

MARCH, 1962

ORTHOPEDIC & PROSTHETIC APPLIANCE

*The Journal of the
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American Orthotics and Prosthetics Association

Calendar of Regional Meetings of the American Orthotics and Prosthetics Association

Listed below are the dates and meeting places of the eleven regional meetings which will be sponsored by the Association in 1962. These meetings are open to all those interested in the rehabilitation of the orthopedically handicapped.

Requests for reservations and program suggestions should be addressed to the Director of the particular Region concerned. The names and addresses of these Directors are included in the list.

Additional information concerning the programs and speakers for these meetings will appear in subsequent issues of the *Almanac* and *Journal*.

March 30-31—Region VIII, at Houston, Texas, Rice Hotel. (Director, David C. McGraw, Snell's Limbs & Braces, 1333 Line Avenue, Shreveport, Louisiana)

April 6-8—Region IV, at Jackson, Mississippi. (Director, Wilbur Floyd, W. L. Floyd Brace Co., 131 King Street, Charleston, South Carolina)

April 13-14—Region V, at Akron, Ohio. (Director, Durward R. Coon, D. R. Coon Company, 4200 Woodward Avenue, Detroit, Michigan)

April 27-29—Region III, at Philadelphia, Pennsylvania. (Director, Louis Pulizzi, Williamsport Orthopedic Company, 138 East 4th Street, Williamsport, Pennsylvania)

May 4-5—Region II, at New York City, Summit Hotel. (Director, Mrs. Mary Dorsch, Dorsch-United Limb & Brace Co., 109 East 29th Street, New York, New York)

May 11-13—Regions IX and X Jointly, at Yosemite, California, Awahnee Inn. (Director, IX, Charles D. Neal, Adroit Prosthetics Mfg. Co., 2224 West 7th Street, Los Angeles, California; X, Arthur D. Craig, A. D. Craig Co., 1016 Eye Street, Modesto, California)

May 25-26—Region XI, at Gearhart Beach, Oregon, Gearhart Hotel. (Director, William L. Bartels, 1120 N. W. 21 Ave., Portland Oregon)

June 8-9—Region VI, at Indianapolis, Indiana, Marott Hotel. (Director, Stanley E. Hedges, Indianapolis Artificial Limb Corporation, 959 North Pennsylvania Street, Indianapolis, Indiana)

June 15-16—Region I, at Boston, Mass. (Director Joseph H. Martino, United Limb & Brace Co., 15 Berkeley Street, Boston, Massachusetts)

June 15-17—Region VII, at Kansas City, Missouri. (Director, Erich Hanicke, P. W. Hanicke Mfg. Co., 1009 McGee Street, Kansas City, Missouri)

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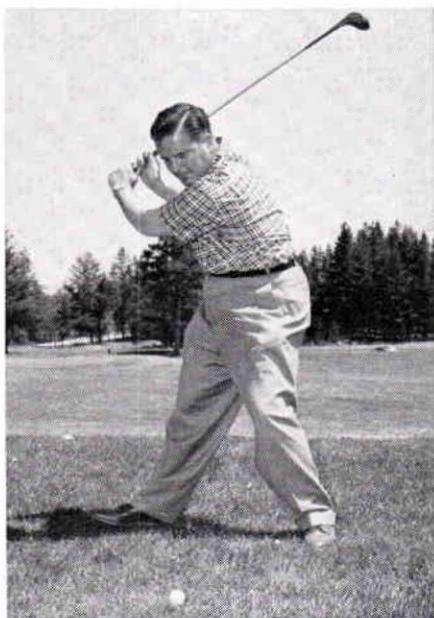
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VOLUME 16

MARCH, 1962

NUMBER 1

Second class postage paid at Washington, D. C.

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Publication does not constitute official endorsement of opinions presented in articles. The *Journal* is the official organ of its publisher, The American Orthotics and Prosthetics Association (formerly Orthopedic Appliance and Limb Mfrs. Assn.) and of the American Board for Certification. All correspondence should be addressed to the Editor of the *Orthopedic and Prosthetic Appliance Journal*, 919 18th St., N.W., Washington 6, D. C.

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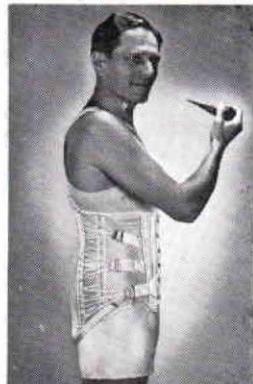
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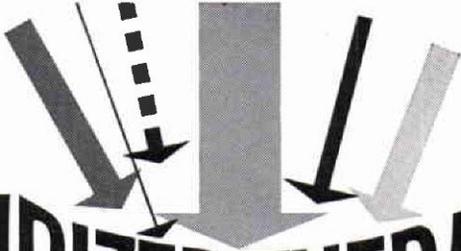
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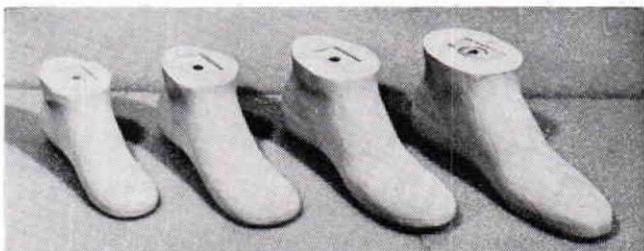
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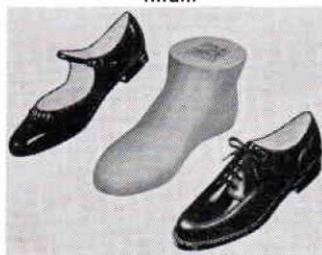
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12-3
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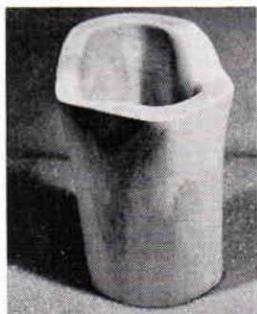
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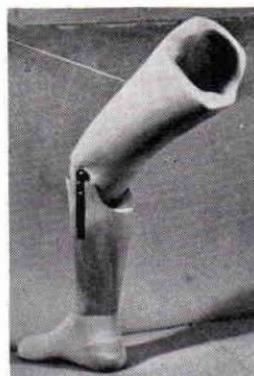
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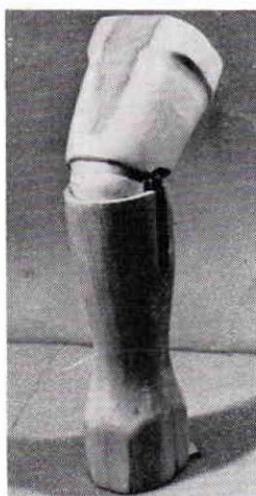
Pre Shaped
Socket Block



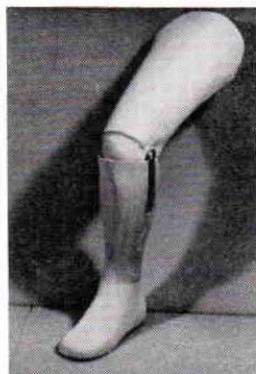
Sach Foot



Above Knee Limb



Knee Shin
Complete Limbs



Note Circumference
Knee Stop

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Socket Block
Rough Shaped
to pattern

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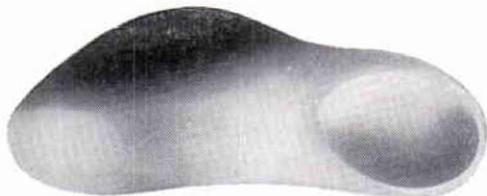
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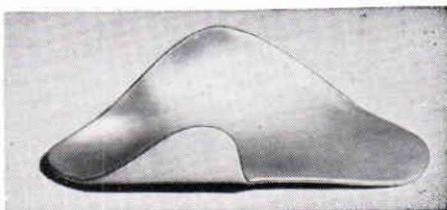
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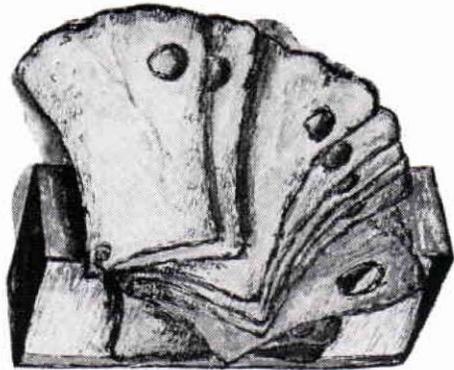
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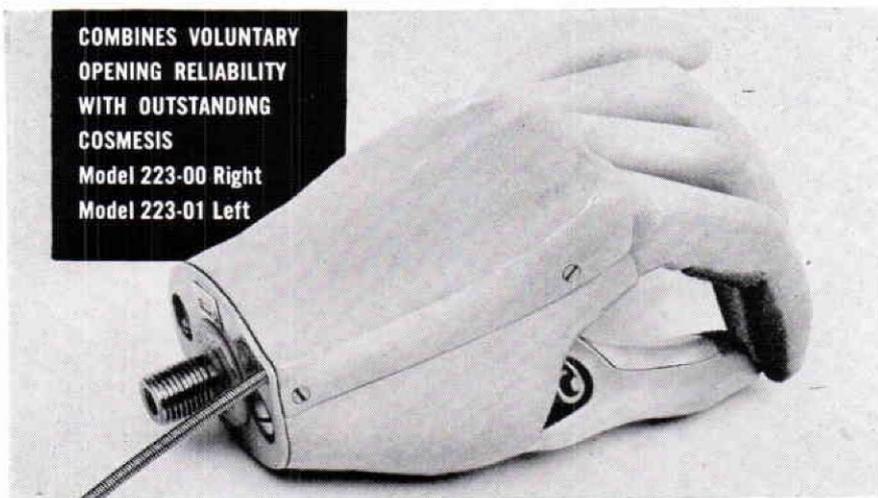
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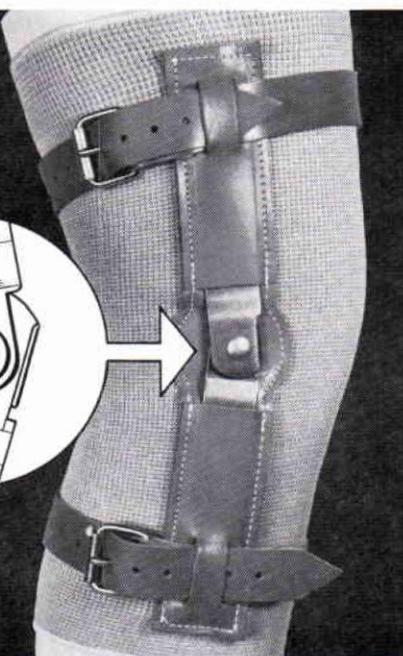
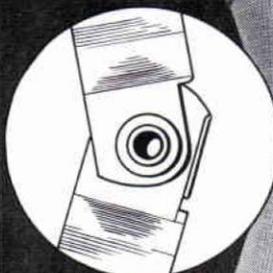
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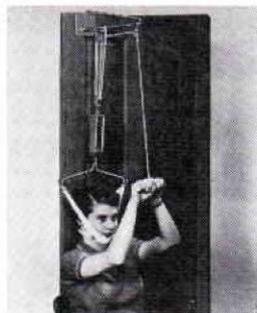
OD-5a



OD-6



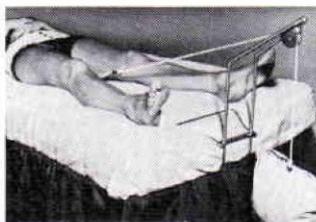
OD-7



OD-7w/50 # Scale



BD-13a (bed) Traction Support
w/Spr. Bar, Head Halter &
Weight Bag



BD-11a (bed) Traction Support
PB-61 Pelvic Traction Y Belt
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Dr. Compere Named President-Elect of AAOS

By J. WARREN PERRY, Ph.D.
*Assistant Chief, Division of Training
Office of Vocational Rehabilitation*

In Chicago at the twenty-ninth annual meeting of the American Academy of Orthopedic Surgeons, Dr. Clinton L. Compere was appointed president-elect of the Academy. To those of us who have had the privilege of working in close association with Dr. Compere this is a national honor well-bestowed on a hard-working leader in this field.

A brief resume of Dr. Compere's past and present activities indicate the intimate way in which he has been associated with orthopedics and the medical aspects of prosthetics and orthotics. After completing his specialty training in orthopedics, he spent twenty months in the southwest Pacific. He was organizer and chief of the Amputation Section of McGuire General Hospital. As VA consultant, he was one of the first chiefs to establish a regional clinic. In the early years of the educational program in prosthetics he participated in the pilot schools for suction socket fitting and taught in several of the early prosthetic courses.

At the present time he is Vice Chief of Staff at Chicago Wesley Memorial Hospital, associate professor of Orthopedic Surgery at Northwestern University Medical School, and Director of the Pathology Laboratory of the Orthopedic Department of Northwestern. As vice-president of the Board of Directors of the Rehabilitation Institute of Chicago, he also serves as a member of the Medical Advisory Committee of RIC and as director of the amputee clinics. Many people in the field know him as the academic advisor for Northwestern's Prosthetic and Orthotic Education and Prosthetic Research programs. Having served a three-year term on the American Board for Certification, he is most recently a member of the Committee on Prosthetics Education and Information and the University Council on Orthotics and Prosthetics Education.

Dr. Compere also serves as a senior consultant for the Veterans Administration and is consultant in orthopedic surgery at the 5th Army Headquarters, Chicago. Before his appointment as president-elect of AAOS, he served as secretary of the Academy from 1957-1962.

I am sure that I express the feelings of the members of AOPA and of all of us working in the rehabilitation professions when I say that we are glad to see an individual who has worked so closely with the fields of prosthetics and orthotics be elected to such a responsible position.

We confidently know that his tenure of office will be marked by sincere, dedicated service to the principles and objectives for which the Academy stands. Congratulations, Mr. President-Elect, AAOS!

Report on Activities in Orthotics and Prosthetics in Europe

By WILLIAM A. TOSBERG, C.P.O.

*Director, Technical Services
Institute of Physical Medicine and Rehabilitation,
New York University Medical Center
and*

Consultant to the World Commission on Research in Rehabilitation

At the request of the World Commission on Research in Rehabilitation of the International Society for the Rehabilitation of the Disabled, the writer undertook a trip to Europe in order to investigate the present status of prosthetics and orthotics and to discuss international research in prosthetics. In order to accomplish this mission, the following activities were undertaken:

I. Attendance at the Annual Congress of the German Prosthetics and Orthotics Guild.

II. Discussion of the Prosthetics and Orthotics Trade School at Frankfurt am Main.

III. Discussion of the status of externally powered prostheses and braces at the University of Heidelberg.

IV. Visit to the Prosthetics Research Laboratories of the University of Muenster.

V. Discussion with members of the Ministry of Labor and Social Welfare at Bonn, Germany.

VI. Visit to the Rehabilitation Center at Annastift, Germany.

VII. Attendance at the Prosthetics Research Meeting of the Committee on Prosthesis, Braces and Technical Aids of the International Society in Paris, France.

VIII. Participation as lecturer and instructor for the Fourth International Prosthetics Training Course at Paris, France.

I. Annual Congress of German Guild

The Congress of the German Guild of Prosthetists and Orthotists convened at Heidelberg June 15-17, 1961. Six hundred members participated, including technicians from Austria, Belgium, Holland, Italy, Norway, Spain, Sweden, Switzerland and the United States. The German prosthetics profession is still organized in the manner of the ancient European trade guilds. A young man serves an apprenticeship for three and one-half or four years, whereupon he stands for examination by a committee consisting of Guild members and members of the State Chamber of Trade. If he passes this examination successfully, he works as a journeyman for five years before he can be admitted to the master's examination. Only if he passes this examination can he establish his own facility and, in turn, train apprentices. The facilities within a district select one of their masters to be district master, and the district masters in turn nominate and elect the Federal Guild Master.

A price list for all prosthetic and orthotic appliances is established through negotiation between the Guild and government and insurance

agencies. These prices may be renegotiated or new items may be added to the list. Waterproof swimming limbs have become very popular in Germany as the result of new plastic materials that are being developed. The prices for these prostheses were a subject of this year's convention. Additional internal business of the Guild took up most of the first day.

The second day of the Congress was devoted to lectures and demonstrations of a technical nature. These lectures stressed the value of plastics. It would appear that wood and leather, predominantly used in Germany today, will soon be displaced by plastics, not only by epoxies and polyesters in conjunction with materials such as cotton and nylon for laminates, but perhaps even more by polyurethanes and other solid plastics because the greater wall-thickness of these materials facilitates better alignment. "Ortholin" is a new plastic shown which can be worked just like wood, is completely water and acid resistant, and is claimed to be superior to wood in most specifications and requirements.

Another new trend seems to be search for total contact sockets for above-knee as well as below-knee amputations. A cushion, well fitted to the end of the stump, is placed into the socket. This cushion is formed from an elastic plastic and, depending upon the height and elasticity of this cushion, the contact pressure within the socket can be controlled.



OUTSTANDING GERMAN PROSTHETISTS—Left to right: Dr. Lamers, the executive director of the German Association; Mr. Roeser, the Bundesmeister (President) of the Association; Mr. Dittmar, Obermeister (Regional Director, Berlin); Dr. Marquardt, of the University of Heidelberg; Mr. Stortz, former president of the Association; and Prof. Thomsen, the editor of the German Journal.

From discussions with several Guild members and through later observation of different facilities, the writer came to the conclusion that rather extensive changes, at least in prosthetics, can be expected in Germany.

Messrs. Hellmut Habermann and Leonhard Roeser reported on their recent trip to the United States as Guild members of a Committee to study research, development and educational facilities for prosthetics and orthotics as they exist in the United States. Other members of this Committee represented government agencies, research centers and institutions of learning.

Mr. Habermann, as well as Mr. Roeser, stressed the value of their trip. Both were impressed by the fact that the United States government supports research and education in all areas of prosthetics so generously, compared to the rather insignificant sums made available in Germany for this purpose.

The third day was reserved for lectures of a non-technical nature. Most of these concerned the cooperation of medical and non-medical personnel for an improved service to amputees and others physically disabled. The writer discussed this close cooperation between United States government agencies, the institutions of learning, and the American Orthotics and Prosthetics Association. In the following discussion the need for financial support for a similar program in Germany was stressed.

An excellent exhibit by the leading suppliers should be mentioned. Many of these suppliers are well known in the United States as they export machines and component parts to all areas of the globe.

Many excellent films were shown in support of the lectures. The writer was impressed by one film which underlined German participation in prosthetics service in emergent countries. It was made in Burma by a German prosthetist, Mr. W. Wille. He is rather well known for his work in the Far East, where he started amputee services in many areas. As an "expert" of the United Nations he has worked in Burma, Thailand, and other countries where he made prostheses and braces from native materials, taught native technicians, and has created considerable goodwill for international technical assistance.

The Heidelberg meeting not only provided a good opportunity for exchange of information and study of new materials and new designs, but it also made possible a better understanding of the many differences in prosthetics service that exist between the United States and Germany.

II. Trade School at Frankfurt am Main

The German Prosthetics Guild maintains its own Trade School at Frankfurt am Main. This school was founded in 1954. It conducts long term courses in all areas of prosthetics and orthotics for Guild members preparatory to admission for the master examination. Eleven courses of four months duration have been attended by 264 students.

In April 1961 an extension of the facilities was provided in order to increase developmental projects. The total cost of the school was originally carried by an assessment to Guild members. Recently, however, the German Ministry of Labor and Social Welfare has made a grant to this school. This grant was probably a result of the findings of a German Committee which visited the United States, where prosthetics research and education enjoy the support of the United States government. The net profits of *Orthopaedic Technique*, the trade journal of the Guild, have also been utilized to defray part of the expenses. It is felt that the Trade School fills a great need for a more formal education, a need which cannot be met in any other way.

III. Externally Powered Prostheses and Braces at University of Heidelberg

Professor K. Lindemann, Dr. E. Marquardt and Dr. Marlis Mueller of the University of Heidelberg attended the Congress, and the writer had an opportunity to discuss the present state of the externally powered prostheses and braces as developed at this University. Dr. Marquardt, who is most actively connected with this work, had bilateral as well as unilateral amputee patients demonstrate their prostheses during his lecture. The ease of operation and dexterity achieved by some of these very severely maimed patients were convincing. The control mechanisms varied widely, depending upon the level of amputation.

Dr. Marquardt stressed the fact that a very close collaboration exists between his Center and the American Institute of Prosthetic Research. Several American components are considered to be superior to the ones developed in Germany and are therefore imported and used routinely.

Component parts of the prostheses, as well as control mechanisms, for all levels of amputation have been standardized. The Prosthetics Research Department at the University of Heidelberg believes that the design of their prostheses has almost reached a stage where it is ready for commercial construction.

IV. University of Muenster

Following the Prosthetics Congress the writer visited Professor Oskar Hepp and Dr. Goetz-Gerd Kuhn at the University of Muenster (Westfalen). Both men are well known in the United States. Professor Hepp has been chairman of two committees visiting the United States to study prosthetics and to make recommendations to German agencies responsible for the service to the physically disabled. Dr. Kuhn visited the United States and Canada in 1960. Both have been instructors for the various International Prosthetics Training Courses conducted by the Committee on Prostheses, Braces and Technical Aids, of the International Society for the Rehabilitation of the Disabled. Professor Hepp is also a member of the Society's World Commission on Research in Rehabilitation.

The University maintains a Prosthetics Research Center and only recently dedicated a new building for this purpose. The Center is supported by funds from the University, the German Ministry of Labor and Social Welfare, and by the Montan Union (European Coal and Steel Union). This Union is an international group whose member countries produce and manufacture coal and steel. It was formed shortly after World War II and is a forerunner of the Common Market. Due to the nature of the work, the incidence of maiming injuries is high and the interest in prosthetics and orthotics services is natural. The group supports several projects in the area of rehabilitation.

