MARCH, 1960

ORTHOPEDIC & PROSTHETIC APPLIANCE JOURNAL

The Journal of the Limb and Brace Profession

A North Carolina Birthday Party.
(See page 100)

publishers: American Orthotics and Prosthetics Association and American Board for Certification

ORTHOTICS AND PROSTHETICS CALENDAR FOR 1960—
WHAT • WHEN • WHERE

(Notice of events to be listed here should be sent to the Editor of the Journal)

APRIL

1-2-3 AOPA Region V—Ohio, Michigan, West Virginia—Meeting
Deshler-Hilton, Columbus, Ohio

22-24 Meeting—Pennsylvania Society of Orthotics and Prosthetics
Williamsport, Pennsylvania

29-30 AOPA Region IV—Southeastern States—Meeting. Adjourns May 1
Conquistador Motel, Pensacola, Florida

MAY

13-14 AOPA Region II—New York and New Jersey and Metropolitan Association—Technical Session
Biltmore Hotel, New York, New York

14-15 AOPA Region VIII
Lake Murray Lodge, Oklahoma

JUNE

1 Deadline date for receipt of applications for the 1960 Certification Examinations

17-18 AOPA Region VII (the Middle West) Meeting
Stanley Hotel, Estes Park, Colorado

AUGUST

21-28 International Congress of Physical Medicine and Rehabilitation
Mayflower Hotel, Washington, D. C.

28 World Congress for Welfare of Crippled Children and Adults —Adjourns September 2
Waldorf Astoria Hotel, New York, New York

SEPTEMBER

2-6 National Assembly of the American Orthotics and Prosthetics Association (AOPA)
Waldorf Astoria Hotel, New York, New York

4-10 International Society for Orthopedic Surgery and Traumatology (SICOT)—Meeting
Hotel Astor, New York, New York

OCTOBER

10-12 National Rehabilitation Association—National Meeting
Biltmore Hotel, Oklahoma City, Oklahoma

BIRTHDAY PARTY FOR TWO IN NORTH CAROLINA

Debbie Ferrell and Neva Thompson, the young ladies shown on our cover, have much in common. They were four years old last September 23, and the picture shows them at their mutual birthday party. Both mothers were good friends before their birth, both girls were born the same day and both with congenital amputations.

Debbie is the little blond girl and Neva is the brunette.

The artificial arms were prescribed by the Prosthetics Clinic team headed by Dr. John Powers at the Charlottte Rehabilitation Hospital of Charlotte, North Carolina. Arrangements were made through the Crippled Children's Division of the State Board of Health. The prostheses were made and fitted by the W. T. Hinnant Company of Charlotte, North Carolina.

John Hinnant, whose company manufactured the prostheses, reports that both girls were fitted the first week in July and were given prosthetic training by the therapist at the Rehabilitation Hospital. He adds: "They have made outstanding progress in the use of these prostheses and they use them every day now. (Of course, this is true of practically all children.)"

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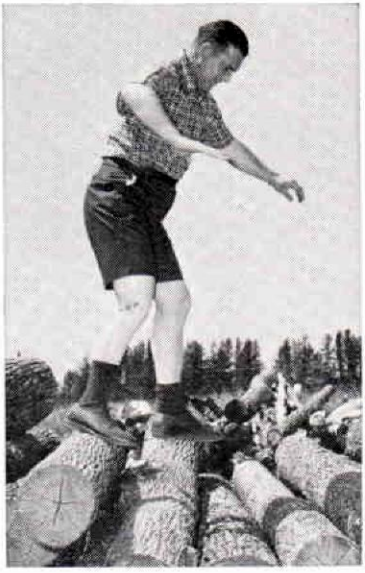

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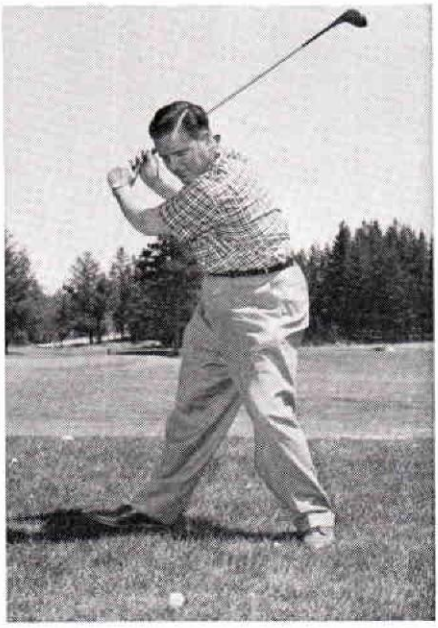

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Orthopedic and Prosthetic

Appliance Journal

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VOLUME 14 • MARCH, 1960 • NUMBER 1, SECTION 1

This issue appears in two sections. Section 2 is devoted to an Index for the year 1959

Second class postage paid at Washington, D. C.

