Kapsel
Cane	Spazierstock
Shoe Lasts	Schuhleisten
Stainless Steel	Rostfreier Stahl
Copper rivets	Kupfer Nieten
Brass Bushings	Messing Huelsen
Cloth Corsets	Stoff oder Drell Korsette

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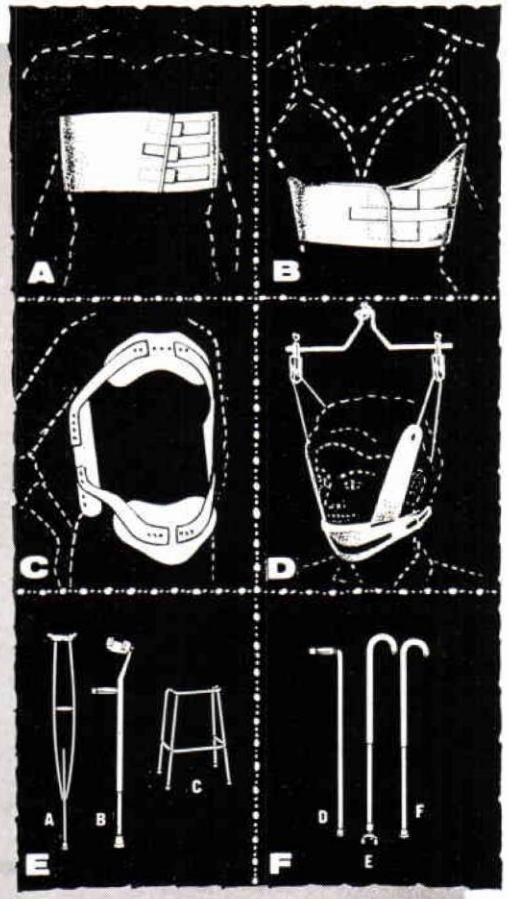

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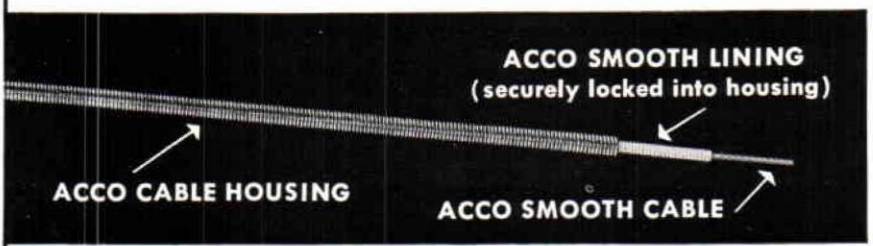
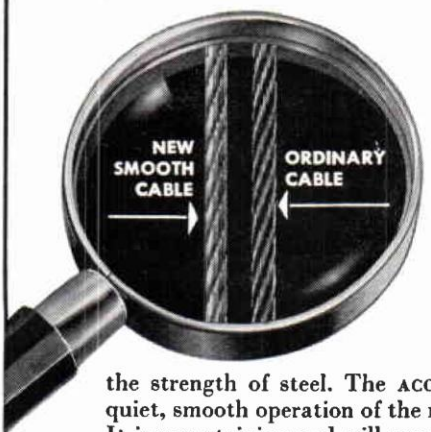


This exclusive ACCO combination of tough conduit, nylon-lined for minimum friction, and smooth cable assures quiet, smooth operation and exceptional service life. The nylon lining prevents squeaks, grunts, and jerks. Army Prosthetics Research Laboratory swaged fittings available.