The Research Center at Muenster is under the direction of Dr. Kuhn and is best known through its outstanding work for the German upper extremity amputee. Its interest stems from Professor Hepp's first visit to the United States, where he became familiar with the work of the Army Prosthetics Research Laboratory at the Walter Reed Hospital. Upper extremity prostheses in Germany until that time consisted primarily of cosmetic arms and only a limited number of arm amputees were provided with passive work hooks. Cineplastic operations had been pioneered by Drs. Sauerbruch and Lebsche but were not generally accepted by the amputees. Plastics as used in the United States were not known in prosthetics work but through the initiative of Professor Hepp and with financial support of several agencies, upper extremity prosthetics changed radically in a relatively short time.

At the University of Kiel and later at Muenster, Professor Hepp started a program of research in plastics design development and in dissemination of information which must be considered exemplary.

Dr. Kuhn, who studied medicine after he lost a leg above the knee during World War II, is a certified prosthetist as a result of his apprenticeship before the war. His upper extremity socket fitting techniques vary considerably from the American techniques in several respects. He has demonstrated these techniques widely in Europe and also in the United States, and they are accepted or are being investigated in many countries. The Center has excellent shop facilities and also dormitories for amputee

pilot wearers, as well as limited research and training facilities. A rather extensive collection of prostheses and terminal devices for upper and lower extremities is maintained, including some hands from Russia.

Regular training courses are conducted at the Center not only for German teams but also for physicians, technicians and therapists from many foreign countries, including the Near and Far East.

V. Social Welfare Discussion at Bonn

Professor Hepp mentioned that the Chancellor of the University of Muenster had been informed by a government agency about the German interest in a technical assistance program for emergent countries. This agency had requested that recommendations be made by the University of Muenster concerning contributions which could be made in the area of public health. Professor Hepp recommended to the Chancellor that mobile units for prosthetic and orthotics care might be one of these contributions. Inasmuch as a research meeting was planned to precede the Fourth International Prosthetics Training Course by the Committee on Prostheses, Braces and Technical Aids, it was considered expedient to have Professor Hepp and also a member of a German government agency present at this research meeting. The writer therefore proceeded to Bonn to discuss such a possibility with Dr. Fritz Blohmke, who is responsible for prosthetics and orthotics services for the German war-injured.

A meeting with Dr. Dirkes, a superior officer of the Ministry of Labor and Social Welfare, was arranged in order to obtain permission for Dr. Blohmke to attend the meeting in Paris. During the conference in Bonn it was learned that about 80 per cent of all physical disabilities in Germany are the result of war injuries. This figure includes 518,000 veterans from World War I.

The German government supports research in prosthetics and orthotics at five areas. These include the Prosthetics Research Center at the University of Muenster, where clinical evaluation and experimental work is carried on. At the Max Planck Institute at Dortmund fundamental research in biomechanics is supported. Research in material for prostheses and orthoses takes place at the University of Berlin. At the University of Hannover, material testing is carried out with governmental support. Recently the government has also made a grant to the Master School in Frankfurt, as previously mentioned. It is quite possible that next year's budget will include greater sums of money for more extended support of prosthetics research and education.

Dr. Fritz Blohmke submitted a report of the Paris meeting to his Ministry. It should be noted that he stressed recommendations concerning governmental support for increased prosthetics service in emergent countries.

VI. Annastift Rehabilitation Center

The German "Inner Mission," which is supported by the churches, has since the 17th century undertaken the care, rehabilitation and training of the physically handicapped who are not covered either by insurance companies or a government agency. The Inner Mission maintains at present 382 hospitals, as well as rehabilitation and training centers.

One of these is the Annastift at Hannover, under the direction of Pastor Werner Dicke, who is also a member of the World Commission on Research in Rehabilitation. This Institute treats in-patients and out-patients with orthopedic disabilities. It is well equipped and maintains an excellent brace shop with about twenty employees. Most of the shopwork consists of

orthopedic appliances. The braces for lower extremities are almost all constructed from molding leather with forged steel sidebars. They are constructed over plaster of Paris casts, the negatives of which are taken by the orthopedic surgeons. The shop has constructed an excellent knee joint for these braces. These joints are now made by a commercial manufacturer and will probably be adapted by other orthotics facilities.

Prosthetics work is to a great extent confined to artificial limbs for children with congenital absence of limbs. Only recently the prosthetics department developed a light weight plastic baby hook which was shown at the Prosthetics Congress in Heidelberg. It appears to be well constructed, functional, and due to its material and shape it is also cosmetically acceptable to the children and to the parents. It is a voluntary opening hook which is activated by rubber bands.

The shop for the construction of orthopedic shoes is well known in the district. Their products have won several prizes for workmanship and design. Both shops are qualified to train apprentices and among these are presently several disabled young men who show good promise.

During 1959 Annastift enlarged their facilities. One of the new buildings is a wing for children's service. It appears to be well designed with large, light classrooms utilizing the most modern equipment for spastics and children with other handicaps. Special busses transport disabled children from outlying districts to the school.

Modern kitchen facilities are adequate to take care of the needs of patients as well as personnel. A spirit of cooperation and human interest can be noted throughout the Institute.

VII. Prosthetics Research Meeting in Paris

The Committee on Protheses, Braces and Technical Aids held a two-day special research meeting at Paris prior to the Fourth International Prosthetics Training Course. Eleven Committee members and seven guests participated. This meeting had the financial support of the World Commission on Research in Rehabilitation. It has long been recognized that prosthetic services in certain countries have reached high levels, partly as the result of efforts by some outstanding artisans but more often by concerted research supported by governmental and other agencies. No organized attempt of research, however has been undertaken on an international level.

Since the Committee includes some of the world's outstanding authorities in the field of amputee service, it would seem to be obvious that this body should be the vehicle of international research. The Committee has up to the present attempted to disseminate available knowledge by means of a library, through its Journal, and through international prosthetics training courses. These efforts should be continued and extended within the limits of available financial support. It is recognized, however, that the available knowledge, techniques and materials are insufficient to meet all international needs. Cultural, functional and also supply considerations differ so radically in many areas of the globe that it would be impossible, or at least extremely wasteful, if one would attempt to establish amputee services in most emergent or underdeveloped countries based on present European or American standards.

Several possibilities were discussed but it was generally agreed that at this time no valid recommendation can be advanced. Any research or developmental program would have to be based upon the findings of a survey to be conducted in different areas of need. Any survey team should include experienced physicians, technicians and social workers as well as



PARIS INTERNATIONAL PROSTHETICS TRAINING COURSE—A group of students of the 4th International Course, discuss a demonstration by Mr. Marlet from Belgium of taking a plaster of paris cast for a total bearing A/K prosthesis.

administrative personnel. The recommendation should be formulated upon the findings based on the number of disabled, their vocational potential, material and labor available, cultural considerations and the attitude of the governments concerned.

Only after full evaluation of all facts would it be possible to design prostheses or component parts to fulfill the needs of the different areas. Simplicity, durability and patient acceptance would probably be considerations of high priority. It was stated, however, that the Committee, despite its eminent qualifications based on its international membership of leaders in the field of prosthetics, orthotics and technical aids, is unable to conduct such a survey either by correspondence or direct contacts because the cost in money and time would be prohibitive. The International Society for Rehabilitation of the Disabled, as the parent body of the Committee, might use its contacts for a limited survey, but it would appear that only international organizations such as the United Nations or the World Health Organization would be able to underwrite these expenses.

Several national governments have indicated a greater interest in and awareness of the need for rehabilitation in emergent countries. Research in prosthetics and orthotics to overcome despair and disability, and also provide employment possibility through the manufacture of artificial limbs and orthopedic appliances, should be one area which could assure good results at relatively low cost.

VIII. Paris Prosthetics Training Course

The Fourth International Prosthetics Training Course took place in Paris July 3-15, 1961. One hundred eight people from eighteen countries were registered either as delegates or observers. The countries represented were Belgium, Congo, Denmark, France, Germany, Greece, Haiti, Holland,

Israel, Italy, Lebanon, Malagasy, Mali, Portugal, Sweden, Switzerland, Tunisia and Yugoslavia.

The Course was under the combined auspices of the Committee on Prostheses, Braces and Technical Aids, the World Veterans Federation and the French Government. This was the first international prosthetics training course which had the direct financial support of a government. Several French governmental officials, including the Ministre des Anciens Combattants et Victimes de Guerre, addressed the participants of the Course. Eight members of the faculty received medals from either the City of Paris or the Ministere des Anciens Combattants et Victimes de Guerre.

All lectures were held in the New Faculty of Medicine. The Course was primarily intended for French-speaking students. Since several faculty members were not proficient in the French language, the Government agreed to underwrite the cost of simultaneous translation and instructors came from the following countries: Belgium, Denmark, England, France, Germany, Italy, South Africa and the United States. The curriculum covered the whole field of amputee service.

Field trips to various hospitals and rehabilitation centers added interest and practical value to the many excellent lectures. Extensive use was made of demonstration models, slides and films.

Practical work demonstrations were performed at the well-equipped experimental workshop maintained by the Ministere des Anciens Combattants, an agency which approximates the U. S. Veterans Administration. It was enlightening to study the different approaches towards amputee rehabilitation based on the philosophy of the various countries. Whereas pylons with knee locks are frequently seen in France, one learns that the German above-knee amputee prefers a polycentric physiological knee joint. A British film showed excellent prostheses made from reinforced molding leather, whereas Mr. Morlet from Belgium demonstrated similar prostheses made from plastics. Simplified limbs from the United States resemble standard prostheses in most respects but in many countries they may be made from inexpensive material without knee joints and with crutch tips at the end. A very extensive exhibit by many firms from different countries showed the very latest component parts and also new materials and designs. The Italian exhibit was outstanding for its workmanship. Some of the British and French manufacturers included not only prostheses but also braces and other orthopedic aids.

One French film which greatly impressed the writer showed a mobile unit which brought prosthetic services to amputees in the outlying districts of Africa. The trucks were specially constructed and equipped for this purpose. Another film, made under the direction of Col. Charles Abadie of France, described in great detail a simplified below-knee leg with good function and excellent cosmesis.

There is a good interchange of information amongst the prosthetic research centers in the different European countries. The international prosthetics training courses are an excellent means of making the knowledge so acquired available to many more countries.

Although the Fourth Course did not have the advantage of the previous courses, where living quarters, lecture rooms and shop facilities were in close proximity, it was the impression of most participants that these courses have been the best means not only to advance knowledge, but also to serve as a clearing house for new ideas and to inspire the members of the different professions to greater efforts toward improved service for the physically handicapped.

The Northwestern University Ring Type Harness for Below Elbow Amputees

by

FRED HAMPTON, C.P. and FRED SAMMONS, B.A., O.T.R.

Introduction

Current practice requires a custom made harness for each upper extremity amputee as he is being fitted. Northwestern University Prosthetic Research Centre has developed a universal harness that is easily adjusted to fit all B/E amputees. The harness is referred to as the NU-RT Harness.

The basic component of the NU-RT Harness is a stainless steel ring at the back cross to serve as the distribution centre for the four diverging straps of the Figure 8 harness. By the use of appropriately placed buckles, adjustment is made to the size of the axilla loop, the length of the control attachment strap and the length of the suspensor strap.

The NU-RT Harness provides several important advantages. Fitting time is greatly reduced by prefabrication. Periodic replacement, especially of the axilla loop pad, is easily made. The harness is readily and completely adjustable to all B/E amputees and will fit either right or left arm amputees. The rotatory action of the straps sliding around the ring as the extremities change position causes the ring to lie flat in all working conditions.

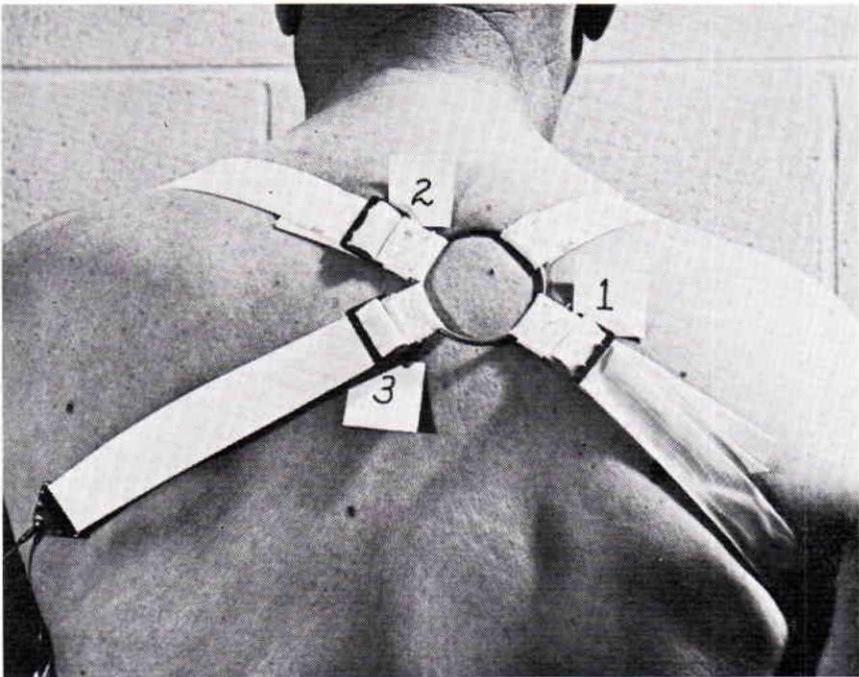
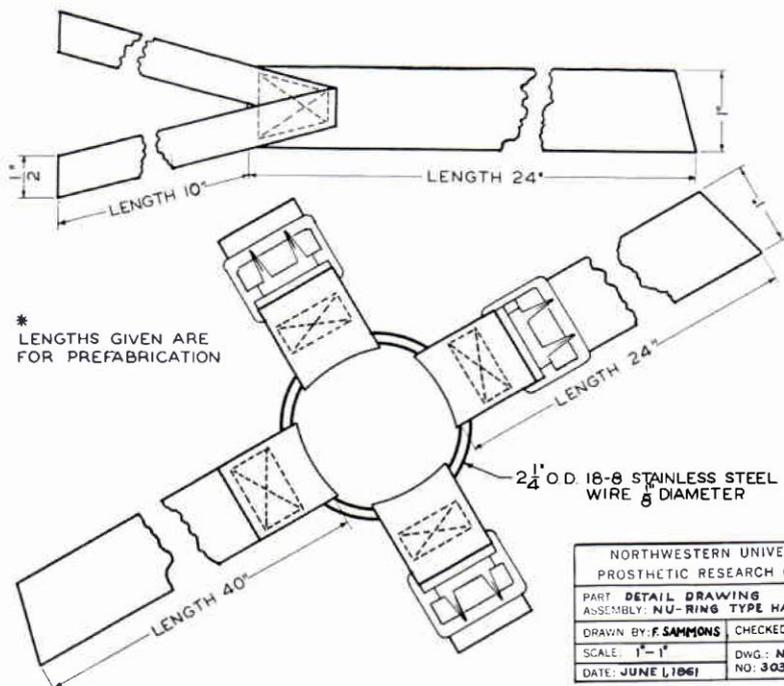


FIG. 1—1. Axilla loop. 2. Inverted Y suspensor. 3. Control Attachment strap.



Fabrication

The harness is fabricated from dacron tape. The strap length given in the detail drawing should be adequate for the majority of amputees.

The ring is made with a 2 1/4" O.D. and fabricated from 18-8 stainless steel wire 1/8" in diameter.

Heavy duty sewing is used since no further change in stitching is needed.

The axilla loop pad is not installed during prefabrication.

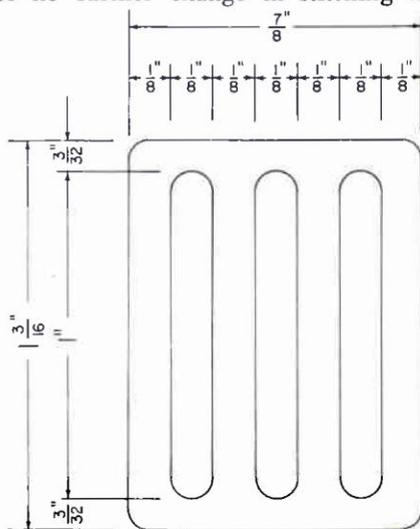
The inverted Y suspensor strap is separate from the ring. Construction of this part may be varied to meet the needs of the prosthesis.

Fitting

The harness is fitted as illustrated in the accompanying photograph (Fig. 3).

The axilla loop pad is installed. The ring is usually fitted toward the axilla loop side about 1" from the centre line. Pressure in the axilla is built up if the axilla loop is too small, although advantages in suspension and available work in the control cable are realized if the ring is fitted well over on the sound side.

The harness is adjusted to amputee preference.



Preferred 4-bar taber type buckle for NU-RT harness.



FIGURE 2

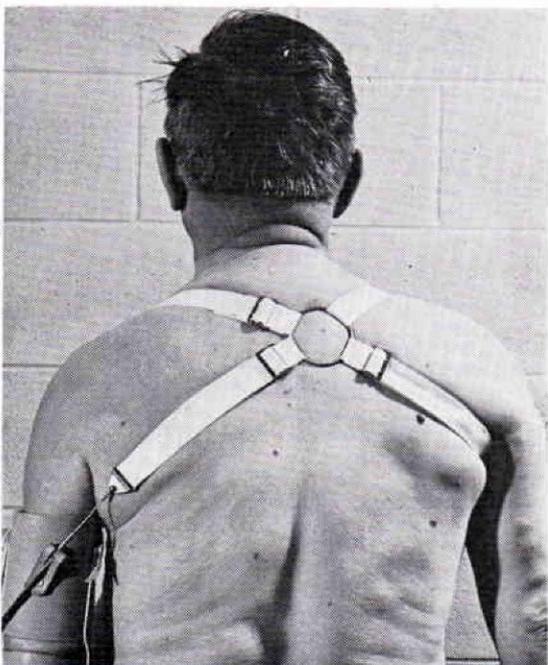


FIGURE 3

An Abduction Splint For Congenital Dysplasia

By FRANK C. RUYS, M.D.
Redwood City, California

EDITOR'S NOTE: Reprinted by permission of the author and the editors from *The American Journal of Orthopedics*, Vol. 2, Nos. 1 & 2, January-February, 1960.

Recently there has been cause to depart from the conventional splints applied in certain cases of congenital dysplasia of the hip. This report presents the advantages for the use of a new Abduction Splint in certain cases of congenital dislocated hip where abduction is desired.

Of the existing splints used, the majority require periodic removal for reasons such as cutaneous inflammations, body overgrowth, and the necessity of clearer X-rays. Such removal may allow a femoral head displacement.

This Abduction Splint,¹ made of an acrylic plastic material which weighs about one pound, has several obvious advantages. It is nonporous, non-toxic, non-absorbent, and the patient can be bathed while in it. After drying, it remains clean and moisture resistant, whereas patients in plaster splints are problems because of cutaneous inflammation caused by saturation of the plaster with urine. Once abduction is secured with this splint, it can remain relatively uninterrupted until acetabular development is complete enough to allow removal.

Clear X-rays can be made while wearing this because of its radiolucency; and roentgenograms, such as those presented here, illustrate this point well and show the hip in a good abducted position. This is important as the plaster counter-parts have, in cases, often been broken down and position lost by very active patients.

The Abduction Splint is easier to fit directly than most metal and leather splints, and any item of clothing may be worn during use. (Fig. 1).

Case Reports

Case 1: D. F., age 16 months in December, 1955. Classical signs of subluxation of the left hip joint were present, and the acetabular index on the left was 43. The epiphyseal center for the left femoral head was displaced 1 cm. laterally from the normal position. The right acetabular index was 22 with no subluxation. Under anesthesia the left hip was reduced and held in a plaster spica. Over a period of the next few weeks skin irritation due to urinary saturation became severe. The cast had to

1. Fuzere Abduction Splint.

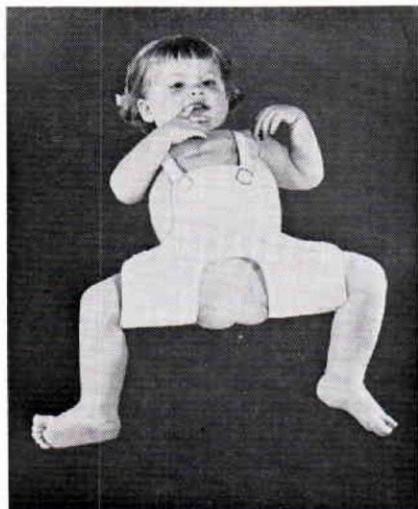


Fig. 1—The Fuzere Abduction Splint for treatment of certain cases of congenital dysplasia of the hip or hips.

be removed; and it was necessary to use, without concern for the hip, supportive therapy to clear the skin. An attempt was then made to hold the hip with a Frejka pillow splint but was not successful. A plastic abduction splint was applied after the hip was again reduced with anesthesia. Satisfactory position was maintained for seven months, after which the left acetabular index, was 27 with a femoral head noted to be developing normally within the acetabulum. The child last seen January, 1958. A full range of motion, normal stability, and absence of limp was noted in each hip.

Case 2: R. B., was born September, 1957 and seen at age three months. X-rays and signs indicated the presence of bilateral subluxation of the hips. The acetabular indices measured 45, left; 35, right. A closed reduction without anesthesia, was done in office and a spica cast applied. X-rays showed good position. At the follow-up visit, January, 1958, the cast was completely urine-soaked, and had an intolerable odor of ammonia; early pustular breakdown of skin around perineum and anus was found. The cast was removed and again, an attempt was made to maintain position of the hips with pillow splint while a plastic splint was being made;² however, it was necessary to re-reduce the hips when the splint was applied. The splint was left on until August, 1958 when the acetabular indices measured within normal limits, and the hips were clinically stable. This case was last seen in May, 1959; she walked normally without any limp or evidence of instability and had full range of motion in both hips.