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(Continued on page 5)

The *Orthopedic and Prosthetic Appliance Journal* is issued four times a year—in March, June, September and December. The 1960 subscription price payable in advance is four dollars a year, for delivery anywhere in the Western Hemisphere. The subscription rate elsewhere is five dollars a year. Single copies are one dollar each.

Publication does not constitute official endorsement of opinions presented in articles. The Journal is the official organ of its two publishers, The American Orthotics and Prosthetics Association (formerly Orthopedic Appliance and Limb Mfrs. Assn.) and 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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DEPARTMENTS

SUPPLIERS SECTION—INFORMATION ON SUPPLIERS LIMB AND BRACE FIELD

Advertising in the Journal: The Journal is published March, June, September and December. Advertising contracts for these issues are issued on an annual basis. The Journal is supplemented by the AOPA Almanac published in the other eight months of the year.

Advertising rates are full page $65.00 per issue—half page $40.00 per issue.

Other details on advertising requirements and policies may be obtained from the editor, 919 18th St. N.W., Washington 6, D. C. or from any of the members of the AOPA Committee on Advertising and Supplies:

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SUPPLIERS INDEX—March, 1960

FAIR VALUE at a FAIR PROFIT

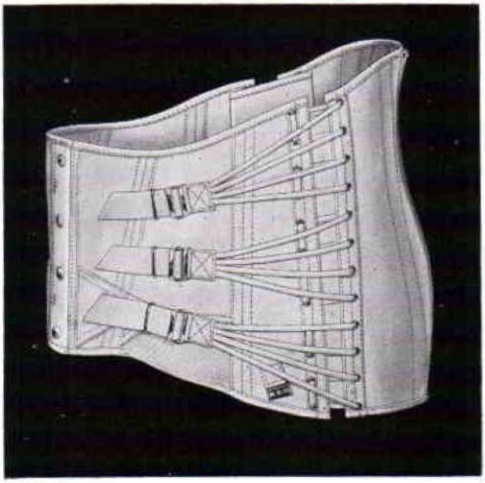
It's unwise to pay too much, but it's worse to pay too little.

When you pay too much, you lose a little money—that is all.

When you pay too little, you sometimes lose everything, because the thing you bought was incapable of doing the thing it was bought to do.

The common law of business balance prohibits paying a little and getting a lot—it can't be done.

—John Ruskin



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An outstanding hand, natural and lifelike in appearance with built-in Sierra reliability to meet the most exacting demands of the amputee. The exclusive Bac-Loc® feature operates in all finger positions enabling easy and secure object handling of various sizes and weights. Maximum thumb to finger opening is 3".
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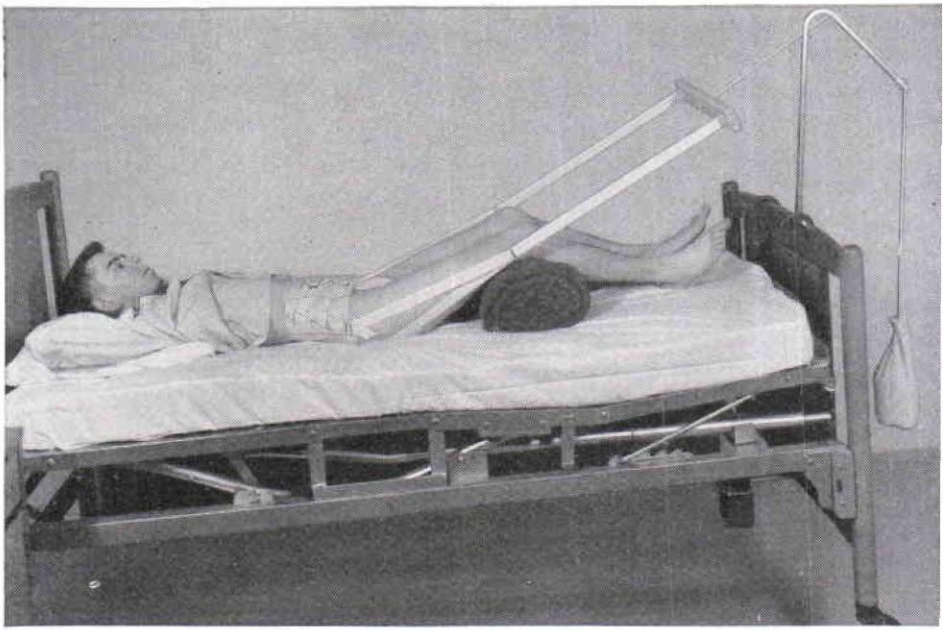