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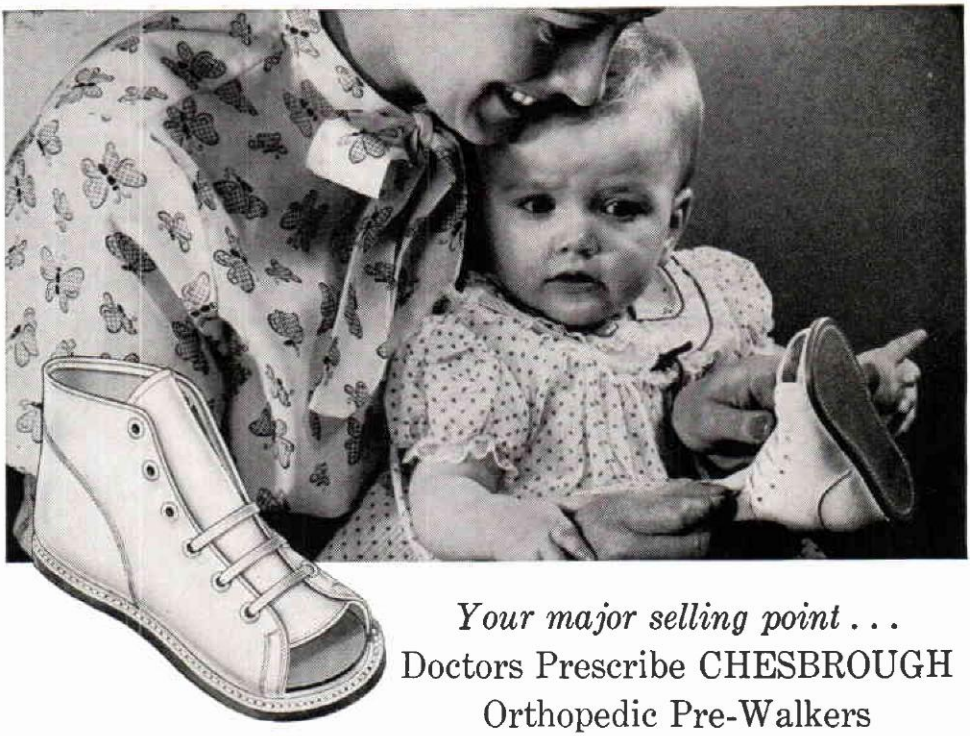

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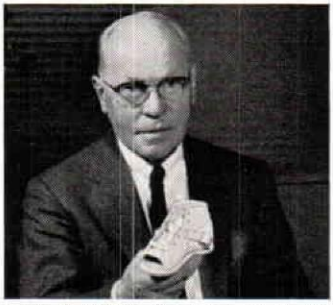

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This problem was brought home to Chesbrough's president, Louis C. Weld, three years ago, when a child in his own family needed such a shoe. Recognizing the need for orthopedic shoes at an economical price, Chesbrough put their 60 years of shoemaking experience to work and Chesbrough Corrective Pre-Walker Shoes were born.

Here is a shoe of highest-quality workmanship and fine leathers, made to sell at a moderate price.

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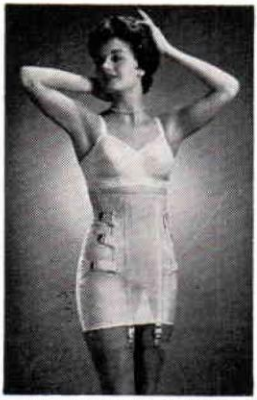

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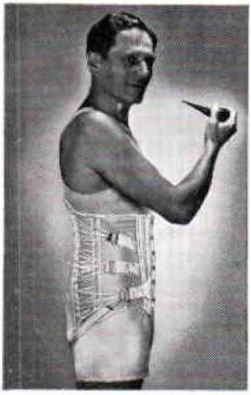

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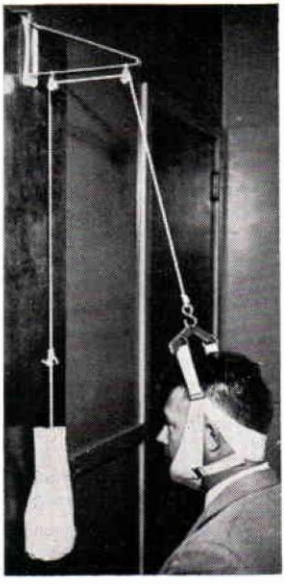