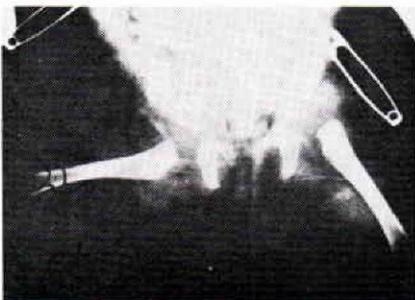


Fig. 2—Patient prior to use of Abduction Splint.

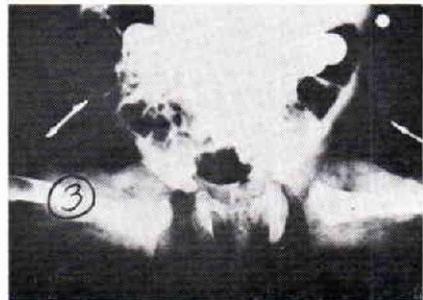


Fig. 3—Patient after placement of Abduction Splint.

Summary

Several succeeding cases have been successful; and it is felt that early diagnosis, followed by the immediate application and continued use of the Abduction Splint produces good results in certain cases of Congenital Dysplasia of the hips or hip. In these cases the use of thin splints is superior to older techniques. It is easier to apply and the subsequent nursing care is much simpler.

2. Waiting periods are no longer necessary, as splints are now in production.

Psycho-Social Implications of the Geriatric Amputee*

By CHESTER C. HADDAN, C.P.O.
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Modern surgical methods coupled with modern chemotherapy and the ready availability of whole blood have greatly reduced the number of casualties that formerly resulted from amputations, particularly among the so-called geriatric group. Today, with good nursing care and modern chemotherapy, even the most debilitated patient with severe infection or vascular problems usually responds to treatment making it possible to carry out safely an amputation at almost any level. Unfortunately, the same degree of progress has not been made in the psycho-social-economic problems of the amputee, particularly the geriatric amputee whose problems are usually much more severe in this area and whose ability to solve these problems is greatly impaired because of age, and social and economic factors.

It is estimated that there are 16,000,000 persons in the United States who are 65 years of age or older. While this figure comprises only a small percentage of the total population, older persons (over 65) suffer more than 25% of the chronic illnesses. Most of our geriatric amputees come from this group. It is admitted by all who have had wide clinical or research experience with this group that the geriatric amputee without psycho-social and economic problems is rare indeed. It is interesting to note that of 15,000 Old Age Pensioners hospitalized in Colorado in 1960 under the Blue Cross-Blue Shield Medical Care Plan, 4,000 were suffering from peripheral vascular diseases of the lower extremities. Victor D. Sanua, in a socio-cultural study¹ of 45 aged amputees undergoing rehabilitation in New York hospitals, found that the cultural backgrounds of this group, unless understood and appreciated, would make rehabilitation unlikely. All the subjects in the study entered the hospital suffering from peripheral vascular diseases. The majority had developed gangrene which necessitated amputation. They represented four cultural groups and included 18 Jews, ten white "Old Americans," ten Negroes, and seven people of Irish extraction. The average age was 67. At the time of the study all were destitute, yet there were such marked differences in the psycho-social attitudes of the various ethnic and religious groups as to make the findings of the study most significant.

The majority of physicians are raised with middle-class values which have, in general, been influenced strongly by Protestant traditions. The emphasis of their training has been to handle the specific illness of the patient. However, if the physician does not familiarize himself with the social and cultural environment of his patient, no matter how capable he is in his field of specialization he will fall far short of his responsibilities. This problem becomes even more critical when the patient happens to need psychological help or guidance.

*A paper presented at a Conference on the Geriatric Amputee at the National Academy of Sciences—National Research Council, Washington, D. C., April 13, 1961.

Reusch³ has this to say about the doctor-patient relationship:

"In the United States, doctors are generally middle-class persons who view the world with the distortions characteristic of middle-class societies . . . Ultimately, then, the doctor has a composite view which is made up of his life experiences as an individual and of his collective experience as a member of a certain social class, religion, ethnic group, geographical locality, age group, sex, and professional group . . . When the therapist (doctor) meets his patient, who exhibits another set of values and tries to live up to the stereotype of 'a good patient,' the difficulty begins."

This exclusive concern with the physical aspects of illness is not confined to the doctor alone. Indeed, it is even more apparent in the attitude of the prosthetist, the occupational therapist, the physical therapist, and even the social worker and the rehabilitation counselor. All have the tendency to look upon the amputee only as one whose problems can be solved easily by giving him a prosthesis and some gait training, when it is entirely possible that the amputation is the least of the patient's problems. When he does not progress as expected, altogether too often the blame is placed on a "poorly fitted prosthesis," "lack of cooperation on the part of the amputee," or, more commonly, on "lack of motivation." At the hundreds of "Amputee Clinics" which I have attended personally, I cannot recall ever hearing the "Clinic Team" ask themselves "Wherein have we failed?"

It is entirely possible that prostheses are now being furnished many geriatric amputees who would be better off and live longer and happier lives without them. Gillis² states: "The ultimate decision as to whether or not an artificial limb is going to benefit the patient will depend on the physical powers and the mental make-up of the individual. A good artificial limb will not succeed, even in the presence of good physique, if the patient's psychological make-up sets up some latent aggravating focus as a barrier."

Bertelsen¹ says that "Limb fitting in geriatrics is quite another problem than in the younger groups, partly because of the special psychology of the old patients. Here it is very important to know the senile confusion which frequently follows an accident, an acute illness, or the knowledge of the necessity of an amputation. This confusion may often be a severe complication and may resemble the senile dementia, the patients being quite unreasonable, not fully aware of time and place, and not realizing the actual problems."

McKenzie⁴ says "In dealing with amputation cases we must always remember that the stump is only part of a human being and that the remainder of that organism is subject to all the ailments, weaknesses and defects to which the human subject is heir. It is therefore not sufficient to confine one's attention solely to the stump but we must consider the total patient." McKenzie goes on to say that some of the psychological factors that should be considered are "Firstly there is the patient's personality. The personal reaction to amputation varies enormously and is dependent on many factors of which probably the basic personality is the most important, but other factors such as compensation litigation, clinic team or physician approach etc. may have considerable impact." He goes on to say that adverse psychological reactions can form an important additional handicap.

It is my opinion that the conditions, or combinations of them, referred to by McKenzie and others may well result in a disability of much greater

magnitude than the amputation itself and one much more difficult to solve.

The "Clinic Team" as originally conceived by Bechtol was designed to help prevent, or at least minimize, the psychological problems of the amputee. But, in many sections of the country, the reverse has been true. I am sure we need to take a new look at the "Clinic Team" concept. To do this I believe we need to begin with ourselves and get clear in our own minds what we mean by "Clinic Team." For example, does a prosthetist think of rehabilitation in the same manner as a physical therapist? Does a nurse working on an orthopedic ward view her role with the same concept as the social worker? Is the wife of the amputee any less important in his program of rehabilitation than the physician, the prosthetist, the physical therapist, the vocational counselor or the Veterans Administration Prosthetics Chief? And what about the amputee himself? Altogether too often his views receive no consideration at all.

Tell me, if you can, how one can reconcile the "teamwork" concept on the one hand with the almost pathological possessiveness of each professional group when they have their "turn at bat" with the amputee. For a long time, it has seemed to me, and perhaps you have had similar feelings, that this constant talking about "teamwork" is but a psychological "crutch" for our many failures to deal with the amputee in a manner that reveals the carefully coordinated and intermeshed planning that would occur if we were really working as a team.

To work as a team requires mutual understanding, mutual respect, and acceptance of the fact that each professional person has a contributing part, but only a part, to give in the attainment of the amputee's ultimate rehabilitation. But each and every part is truly fundamental. This "team" will never be more than fiction in my opinion so long as the physical therapist, for example, resents giving "her time" or any portion of it to the prosthetist, or when the physician resents the invasion of the psychologist; nor will it be effective as long as members of each discipline consider themselves equally expert in the several fields of knowledge represented by the other "teammates."

Training the amputee in the use of the prosthesis, as well as pre-prosthetic training, is admitted by all authorities to be all-important. Thomas and Haddan⁸ say "it is the duty and responsibility of the surgeon and the prosthesis maker, and of all persons and agencies having anything to do with the rehabilitation of the amputee, to make sure that no effort is spared in training the amputee so that he may obtain the greatest possible amount of function from his prosthesis."

R. Langdale Kelham³ makes the comment ". . . no matter how efficient be the artificial limb the best results cannot be obtained from its use without training on proper systematical lines; training is an integral part of the treatment."

Deaver, Kessler, Rusk and many, many other authorities in the field of rehabilitation, have written and spoken repeatedly on the necessity of training the amputee in the use of his prosthesis, but there appears to be no general agreement as to the amount and kind of training. I am sure it cannot be denied that many geriatric amputees in this country are literally being "trained to death."

Dr. Arne Bertelsen¹, Chief Surgeon at the Orthopaedic Hospital in Copenhagen, advises that a psychological evaluation of the geriatric amputee be attempted before prescribing the prosthesis and before planning the rehabilitation of the patient. Dr. Bertelsen quotes from documented clinical studies conducted at Roehampton, Copenhagen and other European

centers, and makes the conclusion that "You have to reckon with a 'hard core' of about 50% of unsuccessful prosthetic rehabilitation in geriatric patients." He goes on to observe: "The stump is by no means the most important problem. An extensive examination must be made of the patient's entire mental and physical make-up. These two basic requirements for satisfactory limb fitting are more important than an adequate stump in the aged patient."

It is my own personal observation that, for the most part, we in this country have avoided this question in the past, and have treated the geriatric patient in about the same manner as any other adult.

It is known that all locomotion requires energy and that locomotion on a prosthesis requires more energy than normal locomotion on two good legs. Saunders and Inman⁷ stated as early as 1953: "So great is the cost that, as our experience has shown, the loss of two joints in the elderly subject will inevitably shorten life from the demands upon his cardiovascular system which must supply his requirements at the usurious rate of 300%." This being true, it behooves the "Clinic Team," before prescribing a prosthesis for the geriatric amputee, to be sure there is adequate exercise tolerance available.

Unfortunately, our knowledge of the geriatric amputee's psycho-social, economic, and energy problems has not kept pace with our prosthetic knowledge. We are faced with the problem of not knowing whether he should have a prosthesis at all, and, if he should have, what kind. There are at least three schools of thought as to the type of prosthesis the geriatric amputee should be furnished. These range from the simple pylon, to a temporary socket attached to an adjustable leg, to the most elaborate permanent prosthesis, the followers of each philosophy being equally vigorous in defending their particular viewpoint.

In summary, I strongly urge that the "Clinic Team" concept be re-evaluated with the thought of adding disciplines who can evaluate better the psycho-social problems of the amputee, at the same time keeping in mind the practical approach of having only those present who have something to contribute.

My final plea is that all those working with amputees should never lose sight of the fact that the stump is only a part of the amputee's problems—and quite often may be a minor part; that every amputee should be treated as an individual, and that we should learn as much about this individual as is possible before attempting any prosthetic restoration.

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Three Fellowships Granted By World Rehabilitation Fund

Dr. Howard A. Rusk, President of the World Rehabilitation Fund, Inc., has announced that three physicians, from India, Greece, and Colombia, S.A., have recently been awarded fellowships for post-graduate study in rehabilitation in the United States.

Dr. Wiesner Duran, staff member of the Colombian Institute of Rehabilitation for Crippled Children "Franklin D. Roosevelt," Bogota, has received a Continental Can Company International Fellowship in Rehabilitation, which will provide a minimum of one year of study in the United States. Dr. Duran began his Fellowship on January 1, 1962, at the New York University Medical Center Department of Physical Medicine and Rehabilitation.

Two women physicians are the recipients of Memorial Fellowships. Dr. Sarot Gokarn, of Bombay, India, who received the Mary Dingham Memorial Fellowship, has just completed six months in the Newcastle General Hospital, Newcastle Upon Tyne, England. Dr. Gokarn entered on her studies at New York University Medical Center in January. The late Miss Dingham was a leading member of the International Staff of the YWCA and was associated with the International Union for Child Welfare.

The Rebecca B. Rose Memorial Fellowship, named in honor of the late Mrs. David Rose who was interested in many philanthropic causes, was awarded to Dr. Yvonne Loukides-Dhrymiotis of Athens, Greece. Dr. Loukides-Dhrymiotis began her training in the Department of Physical Medicine and Rehabilitation in November 1961.

The World Rehabilitation Fund is a non-profit organization supported by American industry, foundations and individuals to assist in the international development of rehabilitation services for the physically handicapped.

During the 1960-1961 academic year the World Rehabilitation Fund provided full or partial fellowship assistance to 55 trainees (39 physicians and 16 non-physicians) from 31 different nations who received advanced training in the United States.

Its Honorary Chairmen include former Presidents of the United States, Mr. Herbert Hoover and Mr. Harry S. Truman. Mr. Bernard M. Baruch, world-famous financier and philanthropist, is also Honorary Chairman.

Prostheses and Technical Aids in Thailand

By DAMRONG KIJKUSOL, M.D.

Donburi, Thailand

Amputation Surgeon, and Chief of Prosthetics and Brace Shop, Siriraj Hospital. Member of Board of Directors, Foundation for the Welfare of the Crippled, Thailand

Until 1960 there had been no proper prosthetic workshops in Thailand, and any necessary prostheses had either been imported from abroad or manufactured locally by ordinary carpenters or even improvised by the patients themselves.

In 1960, The United Nations Children's Fund, the United Nations Department of Economic and Social Affairs and the Thai Government jointly drew up "the Plan of Operations for Rehabilitation of Handicapped Children" which would provide for a prosthetic workshop to be set up at Siriraj Hospital, as a part of the Department of Orthopedics and Physical Medicine. Mr. Werner Wille, a German prosthetic expert, has been engaged to work here by the United Nations Technical Assistance Board while the necessary machinery and other supplies for the first year have been provided UNICEF, and will be maintained thereafter by the Thai Government. The workshop, which is a very modern building, has been provided by the Foundation for the Welfare of the Crippled, and the War Veteran Organization of Thailand has donated 20,000 bahts (about \$1,000.00) for the purchase of small tools.

Unlike other Asian countries, such as Japan and Burma, Thailand did not sustain great damage during the last World War. Most of the war crippled here suffered their injuries either during the incident in Indo-China in 1942 or in the Korean War and these do not amount to more than a

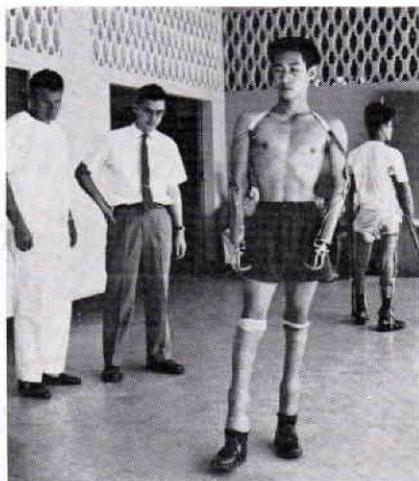


Fig. 1—Training the quadruple amputee. Left to right, Mr. W. Wille and Dr. Damrong.

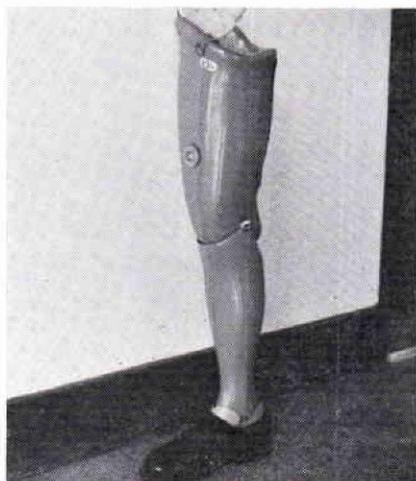


Fig. 2—Suction Socket A/K Leg.



Fig. 3—Above Elbow Arm.



Fig. 4—Double amputee trains the new double amputee.

few hundreds. Therefore, most of the patients or amputees who seek our assistance are those who have sustained their injuries in daily civilian life in traffic and industrial accidents or as a result of vascular diseases, tumors, and congenital abnormalities.

At the present the Government does not pay for the products manufactured in this workshop and the patient either has to pay for them himself or has them paid for by the Foundation for the Welfare of the Crippled or by the War Veterans Organization. For those who are not entitled to financial assistance by any of these charity organizations, the charges will be made according to the financial condition of the patient and quite often prostheses have been provided free for those who cannot pay at all. It is to be hoped that the Government will undertake the financial responsibility in this respect in the near future.

About 25 per cent of the products from the workshop are artificial limbs. The other 75 per cent includes orthopedic technical aids, such as braces, splints, and orthopedic shoes. There are plenty of paralytic patients as a result of poliomyelitis, cerebral palsy, cerebro-vascular accidents, and diseases of the spine. A most important problem is that patients seek our

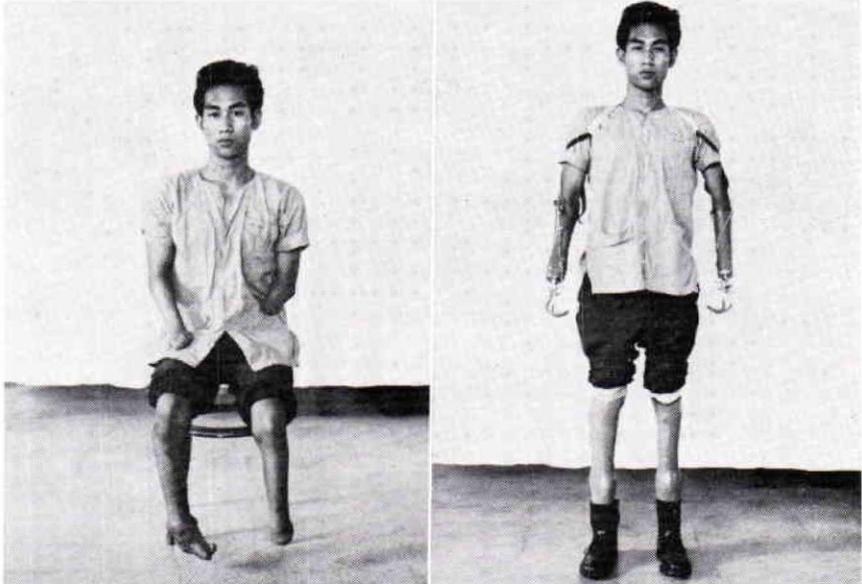


Fig. 5—Case of congenital abnormality, before and after being fitted with prostheses.

assistance too late and already with gross deformities and this renders our work much more difficult than it should be. There are also some crippled people, especially amputees, who prefer to hop around displaying their deformities in the hope of earning sympathy and alms from the public.

Types of Prostheses and Technical Aids

Prostheses for the Upper Extremity Amputee—We make both functional and cosmetic arms and have used both local and imported materials. In 1960, some sockets were made of leather and aluminum, but now all are manufactured from polyester resin (Araldit, CIBA). The terminal devices are either standard hooks, mechanical hands, or dressed hands made of leather, felt and wood. Cosmetic gloves have been imported from the United States for some patients.

Prostheses for the Lower Extremity Amputee—We used to make aluminum or leather artificial legs but are now manufacturing them from wood covered with plastic, both above and below knee. For the above knee amputee, the socket is made according to anatomical shape and a suction socket has also been made. The knee joints used are conventional, conventional with manual lock, and Otto Bock safety knee. The foot is made of local wood, but we have also used imported SACH feet or combination rubber and felt ones. For the below-knee leg some soft sockets (Araldit mixed with Versamid) have been tried out with satisfactory results. New Pedilen sockets have been imported too.

Body and Leg Braces—Body braces and corsets are made for back pain and post-operative spine.

Leg braces, both long and short, are made of orthopedic steel and aluminum with both Swiss lock and slip lock.

Splints—Hand and foot splints are manufactured from polyester resin and aluminum and spring steel. Collar splints are also made of polyester resin.

Shoes—The leather section makes shoes for leg braces as well as for correction of deformed feet such as flat foot, club foot, and those with abnormal inversion and eversion.

American Physical Therapy Association To Meet In June

The 39th Annual Conference of the American Physical Therapy Association will be held at the Jack Tar Hotel in San Francisco, California, June 17 to 22, 1962. The theme of the scientific program will be "Dynamics of Human Motion."

Topics to be discussed by physical therapists, physicians, and other specialists include: "Development of Motor Behavior," "Use of Sequential Motor Development," "Elements of Motor Learning," "Application of Principles of Motor Learning," "Assessment of Motor Abilities," "Testing Methods and Instrumentation," "Recording and Interpretation of Test Data," "Use of Information," and "A Basis for Planning Treatment Programs." Patient demonstrations will reveal practical applications of the basic knowledge of normal motor development.

PROSTHETIC DEVELOPMENTS IN JAPAN*

By UNOKICHI IIDA

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for the Physically Handicapped. Tokyo, Japan

I. Brief Account on Welfare Services for the Handicapped.

In 1950, the Welfare Law for the Physically Handicapped was passed. This is the basic law, and its purpose is to assist the physically handicapped who endeavors to rehabilitate himself socially. Under this law, each handicapped is to be registered and carry the Handbook for Physically Handicapped issued by the local Government, in which his state of physical disorder, welfare services offered, are to be entered. He can be offered medical treatments to improve the affected physical ability, be offered prosthesis or orthopedic appliance and training in its use. The local agency who put the law in effect is the governor, mayor of the city or village. He supervises the Welfare Offices within his jurisdiction. To each Welfare Office a welfare worker for the handicapped is assigned and cooperates with other case workers to offer adequate guidance to the physically handicapped.

In each prefecture or specially designated cities, there is at least one Rehabilitation Counselling Office For The Physically Handicapped, to make accurate diagnosis on the case, and to offer proper treatments. It gives medical, psychological, and vocational aptitude tests. It also gives prosthetic or orthotic prescription and checkout.

For the betterment of physical activity, the medical treatments are offered in those hospitals designated by the Minister of Welfare.

For the post clinical treatment, psychological tests, vocational guidance, vocational training, and guidance for daily living, there are 36 Rehabilitation Centers for the Physically Handicapped. One of them is located in Tokyo, operated by Federal Government. The other 35 Rehabilitation Centers are operated by local Administration.