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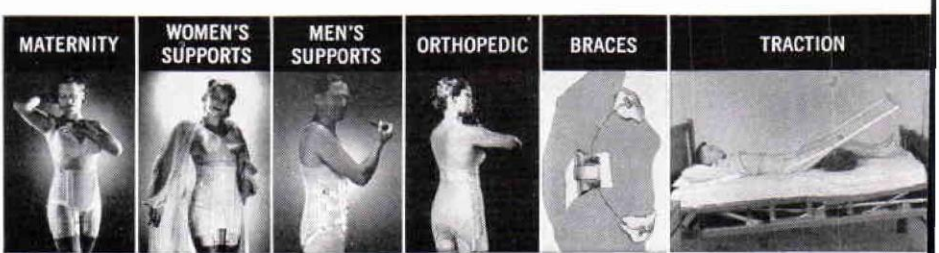

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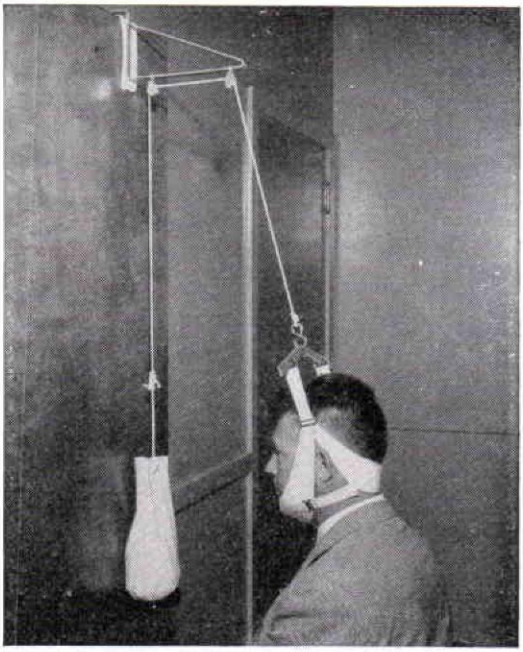

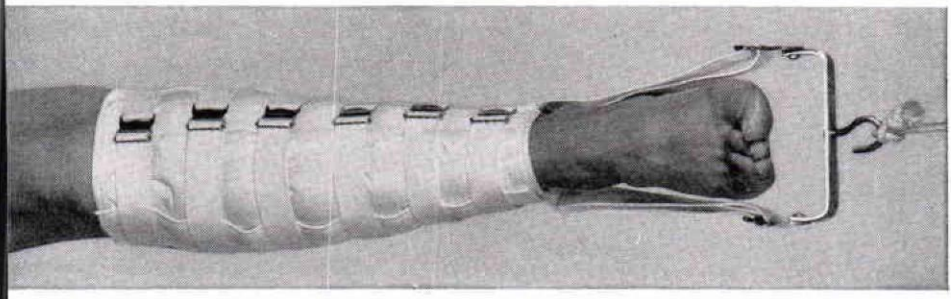

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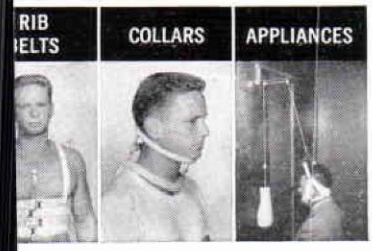

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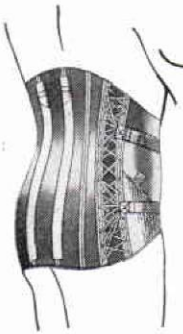

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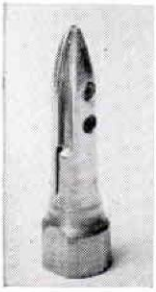

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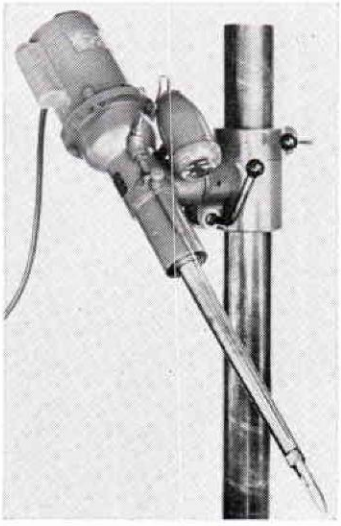

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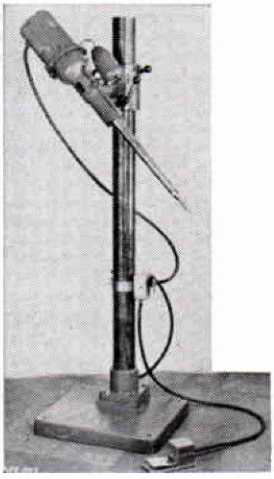

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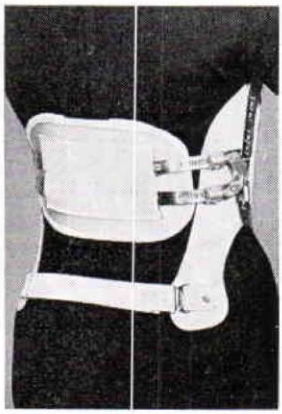