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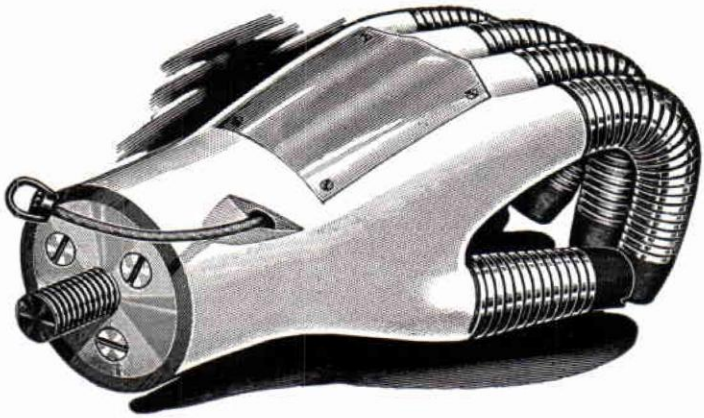

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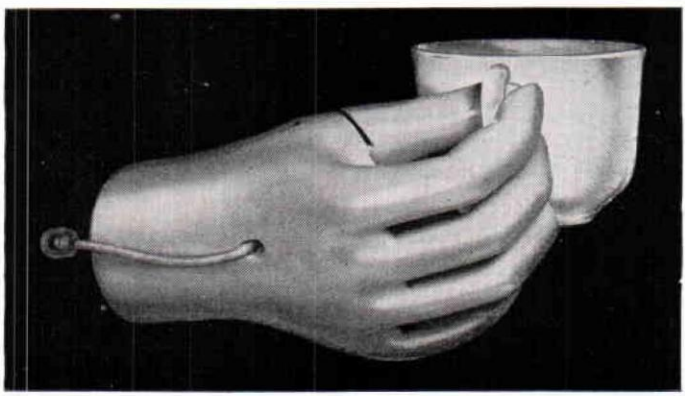

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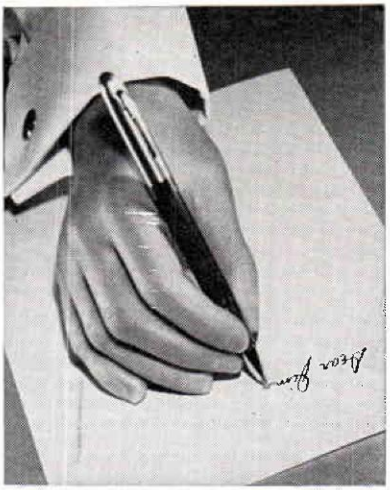

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Since that small beginning we have grown to one of the largest suppliers of all kinds of prosthetic materials and we ship anywhere in the world.

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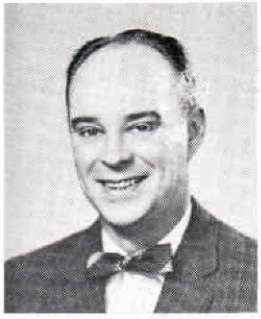

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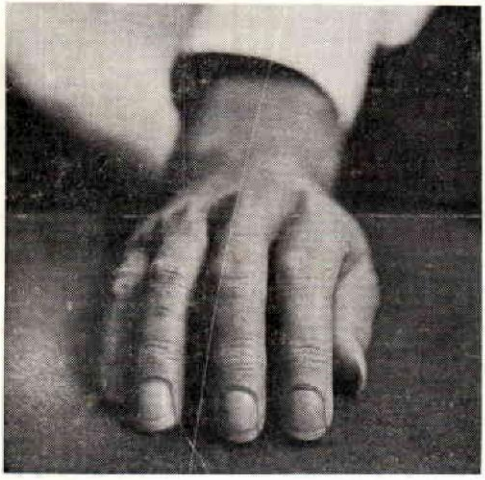

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