To meet the demand for job training exclusively for those with orthopedic handicap, there are 8 Vocational Training Centers for the Physically Handicapped, set up by the Minister of Labor and operated by local Government. There, skills in dressmaking, tailoring, watch-repairing, shoemaking, mimeography, machine drafting, bookkeeping, seal impression carving, etc., are taught under a one year program.

There are also other welfare laws for the industrial workers, such as Labor Accident Compensation Law which concerns about on-duty accident or sickness, and Social Insurance and Annuity Law which concerns about not-on-duty accident or sickness. By these laws, the handicapped are supplied with first prosthesis or orthotics if necessary, later on they are taken care of by the Law for Welfare for the Physically Handicapped.

As to war-wounded veterans, they are now protected by the Law of Compensation for War-Wounded which was passed in 1952. They are offered medical treatment and prosthesis or orthotics free of charge. All

*Paper presented at the "Symposium on Orthotics and Prosthetics Worldwide," sponsored by the American Orthotics and Prosthetics Association, New York. September 3, 1960.

rehabilitation services are available to veterans as well as civilians. There is no governmental department which takes care of war-wounded veterans, such as Veterans Administration in U.S.

In 1947, the Child Welfare Law was passed and the welfare work for the handicapped children began to be carried out on nation-wide scale under the governmental program. Under this law, about 780 Health Centers serve as the front-line agency, to permit early discovery and clinic treatment services. And, as of 1957 there were constructed 26 Hospital Schools for the Crippled Children.

II. Number of Handicapped.

The survey of Welfare Ministry shows that the total number of registered physically handicapped is somewhere around 800,000, excluding children. 500,000 are orthopedically handicapped, among these 45,000 are amputees. The yearly increase in total number is estimated to be 50,000. The number of war-wounded veterans is 240,000, among which 140,000 are orthopedically handicapped.

The ratio of upper extremity to lower extremity amputees is 14:10, whereas the ratio of American amputees is 3:10. This was pointed out by Mr. William A. Tosberg.

It is reported that the frequency of industrial accident in Japan is 3.4 times higher than that of American industrial factories. About 4,800 were killed, and 372,000 were injured by industrial accidents during 1955. And the number of accidents is increasing every year.

III. Prosthetic Services.

There are about 180 limb shops in Japan, 120 of which are private and the rest are governmental or semi-governmental. The total number of employees is about 1,000. Roughly 60,000 prostheses and orthotics are newly made, and 20,000 to 30,000 repairs are done by these shops every year.

When a patient needs a new prosthetic or orthotic item, he must first visit the welfare worker for the handicapped in the Welfare Office which has jurisdiction over his residing district, and fill the application form. On the appointed day he goes to the Rehabilitation Counselling Office, and gets the prescription made. After 3 to 4 weeks, the authorized ticket is issued by the Welfare Office to the patient. In this ticket, the amount of charge to the patient, amount of government aid, name and location of designated limb shop, are entered. Fitting and checkout should be done in the presence of the doctor.

For the benefit of the patients who live in the remote distance from the rehabilitation service facilities, the Welfare Office offers mobile counselling service once or twice a year. This mobile service team is composed of physicians, prosthetists and orthotists, nurses and welfare worker, and offers counselling service, prosthetic or orthotic prescription, and minor repairs of prostheses or orthotics.

IV. Prostheses Fabricated in Japan.

a. Upper Extremity Prostheses.

Generally speaking, the upper extremity prostheses are still far behind the present day American standard.

Work arms consist of molded leather socket, Tannenburger type A/E arm body or rotation type B/E fore-arm body, and single purpose terminal devices such as O-ring, C-hook, sharp L-hook, or specially designed devices to meet the specific demand. This type of prosthesis with plastic laminate socket is particularly accepted by farmers, because of its simplicity and durability.

Cosmetic prosthesis usually consists of molded leather socket, wooden or aluminum shell, and passive hand made of wood or aluminum casting or rubber.

Functional elbow units are applied solely for bilateral arm amputees, because of economical consideration. Unilateral amputees are supplied with manual lock units.

With regard to the fact that the upper extremity amputees surpass the lower extremity amputees in their number, the introduction of modern technique of upper extremity prostheses is an urgent necessity. We are planning some number of upper extremity prosthetic courses in our Center the early part of next year.

b. Lower Extremity Prostheses.

A/K conventional prostheses:

Until recently, most sockets were made of aluminum sheet hand hammered to plug fit, lined with felt and leather and covered with leather or painted.

Today, the quadrilateral sockets are prevalent. They are made either of aluminum or plastic laminate or wood.

Suction socket A/K prostheses:

In 1956, three technical courses were held on the suction socket A/K prostheses under the Technical Assistance Program of U.N., conducted by Mr. William A. Tosberg, in the National Rehabilitation Center.

These were tremendously successful courses, stirring up the desire among prosthetists to extend their knowledge. Fitting and alignment principles were applied to the conventional prostheses, and as a result, as mentioned above, most of conventional A/K prostheses are of quadri-lateral socket.

Until today, we have been carrying on the same prosthetic courses in our Center, and 136 prosthetists were trained in the suction socket A/K prostheses. There will be some time necessary before this type of prostheses are fitted successfully, because;

- 1) the prosthetists must acquire more experience in fitting.
- 2) well scheduled training in prosthetic use should be given to the patients, and in this regard there is no qualified therapist to take charge of this task.

B/K prostheses:

Usually these types of prostheses were made of aluminum sheet hammered to shape, with felt and leather socket liner.

In 1957, two technical training courses on the Soft Socket B/K prostheses were held in our Center, under Mr. Harry R. Conrad of the Navy Amputation Center. Since then, 120 prosthetists have been trained on the similar courses held in our Center. Today, we can see that most of B/K prostheses are of closed-type soft socket utilizing plastic laminate. This type of prostheses have won applausive acceptance from B/K amputees.

Work Legs:

Work legs are chiefly used for farming or fishing. A/K work leg is composed of aluminum socket with detachable insert, prefabricated steel frame, and a Dollinger type foot. Several pieces of strip cut out from used car tire are tacked on the foot sole. B/K work leg is similar to the soft socket B/K prostheses except that the Dollinger foot is attached instead of conventional foot.

These are very useful because of easy farming activity, low maintenance cost and durability.

Some characteristics of Japanese Prostheses:

(1) Knee-Lock Mechanism.

Many of A/K amputees want the knee-lock mechanism to be attached. The following facts may account for this:

- i. Too heavily crowded transportation. For those who are commuting by bus or trolley or tram car, there might be every chance at any moment to be struck at the back of prosthesis.
- ii. Complexity of footwear. Usually we Japanese must take off shoes for indoor walk. Shoes, getas, or sandals are only for outdoor walking. To accommodate these changes, we sometimes are compelled to put knee-lock mechanism on the prostheses, with sacrifice of walking gait, and with much more reluctance.
- iii. Lack of understanding on the part of patient, and lack of training in use.

But, the tendency is that the knee-lock mechanism are applied less frequently.

(2) Shoulder Suspension.

Shoulder suspension strap, together with roller-and-leather strap suspension is commonly used for conventional A/K prostheses.

(3) Range of Knee Flexion.

Greater range of knee flexion is necessary in most of lower extremity prostheses. This comes from necessity in indoor activities.

V. What Should Be Done for Furthering the Prosthetic Services in Japan?

After ten years since the start of welfare services in Japan under Governmental program, there still remain serious defects in the prosthetic services which should be supplemented in a possibly short time.

First, prosthetists lack the knowledge in modern prostheses fabrication technique.

Second, lack of qualified therapists makes it impossible to train the amputee in prosthetic use, nor is it impossible to afford team activity in prosthetic prescription, checkout.

To correct these defects, the following measures should be considered:

(1) Training Courses for Prosthetists.

Further training courses for prosthetists on various prostheses should be held. Upper extremity prosthetic courses are of urgent necessity, then other types of prostheses such as UCB-type B/K, Syme prostheses and hip-disarticulation prostheses, etc. I am happy that I can be of some help in this area, as I had the chance to attend training courses held in N.Y.U. I am envious of American prosthetists that they are trained in a well equipped school, by experienced faculty members under superbly arranged program. In contrast, our prosthetists are trained in our Center where machines are of a type more than 20 years old.

(2) Training of therapists.

As I said before, there is no qualified therapist available in Japan. Training of therapists should be taken up by Government as soon as possible. There are many hospitals well equipped with physical therapy equipments, and yet these equipments are not utilized because of lack of therapists.

Furthermore, therapists are needed for training of patients in prosthetic use and prosthetic checkout.

I wholeheartedly am awaiting the day, when the well organized team activity among physicians, prosthetists and therapists will be offered to the benefit of amputees of Japan.

Traineeships for Undergraduate Training In Prosthetics and Orthotics at New York University

Promising students desiring to enter the fields of Prosthetics and Orthotics now have an opportunity to receive financial assistance in the form of traineeships for their junior and senior years of New York University's four year course leading to a Bachelor of Science degree.

The undergraduate prosthetics and orthotics course at New York University was instituted to meet the increasing demand for professionally qualified prosthetists and orthotists throughout this country and all over the world. The United States Office of Vocational Rehabilitation has supported this program from its inception and has now made these traineeships available to encourage young students to study in our field.

As in other professional fields, the course of study of the prosthetics and orthotics curriculum was designed to provide students with a broad educational background as well as a complete grounding in their chosen profession. The first two years includes instruction in English, speech, social studies, mathematics, physical, biological, psychological and social sciences. The student proceeds to shop methods and basic engineering subjects, followed up by thorough training in specialized practical courses covering upper and lower extremity prosthetics and orthotics, as well as orthotics for the trunk. Just as the student majoring in other medical fields must serve an internship, the student-orthotist-prosthetist participates in a clinical training program developed in cooperation with several certified limb and brace facilities throughout the country.

The traineeships provided by the Office of Vocational Rehabilitation are in the amounts of \$1,800 for the Junior year of study and \$2,200 for the senior year. Qualified sophomore students at other colleges may apply for transfer to the Prosthetics and Orthotics curriculum at New York University and for a junior year traineeship at the same time. Awards will be made on the basis of academic record, personality characteristics and aptitude for the successful practice of prosthetics and orthotics. The traineeships are limited by law to applicants who meet the following specific requirements:

Citizens of the United States or lawfully admitted for permanent residence; and

Not receiving other Federal educational benefits during the period of Office of Vocational Rehabilitation traineeship.

It is hoped that the traineeships will help overcome any financial barriers that may prevent deserving and promising individuals from entering this growing field.

High School students who wish to enter the four-year course must satisfactorily complete an accredited secondary school college preparatory program or the equivalent. If they are accepted for the course, they will be eligible to apply for traineeship assistance during their sophomore year.

For more detailed information write:

Dr. Sidney Fishman, Prosthetics and Orthotics Curriculum, School of Education, New York University, 342 East 26th Street, New York 10, N. Y.

Educational Programs on Fluid-controlled Mechanisms for Above Knee Prostheses

By WILLIAM M. BERNSTOCK

Assistant Chief, Research and Development Division and Project Leader, Prosthetics Research Program's Educational Projects, Prosthetic and Sensory Aids Service, Veterans Administration, New York 1, N. Y.

For a number of years research and development activities have been conducted on fluid-controlled mechanisms in above-knee prostheses. Early efforts in the Artificial Limb Program were directed at fluid control of knee mechanisms during stance phase of amputee gait in order to minimize knee buckling. About 1950 the emphasis shifted to fluid control of the swing phase of walking, with reliance placed upon the more skillful and bio-mechanically-sound methods which had evolved in the fitting and alignment of above-knee prostheses to achieve stability during the stance phase.

Two forms of swing-control mechanisms have already become commercially available, namely the Hydra-Cadence and the DuPaCo hydraulic units, the latter on a more limited scale. It is anticipated that the Henschke-Mauch "HYDRAULIK" System, Model "B", will be produced in substantial numbers within the next few months for use with a planned VA Clinical Application Study. A fourth swing-phase device, the UC-B Pneumatic unit, is still experimental but is expected to become available at a somewhat later time. Work continues on fluid control for the stance phase, with one device, the Henschke-Mauch Model "A" swing-and-stance unit, in an advanced stage of evaluation. Thus it is timely to review some of the educational efforts which have been devoted to fluid-controlled mechanisms as well as to outline some future plans and goals.

In 1959 the Prosthetic and Sensory Aids Service of the Veterans Administration, led by its Director, Dr. Robert E. Stewart, recognized that informational and educational programs were needed to acquaint clinical personnel with the newly-emerging hydraulic mechanisms. In October of that year a Clinical Application Study of the Hydra-Cadence prosthesis was announced. Primarily intended to gain broad clinical experience with this new device under a wide variety of conditions, the study has also served as an educational medium for the 27 participating VA Orthopedic and Prosthetic Appliance Clinic Teams, including 76 commercial prosthetists from 67 limb facilities.

In November 1959, the Prosthetics Education Program of the University of California at Los Angeles introduced the teaching of the Hydra-Cadence prosthesis in its Above-Knee Prosthetics Courses for prosthetists, physicians, and therapists. Subsequently, the Hydra-Cadence prosthesis was taught at UCLA in one-week Advanced Above-Knee Prosthetics Courses, held prior to or after regular courses on below-knee techniques. During the period November 1959-March 1961, ten courses including the Hydra-Cadence unit were conducted by UCLA. Approximately 100 prosthetists participated in such specialized training. Of this group, some 80 were from commercial limb facilities.

Recognizing that its programs would require greater numbers of prosthetists trained in hydraulic and pneumatic principles and in all the fluid-controlled devices likely to become available in the next few years, the Veterans Administration initiated plans in the spring of 1961 for assuring such coverage. In cooperation with the American Orthotics and Prosthetics Association and with the assistance of instructional personnel from the three prosthetics schools, the Veterans Administration conducted a tuition-free seminar on fluid-controlled mechanisms at the Eden Roc Hotel in Miami Beach, October 26-28, 1961, immediately after the AOPA National Assembly.

Registration for the seminar was limited to prosthetists who had satisfactorily completed a university course in above-knee prosthetics at New York University, Northwestern University, or UCLA. (Completion of a "suction socket course," of the type offered a number of years ago by the Veterans Administration, the then OALMA, and the National Research Council, was *not* considered as qualifying for participation in the seminar.) A total of 87 prosthetists who had completed the prerequisite above-knee course enrolled in the seminar.

Because of their immediate or anticipated availability, coverage was limited to the following four swing-control devices: the Hydra-Cadence, the Henschke-Mauch "HYDRAULIK" Model "B", and the DuPaCo hydraulic units, and the UC-B pneumatic unit. Supplementing instruction on these devices were lectures on basic principles of fluid control and the significance of fluid control in lower extremity prosthetics. An examination was given at the end of the three-day session, with 78 of the 87 participants attaining passing grades. (Appendix A contains a list of the 78 prosthetists who successfully completed the seminar, with their respective limb facilities or organizations.) We are grateful to the American Orthotics and Prosthetics Association and to the three prosthetics schools for their assistance with this seminar which was acknowledged by all concerned as highly successful.

Two more such seminars for qualified prosthetists have been announced by the Veterans Administration, one to be held in New York, February 19-21, 1962 and the other in Salt Lake City, May 31-June 2, 1962.

In a further effort to train more prosthetists in broader perspectives of swing-control mechanisms, UCLA conducted a seminar on January 26, 1962 for graduates of their ten courses where the Hydra-Cadence unit already had been intensively covered. Another seminar will be held by UCLA on March 23, 1962, during a regular above-knee course, and again limited to prosthetists who had previously successfully completed a UCLA course involving the Hydra-Cadence device. Provision has been made for evening sessions to assure adequate coverage of all devices.

Northwestern University will offer intensive instruction in the four swing-control devices as part of the Above-Knee Prosthetics Course to be held March 19, 1962 through April 6, 1962. New York University decided not to offer such coverage in the courses scheduled through this academic year, beyond brief indoctrination typical of numerous other mechanisms.

It is believed that by June 1962 the objectives set by Dr. Stewart and his staff will have been met. There will be an adequate number of prosthetists throughout the country trained in the fitting of fluid-controlled devices to assure such prosthetics service, when indicated, not only for disabled veterans but for the much larger numbers of other amputees as well.

Effective January 2, 1962, the Veterans Administration authorized the issuance, to eligible veterans, upon appropriate prescription, of above-knee

prostheses incorporating the Hydra-Cadence mechanism. Contractual conditions require that the Hydra-Cadence prosthesis "must be constructed by or under the close supervision of a prosthetist who has satisfactorily completed either:

- a. A university course on Above-Knee Prosthetics* which included specific instruction on Hydra-Cadence mechanisms.
- b. A seminar on Fluid-Control Mechanisms conducted by the Veterans Administration.
- c. Participation in the VA Clinical Application Study of the Hydra-Cadence Above-Knee Artificial Leg during which he fitted or supervised the fitting of one or more Hydra-Cadence Limbs which were accepted as satisfactory."

As the other three fluid-controlled devices become acceptable for routine issuance, similar contractual requirements are planned. The Veterans Administration has compiled lists of prosthetists who have met such requirements for the Hydra-Cadence prosthesis—by virtue of one or more of the three methods cited above—as well as those who are qualified to furnish *all four* devices discussed in this article. (See Appendix B for a summary of the VA-approved methods of attaining qualification.) We anticipate that UCLA and Northwestern University will include fluid-controlled devices as an integral and substantial part of their regular above-knee prosthetics courses, and we would hope that New York University would develop similar plans for the next academic year. Since the Veterans Administration does not plan to conduct any additional seminars for prosthetists after June 1962, we would hope that the universities would provide at least equivalent opportunities for prosthetists who have already had basic above-knee prosthetics courses to acquire qualifying training in fluid-controlled devices.

Though we have been primarily directing our attention to educational programs for prosthetists, we have not lost sight of the need for orienting the other disciplines concerned with the prosthetics care of the amputee. As has been stated, UCLA has been including sessions on the Hydra-Cadence mechanism in courses for physicians and therapists and will expand such instruction to include the other devices. Northwestern University will offer some instruction in fluid-controlled devices in lower-extremity courses for physicians and therapists. As in the past, New York University will offer limited coverage of such devices in the courses scheduled through June 1962, and will explore the possibility of more detailed instruction during the next academic year.

On January 30, 1962, an instructional course on hydraulic knee mechanisms was presented by Northwestern University at the meeting of the American Academy of Surgeons in Chicago. Thirty surgeons attended this session.

The Prosthetic and Sensory Aids Service has been invited to conduct a three-hour session on fluid control in prosthetics at the meeting of the American Congress of Physical Medicine and Rehabilitation to be held in New York in August 1962. A similar invitation is anticipated from the Association of Medical Rehabilitation Directors and Coordinators for their July 1962 meeting in Buffalo. In addition, the Prosthetic and Sensory Aids Service may also conduct two or possibly three seminars for selected VA physicians and therapists during the next several months.

In addition to courses and seminars, other media have been used to disseminate information about hydraulic and pneumatic mechanisms for

*Some courses at UCLA were called Below-Knee Prosthetics, one week being devoted to Advanced Above-Knee Prosthetics.

above-knee prostheses. As part of its "Project Slides," the Prosthetic and Sensory Aids Service prepared a number of slides and descriptive captions dealing with fluid-controlled devices for distribution to the field. The Committee on Prosthetics Education and Information of the National Academy of Sciences-National Research Council arranged for the procurement of 100 sets of such slides for distribution to medical schools, rehabilitation centers, and other interested organizations. The second volume of the Orthopaedic Appliances Atlas, published in 1960, described hydraulic mechanisms with schematic drawings and photos as well as text. Reports on the Henschke-Mauch Model "B" by New York University and by the Committee on Prosthetics Research and Development, NAS-NRC, have received wide circulation.

Future plans for the dissemination of information include an exhibit on fluid-controlled mechanisms. Publication of a report on our Clinical Application Study of the Hydra-Cadence prosthesis should provide valuable insights with respect to this device and possible implications for other hydraulic devices. The NAS-NRC is planning a future issue of the journal, *Artificial Limbs*, devoted to hydraulic mechanisms in lower extremity prosthetics. An Ad Hoc Committee on Fluid-Controlled Legs of the Committee on Prosthetics Research and Development has been developing a composite technical report on all fluid-controlled swing-phase or stance-phase devices in production or under development. This report will be a most helpful contribution to the understanding of fluid-controlled devices.

After a long history of development, fluid-controlled mechanisms have become a part of the "legamentarium" available to prosthetics practice. It is the responsibility of all interested organizations to assure that sufficient knowledge is available for proper prescription, fabrication, alignment, training, and checkout so that appropriately selected amputees may realize the maximum offered by the properly fitted device. Though a good start has been made, we think much remains to be done.