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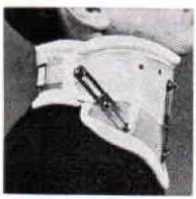

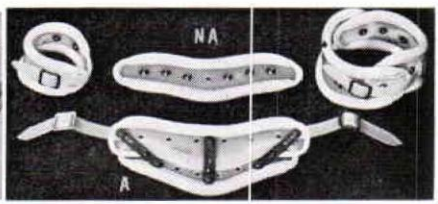

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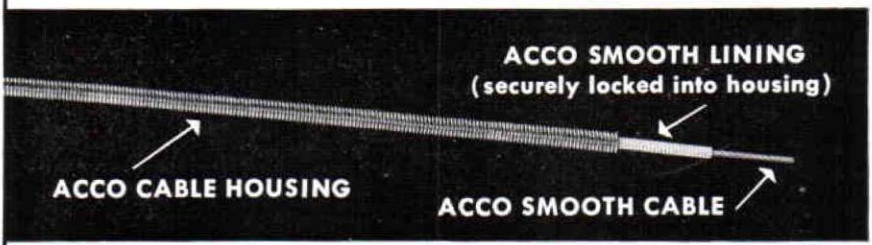
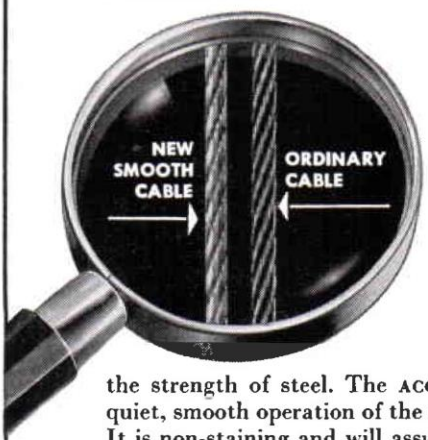


This exclusive ACCO combination of tough conduit, nylon-lined for minimum friction, and smooth cable assures quiet, smooth operation and exceptional service life. The nylon lining prevents squeaks, grunts, and jerks. Army Prosthetics Research Laboratory swaged fittings available.



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ORTHOTICS AND PROSTHETICS IN THE WORLD TODAY—THEME OF THE 1960 ASSEMBLY

PROGRAM CHAIRMAN TED SMITH ANNOUNCES PLANS FOR THE NEW YORK CITY MEETING

Noted authorities in prosthetics and orthotics give international color to the 1960 Assembly of The Limb and Brace Profession. This is to be held at the Waldorf-Astoria in New York City September 2-6, following immediately after the Eighth World Congress of the International Society for the Welfare of Cripples. Many delegates to the World Congress will remain on for the Assembly which is sponsored by The American Orthotics and Prosthetics Association.

Ted W. Smith, Certified Orthotist of Kansas City, Missouri, has been designated Program Chairman for the 1960 Assembly by President Paul E. Leimkuehler. Mr. Smith, a noted authority on stump socks manufacture, has had many years of experience—over a quarter of a century in the limb and brace field, specializing in recent years in the problems of supply to facilities of this country and Canada. He is a former Director of the Midwestern Region of The American Orthotics and Prosthetics Association and served as Exhibits Chairman for the 1957 Assembly. Mr. Smith is a partner in the Knit-Rite and W. E. Isle Companies of Kansas City.

The program for the Assembly has been arranged to take full advantage of the distinguished authorities from abroad who will be in New York City for the World Congress. They will be guests of honor at a reception given by The American Orthotics and Prosthetics Association the evening of September 2. This is the opening event of the 1960 Assembly.

President Paul E. Leimkuehler presides at the opening session of the Assembly September 3.

September 3rd Session—"The First Day"

The formal opening of the Educational, Supply and Technical Exhibits will be held in the morning. These will be shown in the Jade, Astor and Basildon Rooms at the Waldorf-Astoria Hotel. Principal meetings of the Association will be in the Main Ballroom. There too will be the display of "Orthotics and Prosthetics in the United States"—an exhibit prepared by the Association for the Eighth World Congress.

A series of reports on "Prosthetic and Orthotic Developments Abroad" features the morning program. Chester C. Haddan of Denver, a Past President of the Association, will be Moderator for this session.

From England, Dr. D. S. McKenzie will report. Dr. McKenzie's paper will give special attention to the problem of the older amputee.

Professor Dr. O. Hepp has been asked to report on developments in Germany with special reference to upper extremity prosthetics.

Dr. Knud Jansen of Copenhagen, Denmark and Dr. Masatora Hiyeda of Japan complete the morning's program.

Dr. Verne Inman will be in charge of the Saturday afternoon session, devoted to a Panorama of prosthetic-orthotics developments in this country.

Ted Smith (left above) will be Program Chairman for the 1960 Assembly; Richard Bidwell (at right) will plan the Assembly Exhibits.