APPENDIX A

LIST OF PEOPLE WHO SUCCESSFULLY COMPLETED MIAMI BEACH SEMINAR ON

FLUID-CONTROLLED MECHANISMS

October 26-28, 1961

- | | |
|--|--|
| ANAIR, Wilfred J., Starkey Artificial Limb Co., Inc., Hartford, Conn. | CALDWELL, Jack L., J. E. Hanger Inc., Tampa, Florida. |
| BARGHAUSEN, Karl J., J. E. Hanger Co., Pittsburgh, Pa. | CLEMENS, Wesley G., J. E. Hanger Co., Columbus, Ohio. |
| BERRYMAN, George W., J. E. Hanger Inc., Orlando, Florida. | DANIEL, Roland H., The Winkley Art. Limb Co., Buffalo, New York. |
| BIDWELL, Thomas R., House of Bidwell, Inc., Madison, Wisconsin. | DANKMEYER, Charles H., Dankmeyer Prosthetic Appliance Center, Inc., Baltimore, Maryland. |
| BOODEN, Jacobus, J. Booden Ortho. Supply Co., Norfolk, Virginia. | DILLARD, John E., J. E. Hanger Inc., Nashville, Tennessee. |
| BOSETTI, Eugene J., House of Bidwell, Inc., Milwaukee, Wisconsin. | DILLEE, Ivan A., New York University Prosthetics Education. |
| BOTKO, George H., George H. Botko Co., Minneapolis, Minnesota. | ENGLAND, Clauson F., Christopher's Brace & Limb Co., Lubbock, Texas. |
| BROWNFIELD, William E., Brownfield's Art. Limb & Brace Shop, Boise, Idaho. | ESCHEN, Fred J., John N. Eschen Co., New York, New York. |

- FAWVER, Lee J., W. E. Isle Co., Kansas City, Missouri.
- FERRIS, William J., J. E. Hanger, Inc., Raleigh, North Carolina.
- FILLAUER, Carlton E., Fillauer Surgical Supplies, Inc., Chattanooga, Tennessee.
- FINLAY, Alexander, Doerffinger Art. Limb Co., Milwaukee, Wisconsin.
- FRIDDLE, William D., Greenville Orthopedic Appliance Co., Greenville, South Carolina.
- GALLO, John C., J. E. Hanger Inc., New York, New York.
- GARSCADDEN, Ronald D., Dept. of Veterans Affairs, Prosthetic Services Sunnybrook Hospital, Toronto, Canada.
- GEISLER, Herman J., Geisler's Artificial Limbs & Braces, Fond du Lac, Wisconsin.
- GODBEY, Asa L., J. E. Hanger, Inc., Miami, Florida.
- GOLD, Jack, Arthur A. Beitman, Newark, New Jersey.
- GOOCH, Robert O., Dept. Prosthetic & Orthopedic Appliances, Duke Medical Center, Durham, North Carolina.
- GRAYDON, Walter B., Birmingham Art. Limb Co., Mobile, Alabama.
- GREIMEL, Fred, County Surgical Co., Inc., Brooklyn, New York.
- HAINES, Everett F., Winkley Art. Limb Co., Des Moines, Iowa.
- HAMPTON, Fred L., Northwestern University, (Prosthetic Research Center), Chicago, Illinois.
- HANSBROUGH, Robert W., J. C. Lloyd Art. Limb Co., York, Pennsylvania.
- HARVEY, Robert E., Harvey's Inc., Columbus, Georgia.
- HEDGES, Stanley E., Indianapolis Art. Limb Corp., Indianapolis, Indiana.
- HELDRETH, Joseph A., Clarksburg Artificial Limb Co., Clarksburg, West Virginia.
- HINNANT, John D., W. T. Hinnant Co., Charlotte, North Carolina.
- HOLLAND, Bernard G., Jr., Hattiesburg Artificial Limb Co., Hattiesburg, Mississippi.
- JESSWEIN, Siegfried W., Northwestern University (Prosthetics School), Chicago, Illinois.
- KARG, Ferdinand J., Karg Prosthetics Co., Hollywood, California.
- KARSTEN, Ludwig F., Orthopedic Appliance Co., Inc., Milwaukee, Wisconsin.
- KINMAN, George I., J. E. Hanger of Canada Limited, Ontario, Canada.
- KONCAK, Frank A., Binghamton Limb & Brace, Binghamton, New York.
- LEIMKUEHLER, Paul E., Paul Leimkuehler, Inc., Cleveland, Ohio.
- LETNER, Ivan E., J. E. Hanger, Inc., Washington, D. C.
- LOCKE, Richard M., J. E. Hanger, Inc., Orlando, Florida.
- LUCKETT, James N., Falls City Limb & Brace Co., Louisville, Kentucky.
- MADSEN, Lorrin H., Winkley Co., Minneapolis, Minnesota.
- MAPLES, Thomas L., J. E. Hanger, Inc., New Orleans, Louisiana.
- MARTINO, Joseph H., United Limb & Brace Co., Inc., Boston, Massachusetts.
- MASSEY, Martin D., J. E. Hanger, Inc., Baltimore, Maryland.
- McCALL, William C., McCall-Cassidy Prostheses, St. Petersburg, Florida.
- McCLUGGAGE, Carl S., Snell's Artificial Limb & Brace Co., Inc., Johnson City, Tennessee.
- McDOUGALD, Egbert L., Snell's Limbs & Braces, Inc., Baton Rouge, Louisiana.
- MEYER, Theodore C., D. R. Coon Company, Detroit, Michigan.
- MUILENBURG, Alvin L., Muilenburg Artificial Limb Co., Houston, Texas.
- MURKA, Heinz P., Fidelity Orthopedic, Inc., Dayton, Ohio.
- NIEHUUS, Herbert E., Scranton Artificial Limb Co., Inc., Scranton, Pennsylvania.
- PATE, Vernon T., Tri-State Limb & Brace Co., Memphis, Tennessee.
- PAUL, Luby M., Jr., Delta Limb Co., Inc., New Orleans, Louisiana.
- RABB, Mitchell D., J. E. Hanger, Inc., Jacksonville, Florida.
- RESICO, Neil E., Charleston Artificial Limb Co., Charleston, West Virginia.
- ROSSER, Jefferson D., J. E. Hanger Co., Inc., Savannah, Georgia.
- ROY, Armand L., Roy's Orthopedic Appliances, Burlington, Vermont.
- SABOLICH, Lester J., Sabolich Artificial Limb Co., Oklahoma City, Oklahoma.
- SCARLOTT, Forrest T., Jr., J. E. Hanger, Inc., Tampa, Florida.
- SCOVILLE, George A., Scoville Artificial Limb Co., Hartford, Connecticut.
- SEALS, Daniel J., J. E. Hanger Co., Montgomery, Alabama.
- SMITHERMAN, Moody L., Birmingham Artificial Limb Co., Birmingham, Alabama.
- STANFORD, James W., J. E. Hanger, Inc., Birmingham, Alabama.
- SUMIDA, Carl T., Child Amputee Project, UCLA, Los Angeles, California.
- SWIMM, James A., J. E. Hanger Inc., Charleston, West Virginia.
- THRANHARDT, Howard R., J. E. Hanger Inc., Atlanta, Georgia.

TITUS, Bert R., Duke Medical Center, Durham, North Carolina.

TYO, Howard J., Frees and Tyo, Inc., Syracuse, New York.

WARD, George D., The I. P. Boggs Co., Huntington, West Virginia.

WATTERS, Gene E., Modern Limb & Brace Co., Harrisburg, Pennsylvania.

Williams, Robert M., Lone Star Artificial Limb Co., San Antonio, Texas.

WRIGHT, Charles W., J. E. Hanger of Philadelphia, Inc., Philadelphia, Pennsylvania.

APPENDIX B

SUMMARY OF METHODS OF MEETING A BASIC VA CONTRACTUAL REQUIREMENT FOR FURNISHING FLUID-CONTROLLED DEVICES

(Covering Period November, 1959-June, 1962)

1. HYDRA-CADENCE PROSTHESIS ONLY.

- a. Satisfactory completion of one or more of the following full-time intensive courses at UCLA:

Above-Knee Prosthetics	November 2-20, 1959 February 20-March 10, 1961
Below-Knee Prosthetics (Included Advanced AK during the last week)	November 30-December 18, 1959 January 4-22, 1960 February 15-March 4, 1960 March 21-April 8, 1960 April 25-May 13, 1960
Advanced Clinical Prosthetics: Above-Knee Amputations	September 5-9, 1960 November 28-December 2, 1960 January 9-January 13, 1961

OR

- b. Authorized participation in the VA Clinical Application Study of the Hydra-Cadence Above-Knee artificial leg, which involved the fitting or the supervision of the fitting of at least one Hydra-Cadence Prosthesis accepted as satisfactory by the cognizant VA Orthopedic and Prosthetic Appliance Clinic Team.

2. HYDRA-CADENCE, HENSCHKE-MAUCH MODEL "B," DUPACO HYDRAULIC UNITS AND UC-B PNEUMATIC UNIT.

- a. Satisfactory completion by graduates of university-level above-knee courses for prosthetists of at least one of the following seminars on fluid-controlled devices

(1) Miami Beach:	October 26-28, 1961
(2) UCLA:	January 26, 1962
(3) New York:	February 19-21, 1962
(4) UCLA:	March 23, 1962
(5) Salt Lake City:	May 31, 1962-June 2, 1962

OR

- b. Satisfactory completion of either of the following above-knee prosthetics courses for prosthetists:

(1) UCLA:	March 5-30, 1962
(2) Northwestern University:	March 19, 1962-April 6, 1962

Committee on Prosthetics Education and Information*

National Academy of Sciences—National Research Council
ADVISORY COMMITTEE ON PROSTHETICS IN PENNSYLVANIA

HAROLD W. GLATTLY, M.D.

Executive Secretary

The major mission of the Committee on Prosthetics Education and Information is to develop a program that will narrow the gap between what is known in the fields of prosthetics and orthotics and what is practiced. In this regard the Committee recognized the importance of enlisting the cooperation of the State Bureaus of Vocational Rehabilitation by including Mr. Charles L. Eby, Director of the Bureau of Vocational Rehabilitation of the State of Pennsylvania, as a member of CPEI. In the fall of 1959, Mr. Eby addressed a letter to the Chairman of CPEI in which he stated that his Bureau was "in the process of launching a program for the organization and utilization of prosthetics clinics" for the management of their amputee beneficiaries. He invited the Committee to participate with his staff in the planning of this project and further suggested that Pennsylvania be used by CPEI as a "proving ground" for a prosthetics education program. Recognizing the potentialities of this opportunity, the Chairman of CPEI authorized the formation of a subcommittee to assist and advise the staff of the Pennsylvania State Bureau in the development of a program of activities designed to improve prosthetic services in Pennsylvania. The subcommittee was termed the Advisory Committee on Prosthetics in Pennsylvania. This cooperative effort of the State Bureau of Vocational Rehabilitation and the Pennsylvania committee has been very successful in achieving a state-wide application of the modern principles of amputee care and management. The program as here reported whereby these results were brought about can therefore serve as a practical blueprint for use in other states.

The Advisory Committee on Prosthetics in Pennsylvania was organized in the spring of 1960 under the chairmanship of Dr. William J. Erdman, II, chairman of the Department of Physical Medicine and Rehabilitation, University of Pennsylvania. The group included:

- Dr. Derek H. Cross, Medical Director
Harmarsville Rehabilitation Center
Pittsburgh, Pennsylvania
- Dr. Murray B. Ferderber
Pittsburgh, Pennsylvania
- Dr. John A. Fritchey, II
State Medical Administrator
Bureau of Vocational Rehabilitation
Harrisburg, Pennsylvania

*The Committee on Prosthetics Education and Information is jointly supported by the Training Division, Office of Vocational Rehabilitation, Department of Health, Education and Welfare, and the Prosthetic and Sensory Aids Service of the Veterans Administration.

- Dr. John W. Goldschmidt, Director
Department of Physical Medicine and
Rehabilitation
Jefferson Medical College
Philadelphia, Pennsylvania
- Mr. Floyd L. Kefford
Rehabilitation Specialist
Bureau of Vocational Rehabilitation
Harrisburg, Pennsylvania
- Dr. Frederick W. R. Koenig
Pittsburgh, Pennsylvania
- Dr. Emory K. Stoner
Department of Physical Medicine and
Rehabilitation
University of Pennsylvania
Philadelphia, Pennsylvania
- Mr. Charles W. Wright, Manager
J. E. Hanger of Philadelphia, Inc.
Philadelphia, Pennsylvania

The Committee held its first meeting in Philadelphia on April 29, 1960. Dr. Fritchey and Mr. Kefford of the State Bureau outlined the interests and objectives of that agency in a program of activities designed to improve prosthetic services for the amputee population of the state. It was the intention of the Bureau, when adequate facilities and trained personnel were available, to introduce a policy whereby all of that agency's amputee beneficiaries would be required to utilize the services of organized prosthetics clinics for the prosthetic prescriptions and the training in the use of their replacement devices. The following problem areas concerning the implementation of this policy were discussed:

1. Organized prosthetics clinics for nonveteran amputees were confined to the Philadelphia and Pittsburgh areas. The entire central and northern portions of the state were without specialized facilities for the management of amputees. The organization of a number of new clinics, well distributed geographically, was essential to the Bureau's program.

2. A need existed to catalogue the resources within the state of physicians, physical therapists and occupational therapists who had taken prosthetic courses and would thereby be available to staff new clinics. It was recognized that deficiencies in terms of such personnel would have to be met by an intensive training program.

3. It was essential that the prosthetics facilities within the state be carefully surveyed to determine their capabilities to fit and fabricate modern prosthetics devices. The lack of competent facilities in certain areas would be a deterrent to the establishment of new amputee clinics. An announced intention on the part of the Bureau to utilize only "certified facilities" would be a stimulus for substandard firms to send their prosthetists to the prosthetics schools.

4. A need existed to inform the practicing physicians of Pennsylvania with respect to the modern concepts of amputation surgery and the rehabilitation principles that related to individuals with this form of disability. The Committee further recognized the importance, from a long-range point of view, of initiating a program in the interest of providing more effective training in the field of prosthetics at both the graduate and undergraduate levels of medical education.

During the past two years the staff of the State Bureau and the Com-

mittee have taken positive action concerning the above problem areas. Many physicians, therapists and prosthetists have taken prosthetics courses at New York University. Detailed surveys have been made of the personnel resources within Pennsylvania in terms of prosthetically-trained physicians and therapists. With the assistance of the American Orthotics and Prosthetics Association, the State Bureau has been furnished with a list of certified prosthetic facilities and a list of prosthetists, together with the courses that they have taken at the prosthetics schools. Six new prosthetics clinics have been organized in areas of the state previously remote from specialized facilities for amputees. These clinics are well distributed geographically to cover the Bureau's present requirements.

As a result of the progress that has been achieved, the State Bureau of Vocational Rehabilitation has now implemented the following policies and procedures with respect to their amputee beneficiaries:

1. All amputee beneficiaries will be processed at a Bureau-approved prosthetics clinic, the personnel of which must have attended formal prosthetics courses such as are given by the prosthetics schools. Following evaluation of the amputee client by the clinic team, the Clinic Chief will dictate the findings, recommendations, the prosthetics prescription, and the rehabilitation plan including therapy and prosthetics training. The clinic team is responsible for the final evaluation of the prosthesis and the training of the amputee in its use. Invoices for payment of the prosthesis will not be processed until the device is approved by the clinic team.

2. The State Bureau will contract only with facilities certified by the American Board for Certification in Orthotics and Prosthetics.

3. A vocational counselor will be assigned to each prosthetics clinic and will be present at each clinic session.

4. The clinic chief will be responsible for recommending the facility to fabricate the prosthesis. In this regard, consideration will be given to:

- a. Rotation. Normally cases will be rotated among the firms who have a prosthetist member of the clinic team.
- b. Referral sources.
- c. Locality in which the client resides.
- d. Cases requiring special fitting problems.
- e. Replacement prostheses will normally be referred to the facility which fabricated the amputee's present device provided the firm is a participant in the clinic and is competent to manufacture the prosthesis prescribed by the clinic team.

To assist the State Bureau in implementing this program, the Committee sponsored a half-day orientation seminar on prosthetics last August for the Bureau's medical administrators and medical consultants. Since this meeting, quite a number of these individuals have evidenced their interest in this field of disability by requesting authorization to attend a prosthetics course.

The Committee on Prosthetics Education and Information are very gratified that the Bureau of Vocational Rehabilitation of the State of Ohio is presently developing a prosthetics program in that state that quite closely parallels that of Pennsylvania. To assist that agency, CPEI is presenting a prosthetics seminar next April for the Ohio Bureau's medical administrators, consultants and other rehabilitation personnel. The adoption of prosthetics programs similar to that now in being in Pennsylvania by other state bureaus of vocational rehabilitation will do much to erase the disparity in the standards of prosthetics services available to veteran as compared with non-veteran amputees that presently exists in many areas of this country.

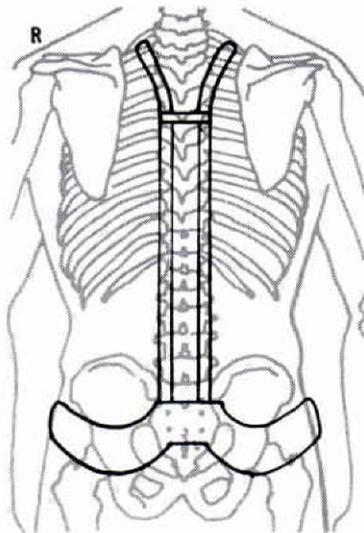
AOPA Survey Project Initiates Study of Orthotics

By BERTRAM D. LITT
Associate Survey Project Director

Early in September, 1961, the members of the Survey Advisory Committee—M. P. Cestaro, Chairman, D. A. McKeever and the late Dr. George Young—met with the project staff to discuss plans for a Survey of Orthotic Services. A program was mapped out for conducting a study of spinal devices and services to be followed by a second study of the extremities.

The Committee noted that the initial problem to be faced was the multiplicity of names used to describe orthotic devices and the apparent lack of a uniform practice in the application of orthopedic devices. In order to make a start at solving this problem and also to alert the field to the forthcoming field study a preliminary mail questionnaire was developed.

The preliminary questionnaire, Spinal Orthotics Questionnaire A, was designed to broach the problems of brace names and applications in such a way that the information returned could be used as an aid to constructing the forms for the interviews. Using the format shown in Figure 1, information was requested for 18 braces. It was mailed to the members of the American Orthotics and Prosthetics Association early in November. In



By what name do you
call this Brace?

.....
.....

What other names do
you hear used for this
Brace?

.....
.....
.....

Do you use it?.....
For what conditions
is it prescribed?

.....
.....

Figure 1.

December it was sent to non-member firms who are known to fit or fabricate prosthetic and/or orthotic devices. In all, approximately 1000 single copies of the questionnaire were mailed. As of this writing exactly 150 completed forms have been returned and 30 firms have written to tell us that they do not fit or fabricate spinal braces. Completed forms have been returned by 66 Association members and 84 non-members.

Plans have been made to visit approximately 150 facilities during the month of May. In order to accomplish this goal, 8 to 12 experienced young orthotists will serve as interviewers. At this writing invitations are being extended to a number of candidates to attend a training course to be held in Washington, D. C. during the week of April 16th.

At the Associations' National Assembly in Miami, the Committee on Advances in Prosthetics suggested that Dr. Robert W. Mann of the Massachusetts Institute of Technology be invited to serve on the Survey Advisory Committee. Dr. Mann is a Mechanical Engineer whose chief interest is in design problems. This led him to the Prosthetic and Orthotic fields where he and his graduate students have been studying design problems and external power sources. The staff is pleased to announce that Dr. Mann has accepted this invitation.

A content committee to determine the scope of this study of orthotic devices has been appointed by the Committee on Advances in Prosthetics. It is made up of John Glancy, John DeBender and Clarence E. Medcalf. These three orthotists were visited at their facilities last December for preliminary discussions concerning the information to be collected and the methods necessary to obtain and record the data. At this time two days were spent with Dr. Arnold and Siegfried Jesswein, C.P.O. at Northwestern University discussing the Association's plans for the Orthotic Survey and Northwestern's plans for a course in Spinal Orthotics.



MR. HANS R. LEHNEIS JOINS NEW YORK UNIVERSITY STAFF

New York University recently announced the appointment of Mr. Hans R. Lehneis, C.P.O., as Associate Research Scientist in the College of Engineering. Mr. Lehneis, formerly the Assistant Manager of the Orthopedic Division of Fillauer Surgical Supplies, Inc., received his early training and experience in Germany where he was graduated from the Professional School for Orthotists-Prosthetists in Frankfurt and was associated with several prominent orthopedic appliance facilities.

He has been with New York University since January 1st of this year in the dual capacity of Instructor in the Prosthetics and Orthotics Education Program and as member of the Orthotic Research Studies Group.

For The Dissemination of Knowledge

By LeROY WM. NATTRESS, JR.
Secretary, Committee on Education
American Orthotics and Prosthetics Association

Research in the fields of prosthetics and orthotics has brought about a number of advances in the past fifteen years. This effort has added greatly to the body of knowledge in our profession. A body of knowledge, however, that is not disseminated to those who practice a profession is useless. As a result, in prosthetics and orthotics there are a number of programs, committees, agencies, and institutions which function for the dissemination of knowledge.

As a report of the Committee on Education of AOPA, one of the disseminators, the following annotated listing of these groups is presented in order to increase the awareness of the educational opportunities in our profession. At the end of the listing an index is included for quick reference to prosthetic and orthotic educational opportunities.

(1). Committee on Education, American Orthotics and Prosthetics Association (AOPA)

Chairman—Edward W. Snygg, C.P.O.
Secretary—LeRoy Wm. Nattress, Jr.
Address: Suite 130
919 18th Street, N.W.
Washington 6, D. C.

The initial work of this committee was the organization of a correspondence program for persons just entering the fields of prosthetics and orthotics. During the past three years it has worked in cooperation with NYU, Northwestern, UCLA, and the Veterans Administration in the presentation of educational seminars at regional meetings of the Association. As a committee which is primarily interested in presenting programs which meet the needs of members of the Association, it is now concentrating on the development of business management materials.

(2). Committee on Educational Standards—American Board for Certification in Orthotics and Prosthetics (ABC)

Chairman—Michael P. Cestaro
Secretary—LeRoy Wm. Nattress, Jr.
Address: Suite 130
919 18th Street, N.W.
Washington 6, D. C.

A newly formed committee which is responsible for formulating a picture of the essential training and experience needed for the practice of prosthetics and orthotics. First publications from this committee are expected to appear during 1962.

(3). Committee on Prosthetic Education and Information (CPEI)

National Academy of Sciences—National Research Council

Chairman—J. Leslie Mitchell, M.D.
Secretary—Harold W. Glatly, M.D.
Address: 1201 Constitution Avenue
Washington 25, D. C.

Sponsored jointly by the Veterans Administration and the Office of Vocational Rehabilitation, CPEI is an advisory and correlating committee of the National Academy of Sciences. Membership of the committee includes leaders of all of the disciplines related to the practice of prosthetics and orthotics. In the past its primary attention has been directed toward physicians and therapists. It has conducted educational surveys, a program of exhibits, and a number of seminars for physicians. While continuing these programs it is also in the midst of a national census of amputees and a follow-up of patients seen by Prosthetic Clinic Teams.

- (4). Division of Training, Office of Vocational Rehabilitation (OVR),
Department of Health, Education and Welfare (HEW)

Chief—Cecile Hillyer

Assistant Chief—J. Warren Perry, Ph.D.

Address: Washington 25, D. C.

Much of the money which has enabled prosthetic and orthotic education programs to be conducted during the past five years has been awarded in the form of grants through OVR's Division of Training. In addition, they have made available Traineeship funds which are administered by the Universities involved in order to meet certain costs of attendance, i.e. tuition, travel, and/or subsistence. The Division of Training, while not a coordinator of the education programs sponsored by OVR, is well aware of potentials of each program and, thus, serves as a vital source for information and opportunities in prosthetic and orthotic education.

- (5). Facilities Certified by the American Board for Certification in
Orthotics and Prosthetics (ABC)

Executive Director—LeRoy Wm. Nattress Jr.

Address: Suite 130

919 18th Street, N.W.

Washington 6, D. C.

Since entry into the fields of prosthetics and orthotics is through apprenticeship at present, it is recommended that individuals wishing to become prosthetists or orthotists train in Certified Facilities. A listing of these facilities is published by the Board each year and is available, by request, from its national offices.

- (6). International Correspondence Schools (ICS)

Director—R. H. Schulenberger

Address: Scranton 9, Pennsylvania

In 1959 the Committee of Education of AOPA made a study of the courses offered by ICS and selected a number which are offered as two separate programs: One for beginning Prosthetists and Orthotists, the other for managers of prosthetic and orthotic facilities. These two curricula are made available by ICS through a Cooperative Training Agreement with AOPA.

- (7). Institute for Crippled and Disabled (ICD)

Prosthetic and Orthotic Laboratories

Director—Charles R. Goldstine, C.P.O.

Address: 400 First Avenue

New York 10, N. Y.

For a number of years ICD has offered a ten-months basic training program for prosthetists and a similar program for orthotists. These courses begin in September of each year. The course for prosthetists emphasizes lower extremity prosthetics. The course for orthotists emphasizes both lower

extremity and spinal orthotics. Both courses include practical work with patients.

- (8). Naval Prosthetics Research Laboratory (NPRL)
Commanding Officer—Capt. Robert C. Doolittle, M.D.
Address: Oakknoll Naval Hospital
Oakland 14, California

A twelve months training program for service personnel interested in entering the fields of prosthetics and orthotics.

- (9). Prosthetics and Sensory Aids Section, Veterans Administration
(VA)—Prosthetics Research Program's Educational Projects
Project Leader—William M. Bernstock
Address: 252 Seventh Avenue
New York 1, New York

The Veterans Administration has been a guiding force in prosthetic and orthotic education for the past fifteen years. Through its efforts the first courses in suction socket fitting were begun in cooperation with the Orthopedic Appliance and Limb Manufacturers' Association. The VA was also the original sponsor of University level prosthetic education. It has continually served as an information agency and, recently, in cooperation with AOPA, presented a seminar on fluid control mechanisms. While the majority of its educational efforts have been focussed on VA employees, the Veterans Administration Prosthetics Center welcomes visits by persons wishing to learn new techniques in the fitting and fabrication of appliances.

- (10). Prosthetic and Orthotic Education, New York University (NYU)
Director—Sidney Fishman, Ph.D.
Address: 550 First Avenue

NYU first entered the field of prosthetics education in 1956 when it presented a short term course for physicians, therapists, and prosthetists in Prosthetic Rehabilitation of the Above Knee Amputee. Since then it has, in addition, offered courses in Prosthetic Rehabilitation of the Upper Extremity Amputee, Upper Extremity Fitting and Harnessing, Below Knee Prosthetics, Clinical Problems of Above Knee Amputees, and Lower Extremity Orthotics. Short term courses are available for physicians, therapists, counselors, prosthetists and orthotists. In September 1960, NYU initiated the first program offering a Bachelor of Science Degree in prosthetics and orthotics.

- (11). Prosthetic and Orthotic Education, Northwestern University (NU)
Director—Jack Arnold, Ph.D.
Address: 401 East Ohio Street
Chicago 10, Illinois

The youngest of the three Universities offering prosthetic education, Northwestern offered the first course to prosthetists, therapists, and physicians in 1959. At present its curriculum includes short term courses in Upper Extremity Prosthetics, Below Knee Prosthetics, Above Knee Prosthetics, Fitting and Fabrication of Special Prostheses, and Prosthetics and Orthotics for Rehabilitation Personnel. NU is now engaged in preparing course material in Spinal Orthotics.

- (12). Prosthetic and Orthotic Education, University of California, Los Angeles, (UCLA)
Director—Miles H. Anderson, Ed.D.
Address: Medical Center, B 4-229
Los Angeles 24, California

The first University to offer prosthetic education, UCLA began its program by presenting a short term course in Upper Extremity Prosthetics in 1953. Following a series of twelve such courses it added the following courses to its curriculum: Clinical Prosthetics: Above Knee Amputation, Functional Bracing of the Upper Extremity, Advanced Above Knee Prosthetics, Clinical Prosthetics: Below Knee Amputations, Prosthetics and Orthotics for Rehabilitation Personnel and Functional Bracing of the Lower Extremities. At present courses are presented for physicians, therapists, counselors, prosthetists and orthotists. In the early part of 1962 UCLA offered its courses in an orderly sequence in an effort to provide more complete training to prosthetists and orthotists in the shortest possible time.

(13). Prosthetic and Orthotic Education, University of Virginia (U. Va.)

Directors—J. Hamilton Allan, M.D.
Roy M. Hoover, M.D.
Address: Woodrow Wilson Rehabilitation Center
Fishersville, Virginia

In 1961, Region III of the Office of Vocational Rehabilitation requested the staffs of the University of Virginia and the Woodrow Wilson Rehabilitation Center to establish a one week orientation course in prosthetics and orthotics for Rehabilitation Counselors in the Region. Four such courses were presented in 1961 and two have been planned for March of 1962. At present there are no plans to expand this program.

(14). Rancho Los Amigos Hospital—Orthotics Department

Chief Orthotist—L. Roy Snelson, C.O.
Address: 7601 E. Imperial Highway
Downey, California

Because of the need for highly trained orthotists in the field of Upper Extremity Bracing, Rancho Los Amigos Hospital has recently offered a twelve to eighteen months training program in their area of specialization. Students in this program have been recruited from outside the field of orthotics, thus, this must be considered as pre-vocational training.

(15). Surgical Appliance Suppliers

For a number of years, companies which produce corsets, trusses and related garments and appliances have offered short term courses in fitting techniques. For information concerning such courses contact the local surgical appliance supplier or the American Orthotics and Prosthetics Association, Suite 130, 919 18th Street, N.W., Washington 6, D. C.

(16). University Council on Orthotic and Prosthetic Education (UCOPE)

Secretary—J. Warren Perry, Ph.D.
Address: Office of Vocational Rehabilitation
Washington 25, D. C.

UCOPE consists of the medical and educational directors of the Prosthetic and Orthotic Education Programs of the three Universities offering programs to physicians, therapists, prosthetists and orthotists. Its primary responsibility is the coordination of these programs so that students attending courses at either of the three Universities may be assured of the same high level of teaching and course content.

PROSTHETIC AND ORTHOTIC EDUCATIONAL OPPORTUNITIES INDEX

	PROFESSIONS					PROGRAMS				INFORMATION				
	Physicians	Therapists	Prosthetists	Orthotists	Counselors and other Rehab. Workers	Basic Training	Orientation to the Field	University or Extension	Residency or On-The-Job	Available	Traineeships	Program	Coordination	Additional
1. Committee on Education AOPA		X	X								X		X	
2. Committee on Educational Standards - ABC			X	X										X
3. Committee on Prosthetic Education & Information	X	X	X	X							X		X	
4. Division of Training - OVR	X	X	X	X	X						X	X	X	
5. Facilities Certified By ABC			X	X					X					
6. International Correspondence Schools			X	X			X							
7. Institute for Crippled and Disabled			X	X			X		X					
8. Naval Prosthetic Research Laboratory			X				X		X					
9. Prosthetic & Sensory Aids Section, VA	X	X	X	X	X									X
10. Prosthetic and Orthotic Education - NYU	X	X	X	X	X		X	X			X			
11. Prosthetic and Orthotic Education - NU	X	X	X	X	X		X	X			X			
12. Prosthetic and Orthotic Education - UCLA	X	X	X	X	X		X	X			X			
13. Prosthetic and Orthotic Education - U.VA					X		X	X			X			
14. Rancho Los Amigos Hospital			X				X		X		X			
15. Surgical Appliance Supplier			X				X							
16. University Council on Orthotic and Prosthetic Education	X	X	X	X	X									X



President Quisenberry Reports on AOPA's Regional Meeting

Note: Pictures of the eleven Regional Directors, including recently appointed William Bartels of Portland, and Arthur Craig of Modesto, California, appear on the cover of this issue of the *Journal*.

Each spring, the American Orthotics and Prosthetics Association sponsors a series of eleven Regional meetings, which present educational and technical programs relating to orthotics and prosthetics. These meetings are planned by the persons elected as Directors of the Association, working in cooperation with the National Headquarters in Washington.

Since these meetings are open to all readers of the *Journal*, indeed, to all interested in the rehabilitation of the orthopedically handicapped, I would like to use my column this month to report on these meetings and the men and the one lady in charge.

Our readers in the Dominion of Canada have a choice of attending any one of the Regions which is convenient to them, either from the standpoint of time or geographical location. Requests for additional details should be sent to the Regional Directors at the addresses listed below.

The following arrangement is chronological, beginning with the first meeting in March and ending with the last at Kansas City in June.

The Southwestern states, (Region VIII)—meeting at the Rice Hotel in Houston, Texas, March 30-April 1, inclusive.

David C. McGraw is now serving his fourth term on our National Board of Directors, making him the senior in length of service. He represents the states of Texas, Oklahoma, Arkansas, New Mexico and all of Louisiana, with the exception of New Orleans. Requests for reservations may be sent to him at Snell's Limbs & Braces, Inc., 1833 Line Avenue, Shreveport, Louisiana, or to the Secretary of the Region, Thorkild Engen, Texas Institute for Rehabilitation and Research, Baylor University, Orthotics Department, 1333 Moursund Avenue, Houston, Texas.

The Southeastern states, (Region IV) will be meeting at the Heidelberg Hotel in Jackson, Mississippi, April 6-7-8.

Wilbur Floyd is Director of this Region, which roughly covers the area of the Old Confederacy. This covers the states of North and South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Kentucky and Eastern Louisiana.

Mr. Woodrow W. Perkins of the Phillips Brace Co. in Jackson, 719 Carlisle Street, and Mr. George H. Lambert, Sr., Snell's Limbs & Braces, Inc., 3758 Florida Street, Baton Rouge, Louisiana, are the Program Committee. Requests for additional information and reservations should be sent to them.

Dr. Robert E. Stewart, Director of the VA Prosthetic & Sensory Aids Service, is one of the featured speakers, and in addition, there will be a special presentation by personnel from New York University Prosthetics Education Program.

The Great Lakes Region, (Region V) will meet April 13-14 at the Akron Towers Motel, Akron, Ohio. Mr. Durward R. Coon, D. R. Coon Company, 4200 Woodward Avenue, Detroit, Michigan, is Regional Director. Local arrangements are being made by Mr. Bart Crowley, Akron Orthopedic Brace Co., 582 West Market Street, Akron, Ohio.

Key personnel from Northwestern University Prosthetics Education Program will appear, including Dr. Claude Lambert, Mr. Blair Hanger and Dr. Jack Arnold, Director.

Mr. LeRoy Wm. Nattress, Executive Director of the American Board for Certification, will speak on both Certification and the Association activities.

The Middle Atlantic States (Region III) will meet April 27-29 at Philadelphia. This Region includes Pennsylvania, Delaware, Maryland, Virginia and the District of Columbia. Louis Pulizzi, of the Williamsport Orthopedic Company, 138 East 4th Street, Williamsport, Pennsylvania, is Director.

MOALMA and Region II, including New York and New Jersey—Mrs. Mary Dorsch, Dorsch-United Limb and Brace Company, 109 East 29th Street, New York City, New York, is Regional Director, and information about this important meeting may be had from her. It is scheduled for May 4th and 5th at the Summit Hotel in New York City.

West Coast Regions Unite. Regions IX and X, covering the states of California and Arizona and Hawaii, are sponsoring something new—a joint meeting to be held at the Awahnee Inn in Yosemite, California, May 11th to 13th. Mr. Charles Neal of Adroit Prosthetics, 2224 West 7th Street, Los Angeles, California is Director of Region IX and Mr. Arthur D. Craig, A. D. Craig Co., 1016 Eye Street, Modesto, California is Director of Region X. Mr. LeRoy Wm. Nattress, Executive Director of the American Board for Certification, will attend and will speak, representing both the Association and the Certification movement.

The Northwestern States. (Region XI—meeting at the Gearhart Hotel, Gearhart Beach, Oregon, May 25th and 26th). Mr. William Bartels, William L. Bartels Orthopedic Appliances, Inc., 1120 N.W. 21st Avenue, Portland, Oregon, is Regional Director, succeeding Mr. August Pruhsmeier, who has resigned and is now touring Europe. The Program will feature key members of the Prosthetics Education Program of the University of California at Los Angeles. Mr. Lester A. Smith, Executive Director of the American Orthotics and Prosthetics Association, will speak, representing both the Certification Board and the Association.

Region VI, covering Illinois, Wisconsin, Indiana and eastern Missouri, will meet at the Marott Hotel, Indianapolis, June 8-9-10. Mr. Stanley Hedges, Indianapolis Artificial Limb Corp., 959 North Pennsylvania Street, Indianapolis, Indiana, is Regional Director. Local members who are also appearing on the program include Mr. Clyde Peach and Mr. Marion Miller. In

addition to specialists from Northwestern University, leading members of the medical profession in the state of Indiana will appear on the program. Mr. Lester A. Smith, Washington office of the American Orthotics and Prosthetics Association, will speak.

The New England States (Region I). This meeting will be held at Boston, Massachusetts, June 15-16. The program will feature specialists from the New York University Prosthetics Education Program. Details may be had from any of the following: Regional Director Joseph Martino, United Limb & Brace Co., Inc., 15 Berkeley Street, Boston, Massachusetts, Secretary-Treasurer of the Region, Mr. Howard Mooney, Boston Artificial Limb Co., Inc., 44 Middlesex Turnpike, Burlington, Massachusetts, and Joseph Aveni, Program Chairman, Liberty Mutual Rehabilitation Center, 372 Stuart Street, Boston, Massachusetts.

The Middle Western Region, (VII) will meet at Kansas City, Missouri, June 15-16-17. Mr. Erich Hanicke, P. W. Hanicke Mfg. Co., Inc., 1009 McGee Street, Kansas City, Missouri, is Regional Director. A unique feature of this meeting will be a presentation of unusual prostheses and braces being worn by the patient, and described by the prosthetist or orthotist who made the devices.

Dr. Leavitt on Region VIII Program

Dr. Lewis A. Leavitt, of the Veterans Administration Hospital, Houston, Texas, will be one of the featured speakers at Region VIII's meeting March 30 and 31 at the Rice Hotel in Houston.

The title of Dr. Leavitt's presentation will be "Pre-Prosthetic-Orthotic Evaluation and Rehabilitation Planning."

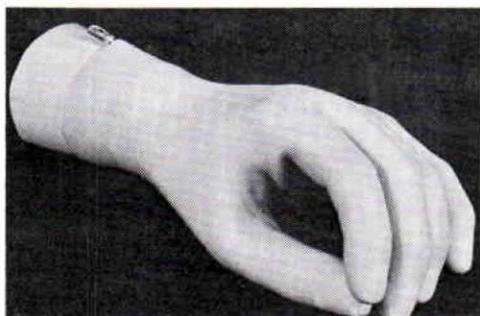
Other program features scheduled for this meeting, the first of the Association's educational sessions in 1962, include: "Serving the Veteran," conducted by Donald Smith, Area Chief, the VA Prosthetic and Sensory Aids Service; "Lower Extremity Bracing," a presentation from New York University, by Warren Springer and Bert Titus; "Advances in Lower Extremity Prosthetics," by John Bray of UCLA; "Certification of Facilities and the Future," by Alvin Muilenberg, ABC Vice President and Lester Smith, Executive Director of AOPA; "AOPA Services," by Lester Smith; and "Helping One Another," by Fred Quisenberry, National President of AOPA.



DR. LEAVITT

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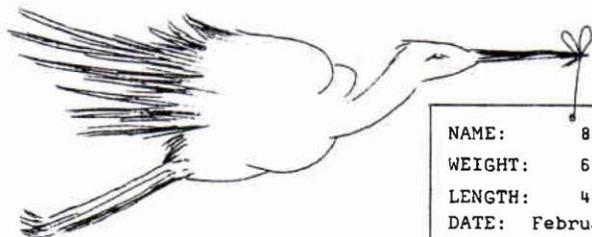
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A Report From the President of the American Board for Certification

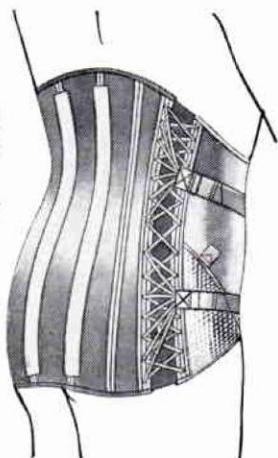
It is gratifying that the Certification program in Orthotics and Prosthetics has become so well established in the relatively few years since its founding. I wonder, however, if the importance of Facility Certification is fully appreciated. Of course, the well trained, competent, dedicated, Certified Orthotist or Prosthetist is of basic importance in the industry, and without him "Certification" would have no meaning. The facts of life, however, are that braces and artificial limbs are not obtained from the individual Certifee, but from the Facility. It is essential that a prescribing physician, or purchaser, have assurance that he is dealing with a Facility which is ethical in its practices, reliable, and employs personnel capable of fabricating and fitting the appropriate appliance properly.

More and more Orthoses and Prostheses are being prescribed by a physician, and purchased not by an individual patient, but by an agency such as State Vocational Rehabilitation, Crippled Children's Bureau, Veterans Administration, or an insurance carrier. These agencies more and more are insisting on some means of identifying Facilities which can reasonably be expected to satisfactorily fit the required appliance. In many areas, Certification of a Facility is required to qualify for purchase of an appliance for an agency, and this is as it should be. The industry would be in the best possible position if all Facilities meriting Certification were, in fact, Certified. If this were true, the physician and the purchaser would know that Certification and competency go together. I would like to urge all eligible Facilities to become Certified and if, for any reason, they are ineligible, make any necessary changes to permit Certification. When this goal is reached, the physician, the agency, and the disabled individual, can be assured that the title "Certified Facility" indicates that here is the "know how" and the business integrity to assure the best results.

Roy M. Hoover, M.D.
President

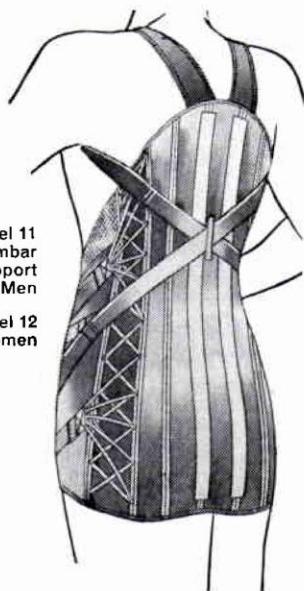
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To The Ladies:

FROM AOPA'S AUXILIARY



Mrs. Lorraine Scheck
President



Mrs. Elinor Bohnenkamp
Vice President



Mrs. Esther Pava
Secretary-Treasurer



Mrs. Pearl Leavy
Past President

Dear Members:

All the holiday bustle and hustle is over, but now with the weather playing havoc all over the country, everyone will certainly be looking forward to a relaxing time in Phoenix. I know I am. This snow and zero weather we've been having has everyone, shall we say "under the weather."

I am very pleased to report to you that we have a most willing Program Committee appointed to arrange for our activities at the Phoenix Assembly next October. Its members are Mrs. Margaret Jachowski and Mrs. Frances Auger. Since both these ladies are "on the scene" in Phoenix, I know they will be able to plan a program for us that will take advantage of the local attractions and points of interest. We all appreciate their help.

I have written to the Ramada Inn for any information they can give me, but so far haven't had a reply. I hope that by the time the next issue of the *Journal* comes out I will be able to report to you on some of the topics I know you're interested in—the climate in Phoenix in October and the kind of clothes to bring, as well as the different tours that are available to Indian reservations, the desert, and so forth.

Again, if any of you have suggestions about programs or activities, be sure to send them, either to me or to the members of our Program Committee. Don't forget, now!

With regards to all

Sincerely,

LORRAINE SCHECK

Biographical Sketches of New Members of AOPA



JAC. BOODEN

Jacobus Booden is owner of the Jac Booden Orthopedic Supply Company, 2418 Granby Street, Norfolk, Virginia. Mr. Booden came to this country from Amsterdam, The Netherlands, in November 1956, after selling the establishment there in which he had been active for almost ten years.

The firm's present facility, to which it moved in November 1957, occupies 2000 sq. feet of workshop and fitting rooms, and serves Norfolk and vicinity with a complete line of prostheses, braces and supports. Mrs. Alida E. Booden is in charge of the office and the firm's records, and Mr. Booden's son, Ernest John, works full time in the fabrication of limbs and braces.

Mr. Booden writes: "I would like to express my gratitude to the Denison's of Baltimore, Md., for their valuable assistance during the period of my orientation. I also would like to use this opportunity to express

my true admiration for the nationwide programs on research and development in this country and the connected post-graduate courses, which I enjoyed so much at New York University. We all enjoy living in the U.S.A. and we all hope to become American citizens pretty soon."