The September 4th Session

Physicians attending the concurrent sessions of the International Society of Orthopedic Surgery and Traumatology will be guests at the Assembly sessions Sunday, September 3 (the International Society is holding its meeting at the Hotel Astor, in New York City September 4-10).

The annual Business Meeting of The American Orthotics and Prosthetics Association will be held in the morning.

Later in the day a series of seminars are scheduled on such topics as:

"Developments in Bracing in Germany Compared to the United States"; "Upper Extremity Prosthetics"—the work of Hepp and other authorities in Germany contrasted with our developments.

"Geriatrics—The Experiences in Great Britain and Scotland."

"Hemipelvectomy"—The Important Work Being Done in Denmark.

Certification Session

The annual Luncheon and Session of the American Board for Certification is scheduled for 1:00 o'clock. The annual Reports to the heads of Certified facilities will be made. President Howard Thranhardt will preside and pay tribute to retiring Board members Charles A. Hennessy and Dr. Vernon Nickel. The nominee of the American Academy of Orthopaedic Surgeons for membership on the Board will be presented, as will be the nominee of the Association.

September 5th Session

The Presidential Breakfast, a traditional feature of Assemblies, opens the morning's events, followed by the election of officers of The American Orthotics and Prosthetics Association.

Technical sessions planned for the day include

"Fractures of the Spine—with Indications as to Bracing" by Dr. E. L. Jewett.

"Plastics in Orthotics," presented by Anthony Staros, Chief of the VA Prosthetics Center, and his associates.

The annual Assembly Banquet is scheduled for the evening.

Business Management Session

Attention will be given to the difficult problems of business management of the prosthetic-orthotic facility at the Assembly's concluding session Tuesday morning September 6. Arrangements are being made for a post-Assembly trip to Bermuda, where there will be opportunity for informal continuation of the Assembly discussions.

Registration information and program details may be obtained by writing to The AOPA Program Committee, Suite 130, 919 18th St., N.W., Washington 6, D. C.

EXHIBITS

The Technical and Supply Exhibits at the National Assembly this year will occupy the largest area for space in the history of these conventions of the limb and brace profession. Richard Bidwell of Milwaukee, who is Exhibits Chairman, reports that a total of 62 booths will be available on the third floor of the Waldorf-Astoria during the Assembly September 2-5, 1960.

Brochures giving the details of the exhibit arrangements and a floor plan of the space may be obtained by writing to the Exhibits Committee, A.O.P.A., 919 18th St. N. W., Washington 6, D. C.

Mr. Bidwell announced that the Exhibits brochure will have a detailed floor plan showing the arrangement of booths in the Jade, Basildon and Astor Gallery Rooms, the Waldorf-Astoria. These are on the third floor of the Hotel in close proximity to the Grand Ballroom where the AOPA and Assembly Technical Sessions will be held. The Assembly exhibits this year will have an invited audience made up of these four groups:

1. Delegates to the Eighth World Congress International Society for the Welfare of Cripples. This Congress adjourns at noon September 2, but delegates have been invited to inspect the Assembly exhibits September 3.
2. Physicians attending the International Society of Orthopedics and Traumatology which will be held in New York September 4-9 will be guests of the American Orthotics and Prosthetics Association on Sunday September 4. They will have an opportunity to view the exhibits at that time. Dr. Phillip D. Wilson of New York City is Chairman of the Committee of Arrangements for this International Society Meeting.
3. Members of the American Orthotics and Prosthetics Association.
4. Other individuals interested in rehabilitation and concerned with the rehabilitation of the orthopedically handicapped.

NOTE: Registration forms and additional information about the Assembly may be obtained by writing to The American Orthotics and Prosthetics Association, 919 - 18th Street, N.W., Washington 6, D. C.

APPLICATION OF THE HALO

By VERNON L. NICKEL, M.D., Chief of Surgical Services and Head Orthopedist; JACQUELIN PERRY, M.D., Orthopedist; ALICE GARRETT, M.D., Orthopedist; ROY SNELSON, C.O., Chief Orthotist, Rancho Los Amigos Hospital, Inc., Downey, California

Introduction

Controlled positioning of the upper thoracic spine, cervical spine and the head has been inadequate with the use of plaster alone. Vertical alignment and more effective immobilization can be obtained with a traction apparatus between the head and body cast such as Crutchfield tongs (1) or Hoen wires (2) which we used on two cases, but separate positioning of the head and cervical or thoracic spine is not possible. This latter control is particularly important in combined cervical and bulbar palsies and high cervical fracture dislocations, and can be obtained by use of the halo traction apparatus. A detailed description of the halo has been previously given (3).