HYRUM CHRISTENSEN

Hyrum M. Christensen, C.O., is President of the Ace Orthopedic Company, 425 South Pacific Coast Highway, Redondo Beach, California. He has been certified since 1953.

Mr. Christensen has been in brace work since 1930, when he was first connected with Children's Hospital in Los Angeles as Orthotist. From 1937 to 1942 he served as Orthotist at the Carrie Tingley Hospital at Hot Springs, New Mexico, and from 1945 to 1953 at the Banner Orthopedic Shop, Los Angeles.

Mr. Christensen's facility fabricates and fits the Ilfeld Splint for treatment of congenital hip dysplasia. In

an article on this splint by Frederic W. Ilfeld, M.D., which appeared in the March 1957 issue of the *Orthopedic and Prosthetic Appliance Journal*, the author expresses his thanks to Mr. Christensen for his drawings and description of the construction of the Ilfeld Splint.



DREHER



JOUETT

Joe Dreher and Loren Jouett are President and Executive Vice President respectively of the orthopedic appliance firm of Dreher-Jouett, Inc., located at 51 West Wacker Drive, Chicago 1, Illinois.

Back in 1922, Joe Dreher brought the Dreher name, along with his "Meisterpruefung" from Germany and years of experience in Holland, to America to continue the family tradition and to establish a reputation here to compare with the one in Europe in the art of bracemaking. While concentrating primarily on surgical and orthopedic appliances, he began to realize the needs of the community for more comprehensive service.

In March 1961, after nearly 20 years in business, Dreher Manufacturing Company moved from their previous address in Chicago, and opened their doors for business in their modern new location as DREHER-JOUETT, INC., for the purpose of providing doctors, patients, and institutions in the Midwest with complete service, top quality merchandise and the finest workmanship available.

Loren Jouett, Executive Vice President who will carry on the firm's

work in the years to come, graduated from Bradley University (B.S.) in 1949, and has done post-graduate work at Northwestern University. His background includes pre-medical studies, business, and engineering along with apprenticeship and practice in orthotics.

Herman Schmid, Vice President, who became an orthotist in Germany, has been with the Dreher Mfg. Company for 20 years. "Miss Anne" Gustafson, a specialist in ladies' fittings, heads up the department for ladies' surgical appliances.

Dreher-Jouett's new facility, with over ninety feet of display windows overlooking Chicago's new Marina City, presents the top lines in orthopedic, surgical and hospital appliances, equipment and supplies. The welcoming front entrance is at street level, to avoid inconvenience to patients. Beyond are the air-conditioned reception room, six fitting rooms, offices and a large, light finishing department with extensive storage space. The shops and production area are just beneath on Lower Wacker Drive, providing a removed yet conveniently located area only a few steps below the store area. In the shops the latest in machinery and equipment are located alongside the old crafts which are practiced regularly for the sake of quality and workmanship. Blacksmithing is a regularly scheduled task in the forging of any parts or instruments which are best made in this manner.

Many of the items produced by DREHER-JOUETT are offered to others in the profession. For example: Hip Fixation Kits which include hip pins, the drivers and tools necessary for use by the orthopedic surgeon; custom osteotomes and other instruments; Special modifications of the "Frejka" splints for congenital hip dislocations, scissoring, etc.; Molded Body Jackets for scoliosis and other spinal problems; special weights and cuffs, hand and arm splints—particularly for eating and writing—and

special single bar bracing and occipital supports for MD's and CP's.

Joe Dreher and Loren Jouett both asked that their appreciation be expressed for the honor and privilege of becoming a member of A.O.P.A. and . . . "we look forward to participating in and contributing to the objectives of A.O.P.A. . . . and to promoting the stature, as well as the status, of the orthotist."



HIXENBAUGH



ICE

Charles E. Hixenbaugh, of the Stark Artificial Limb and Brace Company, 815 North Main Street, North Canton, Ohio, is in a business partnership with his step-father, James N. Ice. Their facility in North Canton, established in 1954, manufactures and fits artificial limbs, back and leg braces, and such accessories as canes and crutches. An orthopedic shoe department was added in 1956.

The Stark facility employs four people in its shop, all below knee amputees. The building is on ground level, with plenty of parking adjacent to it.

James Ice, who is an above knee amputee, began his training in artificial limbs with I. P. Boggs in the 1920's. Mr. Hixenbaugh writes, "Being with Mr. Ice all my life, I developed an early interest in artificial limbs."



MR. AND MRS. JOHN READ

NEW AFFILIATE MEMBERS OF AOPA

John Read, popular Truform representative on the West Coast, has taken out an affiliate membership in AOPA, (this is a special non-voting type membership, made available to field representatives of our supplier members).

John, shown in the picture above with his attractive wife, has been in sales and advertising work for the past thirty-five years, the last five of which have been for Surgical Appliance Industries. He was formerly deputy administrator for Illinois on the U. S. Savings Bond program and at one time had his own advertising agency.

As Truform representative he covers southern California, Nevada, Arizona, New Mexico and West Texas, (Panhandle).

The picture, showing him with his attractive wife, was taken by Mrs. Jack Pava in the Pava home in Santa Barbara, California.

Other Truform representatives who hold affiliate memberships in the Association include Howard F. DuKate, of Indianapolis, Vince Rivers of Chamblee, Georgia, and Frank McNeely of San Jose, California. These three members are sales representatives with headquarters in the locations indicated.

A. P. (Del) Gruman

Past President O.A.L.M.A.

A Tribute by GLENN E. JACKSON

A. P. Gruman, "Del" to all of us, passed away January 10th. Ever since a heart attack a few years ago, Del had been living on borrowed time so that when another attack came, his heart was unable to go further.

Readers of the *Journal* knew Del best as former President of the Association when it was called the Orthopedic Appliance and Limb Manufacturers Association (1948-1949).

I first knew Del back in the early 1920s when a group of us veterans of the First World War who lived in Minneapolis organized the North Side Post American Legion. A few years later, Del succeeded me as a Commander of that post of some 400 veterans.

In later years, Del and my brother married sisters who were the daughters of Lowell Jepson, owner of the Winkley Artificial Limb Company. After Mr. Jepson's death, Del became the head of this company.

Del had lived his entire life in Minneapolis and he had accepted and was carrying a wide variety of community organization responsibilities. Besides being an active Legionnaire, Del had been a Vice President of the Minneapolis Parent Teachers Association, member of the board and former board President of Unity House (a settlement house for needy children), member of Plymouth Lodge of Masons, Scottish Rite, Zubrah Temple, member of "40 and 8", of Sons of the American Revolution, Lions Club and Golden Valley Golf Club.

Del is survived by his wife Charlotte; three sons, Robert C. who succeeds him as manager of the Winkley Company; Dr. Allen J. of Bakersfield, California; and the Rev. Lawrence L. of Missoula, Montana; one daughter, Mrs. James W. Wilson of Claremont, California; and two sisters, Mrs. Milo Phillips, Atlanta, Georgia and Mrs. Robert W. Cooper, Hendersonville, North Carolina.

It was Del's wish that friends would proffer memorials instead of flowers. It was also his wish that, as a member of the Eye Bank, that his eyes be contributed to some sightless person who would then be able to see.

Besides these thoughtful preparations for his going, Del sat down one day and wrote a message to his friends which he asked to be opened when his day came. Here is what he wrote:



A. P. Gruman

"It is my sincere hope that when the time comes for my friends to pay me their last visit and farewell, it will not be an unhappy time. I have had an exceptionally happy life, and I have every reason to believe my happiness will continue, after I have completed my life on this earth. If my life-long belief in God is justified, the eternal life will be even more wonderful than the life we have known here.

"When my time comes, I do not believe I will resent being taken away from my loved ones, and I shall be content in knowing that so many counted me as a friend worth knowing. For them I can only wish as happy a life as my own has been.

"May God bless and keep all those I hold so dear."

Signed,
A. P. GRUMAN

December 19, 1953

Queer to say, this early contact of mine with Del Gruman had no connection whatever with the invitation extended to me by a special committee of the Association to become its executive Director in 1946. A few years later the Association elected Del as its president. Del presided over the Association's affairs during a high point in the progress of our people. It was during his year as President that the Seminar on Orthotics was developed at Mellon Institute. Also, the "Suction Socket Schools" flourished during his regime. Then, the Association's group insurance program was established during this same period.

It is probably true to say that more new projects that contributed to the progress of those early years were started during Del's administration than in any other similar period.

Del surrounded himself by a group of stalwart leaders like Chet Haddan, Walter Sievers, Mac Hanger, Sr., Frank Peterson and Dave Stolpe. But it was his administration.

When one thinks of Del's dominant personality characteristics, one feature stands out—his whimsical humor. His wit always surprised you for it came out of a straight face. Del had the whimsy of a Mark Twain. I recall that way back in American Legion days we always sought out Del to write the meeting notices. They made you want to go to the meeting. In fact he would have made a great cartoonist.

Del will be missed—not just by his family and friends—but by all who knew him and saw how, by a gentle hand, he led men in good ways.

In Memoriam:

CARLETON DEAN, M.D.

Carleton Dean, Director of the Crippled Children Commission for the State of Michigan, died suddenly in December at a meeting of the Commission. Dr. Dean was born in 1895 and after receiving premedical education at the University of Michigan, received his M.D. degree from Wayne University in 1923. He was in private practice from 1924 to 1930 and during this period developed an interest in public health questions and attended courses given on that subject by the Rockefeller Foundation.

In 1933 he received a Master's degree in Public Health from Johns Hopkins University and was later a District Health Officer in Michigan, serving as a Deputy State Health Commissioner.

In April 1941 Dr. Dean became Director of the Michigan Crippled Children Commission and continued in this position until his death. In this capacity he made an outstanding contribution to the development of progress for crippled children.

Dr. Dean was an excellent administrator. As a colleague of his said, even more important than this, "he had the ability to see a problem, evolve a plan to meet this problem, and then stimulate adequately enough people to accomplish the task. There are many examples of specialized projects that he started in the State of Michigan to give special attention to certain types of crippling conditions in children."

Of special interest to orthotists and prosthetists and to others interested in the rehabilitation of the orthopedically handicapped is the development of the Area Child Amputee Program, which Dr. Dean began in 1955. This program represented the final fruition of a highly specialized child amputee program that was carried out jointly in two crippled children's clinics in the Grand Rapids area. By virtue of the success of these programs as reflected in improved care of children with amputations, a consolidated clinic devoted entirely to prosthetic rehabilitation of children with amputations, or congenital limb anomalies best treated as amputees, was developed and is continuing.

Dr. Dean attended several National Assemblies of AOPA. Many of the program features in recent years were inspired by his suggestions and benefitted from his assistance.



CARLETON DEAN, M.D.

In Memoriam

Ralph William Snell

Ralph William Snell, pioneer prosthetist of Tennessee, died November 6, 1961, at the age of 83. He was the father of James D. Snell of Shreveport and Ralph D. Snell of Nashville, and grandfather of Ralph R. Snell of Memphis, all AOPA members.

The senior Mr. Snell was a popular figure at Assemblies of the Association during his years of activity. He was a Memphis resident for 53 years and a long-time operator of a surgical and dental supply company as well as his limb and brace business.

Mr. Snell was born in Duluth, Minn., and went as a child to Nashville where he later attended old Nashville Medical College. He established R. W. Snell, Inc., in 1923, and operated this business until his retirement ten years ago. His grandson, Ralph R. (Ronnie) Snell, now operates the firm.

Mr. Snell's was one of the first Memphis firms to employ the physically handicapped. Almost 100 per cent of his employees, except for members of his own family, were amputees.

Henry M. Bates

Henry M. "Hank" Bates, well-known representative for the Pope Brace Division, died suddenly on February 9 at the home of his son in Denver, Colorado.

"Hank" Bates was born in 1890 and was for many years connected with the Pomeroy Company in New York City. Later he was field representative for Truform Anatomical Supports, before joining Pope Brace Division.

Hank was widely known and universally popular among AOPA membership. His loss will be keenly felt.



BOOK REVIEWS

OUTLINE OF ORTHOPAEDICS by John C. Adams. 4th Edition 1961, 484 pgs. \$8.00 per copy, The Williams and Wilkins Company, Baltimore, Maryland. Reviewed by Bertram Litt.

This is a clear, concise, adequately illustrated and readable presentation. The absence of footnotes and references detracts little if any from the value of this book.

Although it was written as an aid to medical students, it should be of considerable value to anyone who is concerned with orthopaedic work. The subject matter is limited only by the exclusion of fractures and rare conditions (which are not covered in undergraduate medical school.)

A brief Introduction is followed by a 25 page description of Clinical Methods. Approximately one quarter of the book is devoted to a General Survey of Orthopaedic Disorders. The remainder of the book describes the orthopaedic disorders as they relate to specific areas. Each section (Trunk and Spine, Shoulder Region, Upper Arm and Elbow, etc.) contains a summary of problems, the high points for examination, a classification of disorders and a description of the particulars of each disorder, including causes, pathology, clinical features, diagnosis, complications, prognosis and treatment.

If your library does not contain a medical volume on orthopaedics, this book is a very useful introduction to the field.

THE EXTREMITIES (Second Edition) by Daniel P. Quiring, Ph.D., and John H. Warfel, Ph.D. Published by Lea & Febiger, Philadelphia, 1960. Cost \$3.25. 120 pages, 106 illustrations. Reviewed by Leroy Wm. Nattress, Jr.

This is probably the most practical book on anatomy that has reached my desk in recent years. *The Extremities* by Quiring and Warfel is a study guide designed to accompany either the 27th edition of Gray's *Anatomy* or the 9th edition of Cunningham's *Text-Book of Anatomy*. This, however, does not reduce its usefulness in relation to the recommended texts of the American Board for Certification, i.e. Grant's *Atlas of Anatomy* and Well's *Kinesiology*.

As a student and teacher I have always found the lesson sheet a great help in the systematic learning of complex ideas. The study of Anatomy is filled with complex ideas but, because the majority of these can be visualized, the lesson sheet is an excellent means to aid learning.

The Extremities may be looked upon as a bound set of lesson sheets. It provides information regarding the Origin, Insertion, Function, Nerve Supply and Blood Supply for the muscles of the upper and lower extremities.

This edition of *The Extremities* names the muscles in conformance with the *Nomina Anatomica*, the international source for terminology in anatomy.

The Extremities, along with its companion book, *The Head, Neck and Trunk* should be considered standard guides for prosthetists and orthotists in the study of anatomy.

THE GERIATRIC AMPUTEE: A Report on a Conference sponsored by CPRD, Publication 919, National Academy of Sciences — National Research Council, Washington, D. C., 1961. Reviewed by John R. Hendrickson.

EDITOR'S NOTE: *A paper from this report, "Psycho-Social Implications of the Geriatric Amputee," by Chester C. Haddan, is reprinted in this issue of the Orthopedic and Prosthetic Appliance Journal.*

This is a report on the Conference on the Geriatric Amputee sponsored by the Committee on Prosthetics Research and Development of the Division of Engineering and Industrial Research, held at the National Academy of Sciences—National Research Council, Washington, D. C., April 13-14, 1961. Copies may be obtained by writing the National Academy of Sciences.

This Conference met to consider topics relating to the surgical, medical, and prosthetic management of the aging amputee, and the energy, biomechanical, sensory, neuromuscular, and psycho-social factors in their rehabilitation. A panel was appointed for each topic and each panel chairman presented a report to the Conference. This volume contains these reports and various papers prepared by panel members.

Of particular interest to the prosthetist, is the section on Prosthetics Management. This section covers a number of well prepared presentations ranging from pre-prosthetic care to prosthetic management of the geriatric amputee. Careful evaluation of the information presented can be of material help to the prosthetist in working with the aged amputee.

Physicians involved in working with the geriatric amputee will find a wealth of information in this report. The papers on energy requirements for prosthesis use and others under this section on energy and biomechanical implications, as well as the

papers on surgical and medical management, make this report a valuable addition to their reference library.

To the best of our knowledge, this report represents the first comprehensive analysis of the geriatric amputee and his problems ever to be made by outstanding doctors, engineers, and prosthetists in conference. As such, this volume provides the beginning of a body of useful knowledge that can be expanded to the benefit of the aging amputee.

The prosthetist will gain much from this report if he recognizes the importance of adapting his attitudes to an entirely different type of personality in the geriatric amputee. The training and guidance of older amputees require special considerations. Their vision is poorer, their fear of falling is greater, and their ability to control the prosthesis is less than a younger amputee. So, the prosthetist who is sensitive to these facts will accomplish far more than his less discerning brother.

THE PATELLAR-TENDON-BEARING BELOW-KNEE PROSTHESIS by C. W. Radcliffe and J. Foort. Reviewed by Prosthetic Education staff, Northwestern University Medical School.

To the lay reader a manual on the fabrication of any prosthesis is something of a mystery which renews admiration and amazement for that one man—the prosthetist—who possesses so many skills. The new edition of the University of California below-knee prosthetics manual now entitled *The Patellar-Tendon-Bearing Below-Knee Prosthesis* by C. W. Radcliffe and J. Foort is no exception.

As far as the more technical aspects of this manual are concerned, the inexperienced mind can see that explanations of fitting are clear, and drawings particularly on alignment duplication are excellent. Mr. H. Blair Hanger, Chief Prosthetist,

made the following comments comparing the new and old editions:

"The chapter on biomechanics has been revised, and the explanation of forces acting on the body is very well presented. The forces acting in the medio-lateral dimension, in our opinion, still need further explanation. The medial pressure on the femoral condyle is a definite factor in providing stabilization in the medio-lateral plane, and the formula should read: $W_a = L_b + I_c + M_x$. "x" would represent the perpendicular distance from the fulcrum at which the force "M" works above the supporting portion of the socket. There is also room for discussion about why a thigh corset decreases anterior distal pressure, but altogether the chapter is an excellent one. "One word of caution is advisable with regard to how the patient's weight is located over the foot. It is our understanding that men's heels have changed over the past two or three years, and therefore any use of the breast of the heel as a reference point should be somewhat discounted.

"The chapter on side joint placement has been clarified considerably."

The anatomy section has been enlarged and contains some excellent drawings which help to understand further the below-knee stump. The text written by Frank N. Todd who also did the drawings is a very readable presentation. A strict critic might wish for more identification of drawings, although they follow the text for the most part.

"Prescription Criteria" is an invaluable part of the manual. It emphasizes the importance of understanding the capabilities of the individual patient and his prosthesis. It also brings out the rehabilitation team concept in a subtle manner.

In discussing "Prosthetic Problems" the authors analyze some of the difficulties associated with the PTB

prosthesis. This valuable chapter is well-written, though diagrams of gait evaluation would have been a welcome addition. From the standpoint of the experienced prosthetist, however, this might be superfluous.

The manual in general reflects very well the additional experience gained since publication of the first edition. The illustrations are excellent, and the book is an extremely worthwhile reference for all prosthetists.

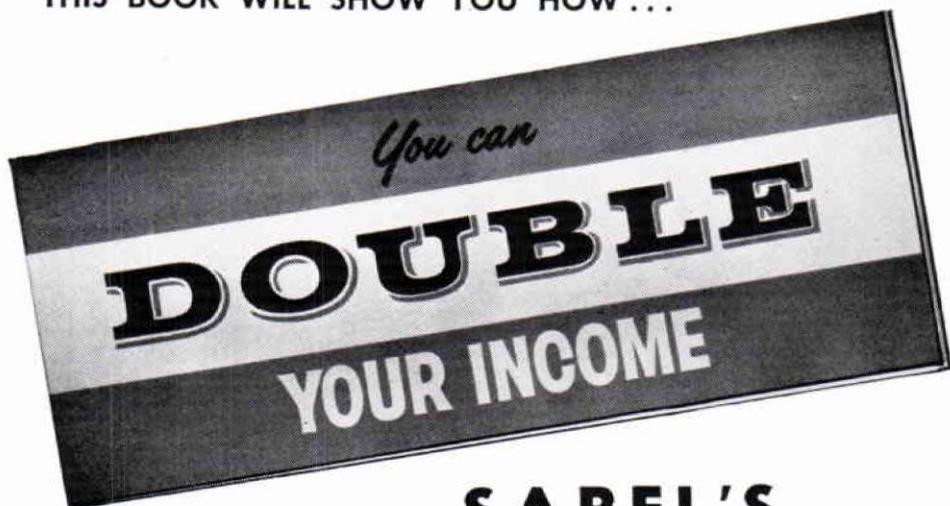
SHOE THERAPY by Philip R. Brachman, 2nd Edition 1960, 166 pgs. \$5.95 per copy. Shoe Service Institute of America, 222 E. Adam Street, Chicago 6, Ill. Reviewed by Bertram Litt.

The first half of this book, Didactic Shoe Therapy, was originally written for students of podiatry and as such is primarily concerned with descriptions of foot conditions and principles of shoe construction. In the second half, Applied Shoe Corrections, the full gamut of shoe corrections and how to do them is described in terms which should be adequate for anyone who is thoroughly acquainted with foot anatomy. The chapter of Attachment of Orthopedic Appliances to shoes is the only one directly concerned with leg bracing. A valuable 13 page Glossary of shoe and orthopedic terms is included at the end.

The book should be of interest to any facility which is interested in doing shoe modifications. It should be a worthwhile book to read. However, considering the size and cost of this volume each facility should weigh their interest or potential interest in this area in relation to the cost.

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International Society Elects New Directors For U.S. Committee

Mr. Kenneth King, Chairman of the Board of Directors of the United States Committee of the International Society for Rehabilitation of the Disabled, today announced that Mr. Joseph F. Nee, Senior Vice President of The National Foundation, New York City, and Mrs. W. Scott Allan, Assistant Vice President and Manager of Medical Services, Liberty Mutual Insurance Company, Boston, Mass., were elected to the Committee's Board at a meeting in Denver, Colorado.

The Board includes thirty-six lay and professional persons from all parts of the United States who are helping the International Society to secure greater understanding and support for its world-wide program in this country.