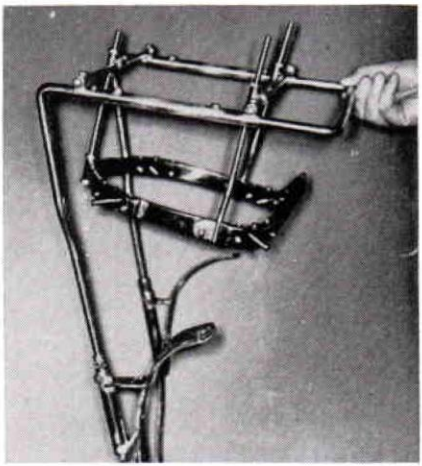


Figure 1

Modification of Dr. F. A. Bloom's apparatus for facio-maxillary traction (4) has given us this essential head control. In order to meet strength requirements the three-quarters reinforced aluminum ring was changed to a complete circle of stainless steel. His method of fastening the apparatus to the head with four broad-shouldered screws has been preserved. Because of its attachment to a cast, the additional weight is not a factor.

The halo consists of the following parts: (See Fig. I and II)

1. Head ring
2. Mounting brackets
3. Overhead support
4. Suspension assembly
5. Halo Skull Pin

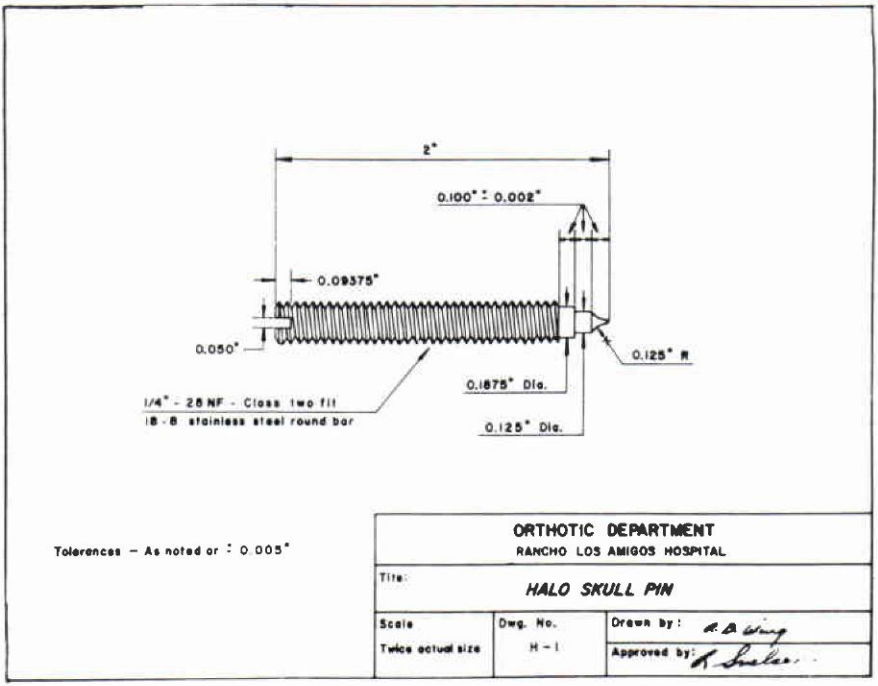


Figure II. Halo Skull Pin.

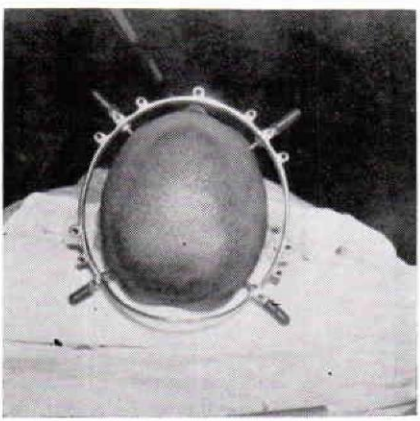


Figure IV.

The halo ring is applied to the patient's head by the physician. Caution should be taken to allow from $\frac{5}{8}$" to 1" clearance between the halo ring and the patient's head (Fig. IV).