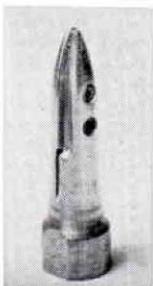
The International Society serves voluntary member organizations in fifty-four nations with a comprehensive program including films, translations and other informational services. The Society works closely with the United Nations and other world organizations.

World Congresses and Regional Conferences are held periodically in different parts of the world. The organization's Ninth World Congress will be held in Copenhagen, Denmark, June 23-29, 1963. Headquarters for the United States Committee and the Society are at 701 First Avenue, New York 17, New York.



AT ORTHOPEDIC SURGEONS MEETING—Past President Ralph Storrs and President-Elect Carlton Fillauer with Erich Hanicke at the Certification Exhibit at the 29th Annual Meeting of the American Academy of Orthopaedic Surgeons in Chicago, January 27 to February 1.

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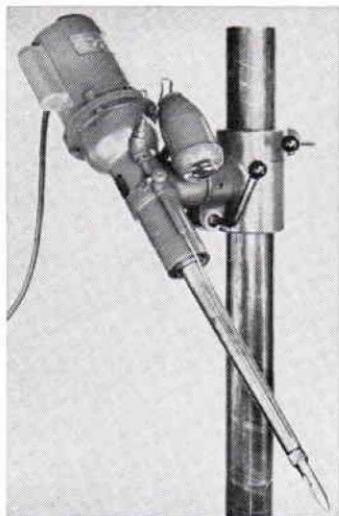


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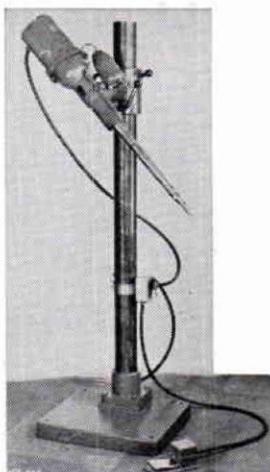
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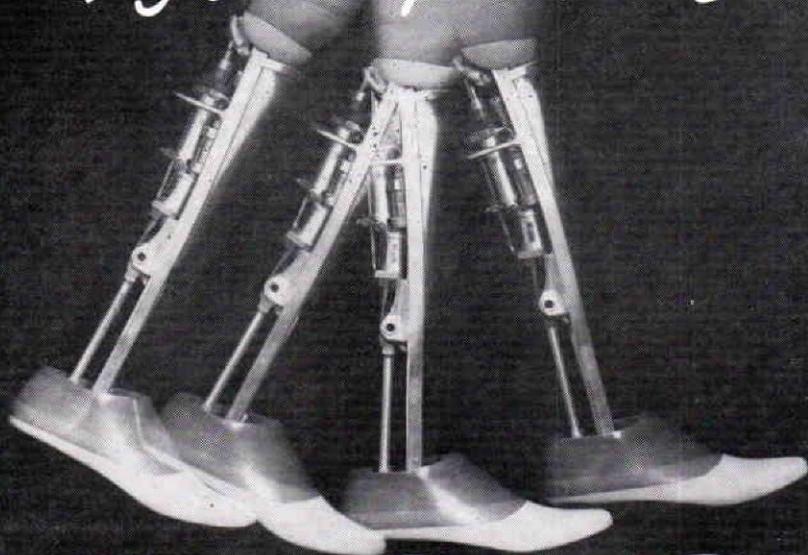
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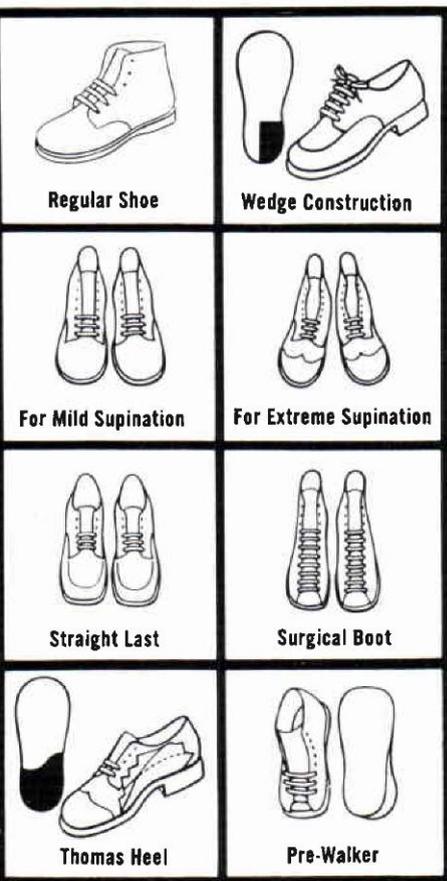
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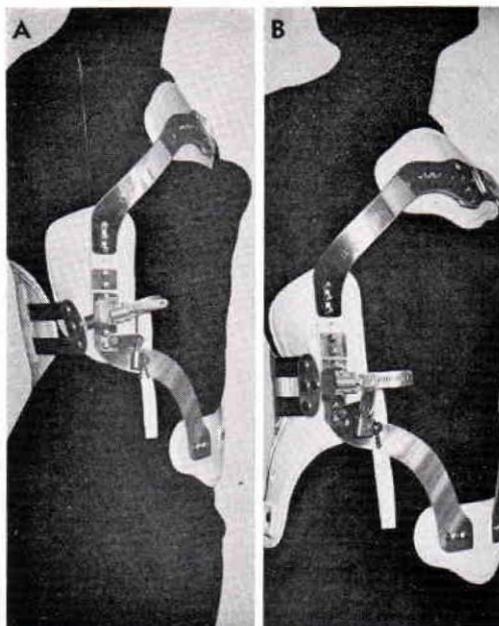
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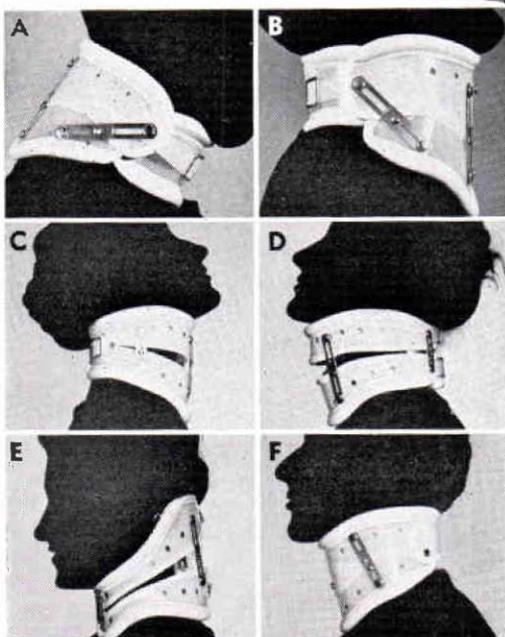
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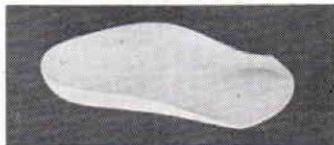


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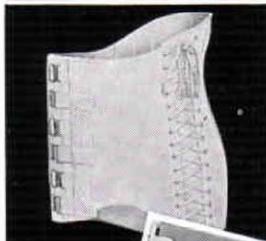
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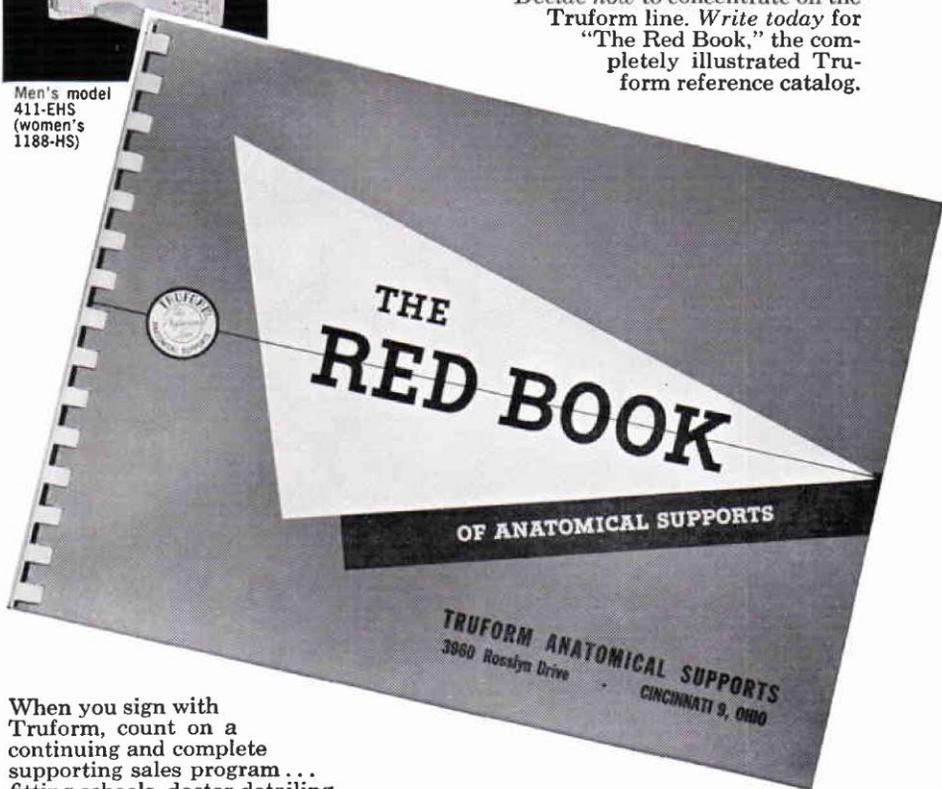
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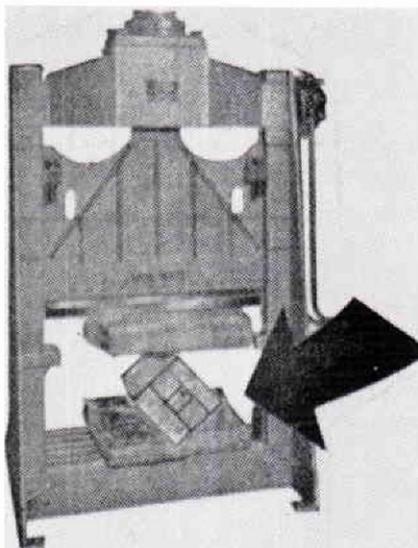
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QUADRILATERAL SOCKET BLOCKS

HIGHEST LOAD STRENGTH



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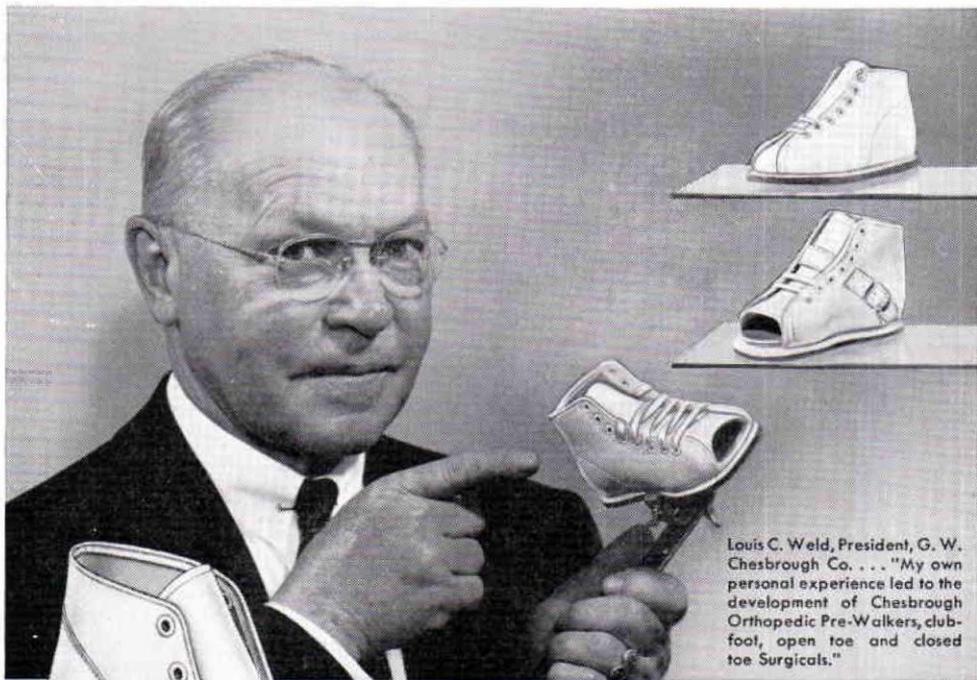
Nine times the normal load supporting capacity required to take both static loads and the extra loads imposed by sudden shocks.

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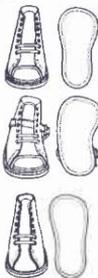
Louis C. Weld, President, G. W. Chesbrough Co. . . . "My own personal experience led to the development of Chesbrough Orthopedic Pre-Walkers, club-foot, open toe and closed toe Surgicals."



No. 1400 OPEN TOE. Straight-line symmetrical last, firm heel, no back seam. Adaptable to Denis Browne Splints.

No. 1700 CLUBFOOT, OPEN TOE. Special outflare last, sturdy instep strap to stabilize heel.

No. 1300 CLOSED TOE. Lace-to-toe design permits snug, gentle fit. Perfectly smooth inside.



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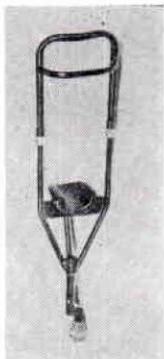
"Chesbrough Pre-Walkers mean NEW business for you"

"Here are orthopedic shoes parents can afford. Orthopedic surgeons in 49 states and many foreign countries are now prescribing them. Spectacular sales figures prove it. This important referral business can be yours.

"When a child in my own family needed a corrective shoe, I discovered what a strain it can mean to a family budget, because 1) corrective footwear is expensive and 2) frequent purchase of new corrective shoes is required. Then and there I decided there was a real need for a moderately priced corrective shoe—a shoe parents could afford. That's why and when Chesbrough Orthopedic Pre-Walkers were born.

"Our 63 years of shoe-making experience resulted in corrective Pre-Walkers of scientific design, expert workmanship, fine leathers combined with orthopedically correct lasts to provide necessary correction at an economical price."

All shoes in unlined white elk, sizes 000 to 4, narrow and wide. Available in full pairs, split pairs or single shoes (no extra charge for half pairs).



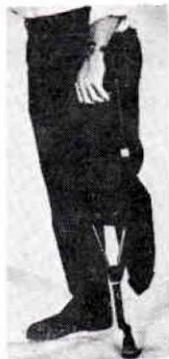
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- Stump heals faster and muscles develop better, so amputee can graduate to prosthesis without delay.
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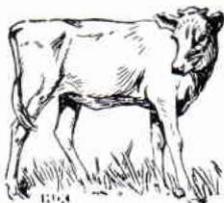
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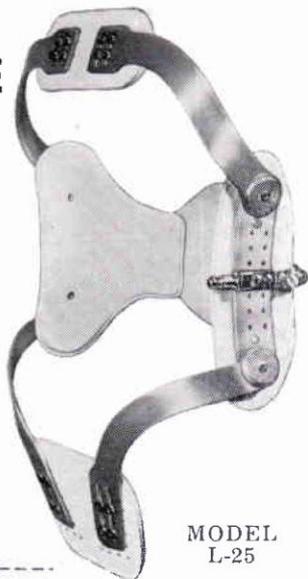
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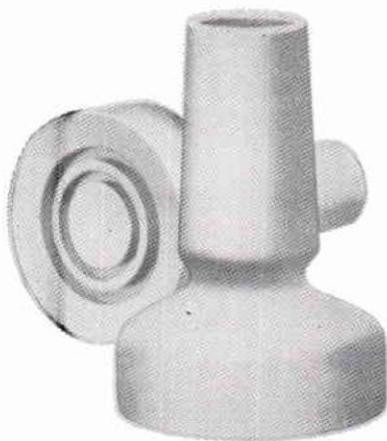
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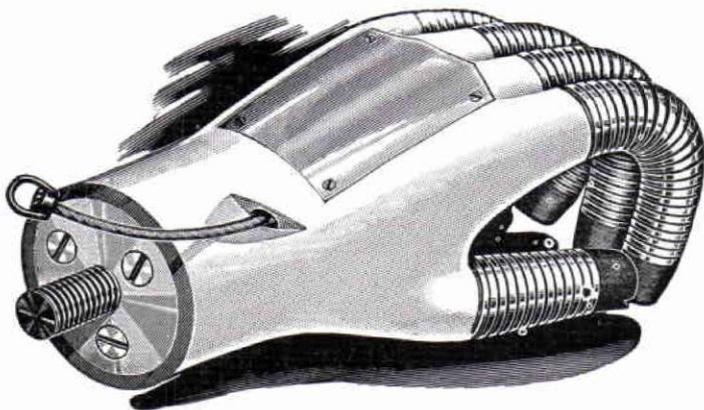
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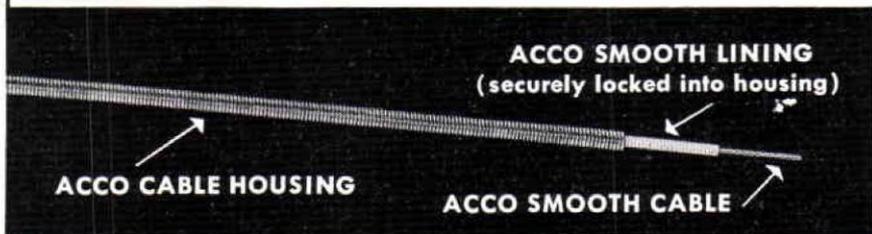
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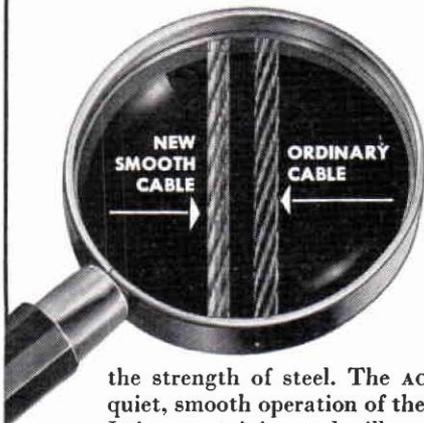
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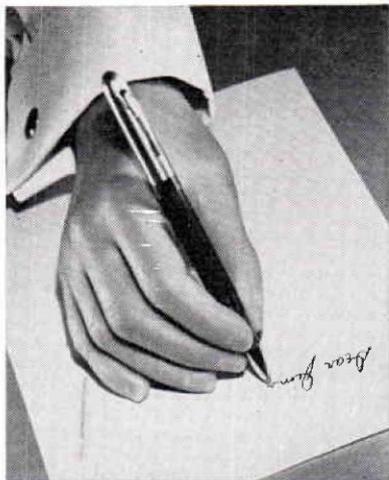
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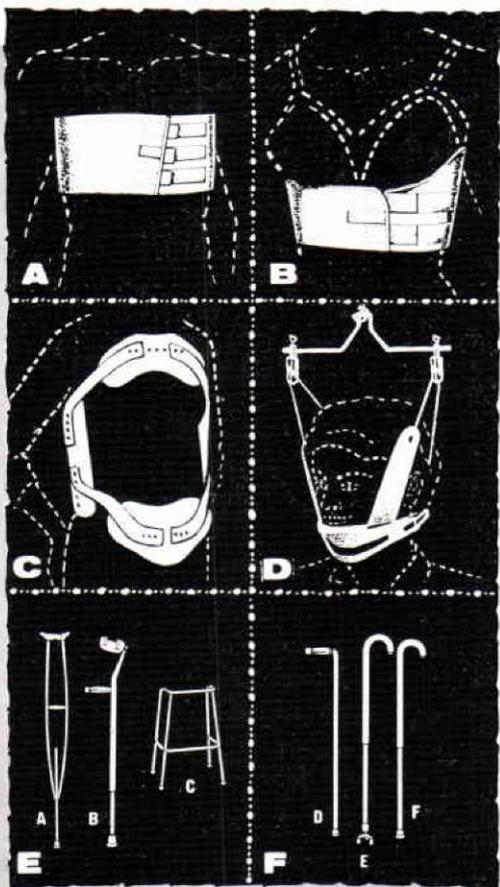
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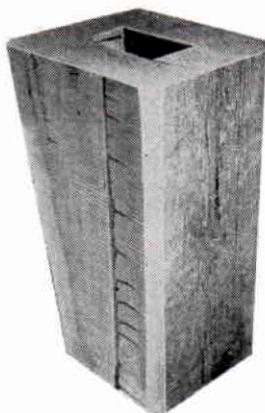
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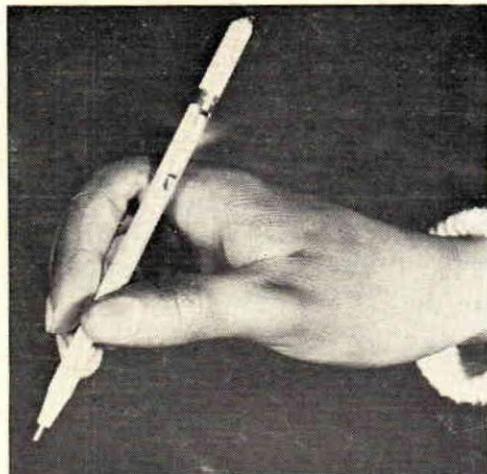
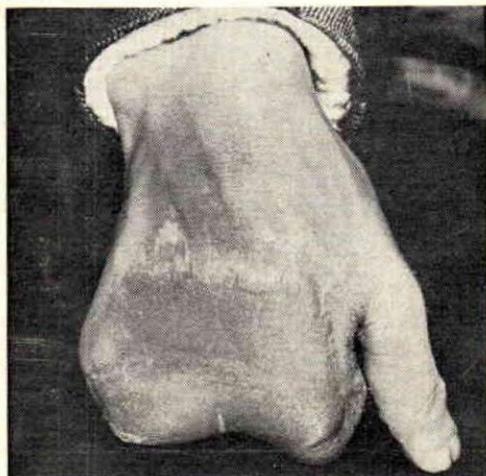
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