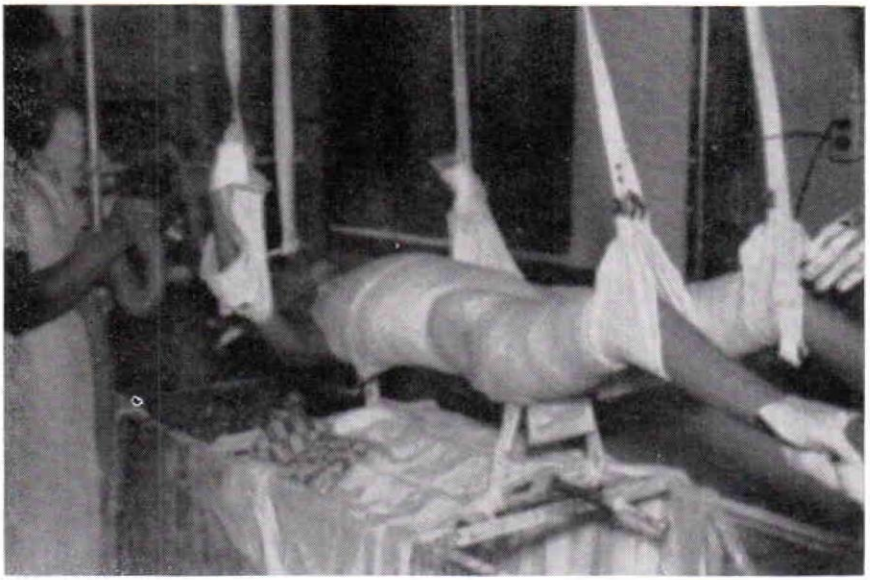


Fig. V

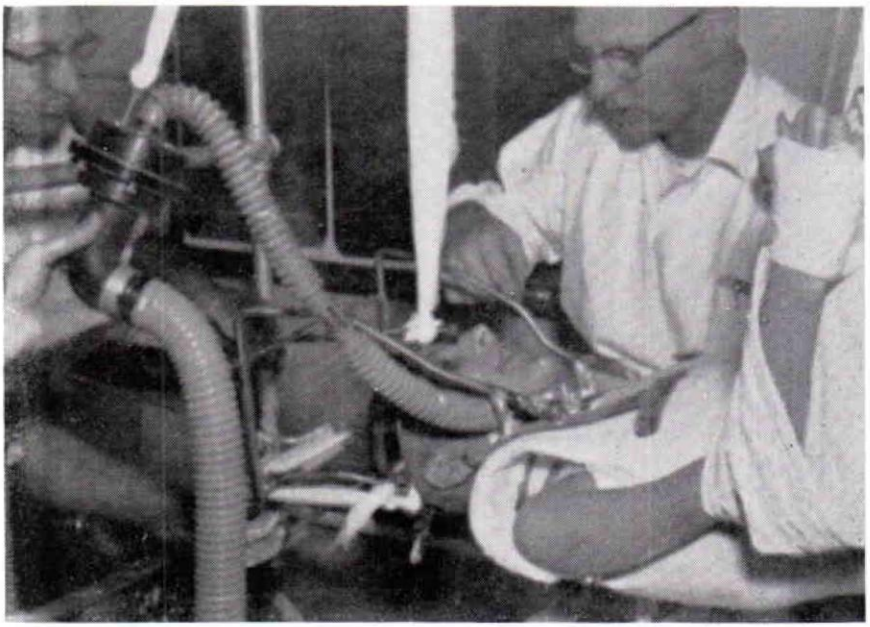
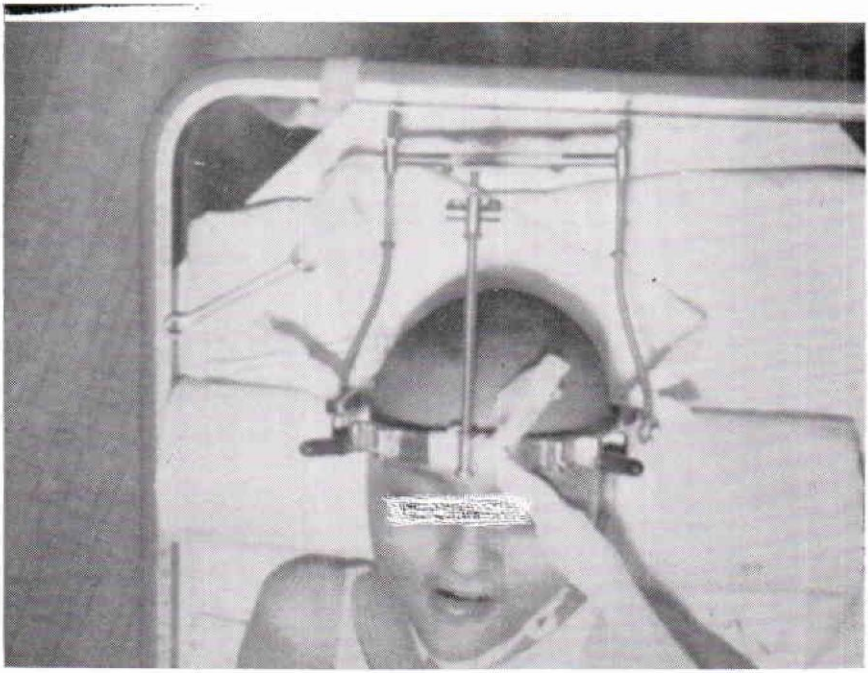


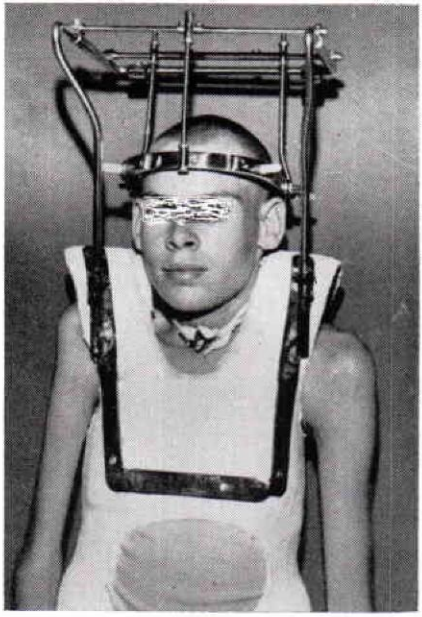
Fig. VI

The physician next applies the body jacket to the patient (Fig. V). It will be helpful if the orthotist can be present during the application of the cast to shape the mounting brackets to the cast (Fig. VI). The cast can be built up with plaster bandage in this area, which makes the final mounting easier. This is a repiratory patient who is receiving positive pressure through the tracheotomy during halo application.



The next operation is to attach the mounting brackets to the cast. This is done with 10-32 machine screws. Care should be taken to place the brackets parallel to each other. After the brackets are fixed to the cast and in proper alignment they are plastered over to give additional strength. Fasten suspension assembly to halo ring before the overhead support is shaped to insert into the mounting brackets (Fig. VII).

Many times, due to scoliosis, the head is not in line with the midline of the body, in such cases it is advisable to shape overhead supports so that all the medial-lateral adjustment is in the direction that you will be moving the head. (Fig. VIII)



The halo has about 4" medial-lateral adjustment and 4" to 6" vertical adjustment and anterior-posterior adjustment. It is always wise to allow as much adjustment as possible.

Shape overhead suspension to fit into mounting brackets and attach the suspension assembly. You can now adjust the halo to bring the head into the desired position. This adjustment is done under the supervision of the physician.

Make sure all set screws and nuts are TIGHT. They should all be checked perodically to make sure they are tight. Any looseness in the halo can cause necrosis around the skull pins.

*Much of the credit for the design of the halo as used at Rancho Los Amigos Hospital should go to Jack Conry, C.O., Research Orthotist and Richard Young, C.O., Orthotic Instructor.

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1. Crutchfield, W. G.: Skeletal traction for dislocation of cervical spine, report of a case. *Southern Surgeon*, 11, 156, 1933.
2. Hoen, T. I.: A Method of Skeletal Traction for Treatment of Fracture Dislocation of Cervical Vertebrae. *Arch. Neurol. and Psychiat.*, 36: 158-161, 1936.
3. J. Perry; V. Nickel: Total Cervical-Spine Fusion for Neck Paralysis. *Journal of Bone and Joint Surgery*, Vol. 41-A, No. 1, pp. 37-60, January, 1959.
4. Bloom, F. A.: Personal communication.

OFFICE OF VOCATIONAL REHABILITATION

Washington, D. C.

Appointment of Dr. Robert L. Bennett of Warm Springs, Georgia, and James A. Brownlow, of Washington, D. C., to the National Advisory Council on Vocational Rehabilitation has been announced by Secretary of Health, Education, and Welfare Arthur S. Flemming. Both appointments, for unexpired terms, fill vacancies created by the recent resignations of two Council members.

Dr. Bennett succeeds Dr. Frank H. Krusen, who resigned to become Special Assistant for Health and Medical Affairs to Miss Mary E. Switzer, Director of the Office of Vocational Rehabilitation. Mr. Brownlow succeeds Gordon M. Freeman.

The 12-member Advisory Council reviews applications to OVR for Federal grants from sponsors of research and demonstration projects, and recommends approval of those which show promise of making valuable contributions to the rehabilitation of disabled persons. Miss Switzer is Chairman of the Council.

Dr. Bennett's appointment brings to the Council one of the outstanding leaders in the area of physical medicine and rehabilitation. He is Executive Director of the Georgia Warm Springs Foundation; Director of the Department of Physical Medicine, Emory University Hospital, in Atlanta; Chairman of the American Board of Physical Medicine and Rehabilitation; Past President, American Congress of Physical Medicine and Rehabilitation; and Consultant to the Georgia State Division of Vocational Rehabilitation.

Mr. Brownlow served previously on the National Advisory Council on Vocational Rehabilitation during 1955 and 1956. He is President of the Metal Trades Department, AFL-CIO, in Washington, D. C.

FUNCTIONAL IMPROVEMENT SERVICES FOR PUBLIC WELFARE RECIPIENTS IN CALIFORNIA

By LEON LEFSON
Chief, Aid to Needy Disabled Bureau
California State Department of Social Welfare

On October 1, 1959, recipients of Aid to the Needy Disabled became eligible for functional improvement services in California. If the program is successful it may be extended to other welfare recipients of whom there are about 450,000 in this state.

The plan is a pilot project to determine whether it is possible to mobilize adequate resources on the local level to meet the needs of the totally disabled for functional improvement services. One of the basic assumptions is that modern concepts of rehabilitation have caught on sufficiently in the medical and ancillary professions to achieve the objectives of the program.

The purpose of the program is to provide a range of remedial services, including medical, psycho-social and other services needed to assist recipients to achieve the best possible adjustment and maximum functional improvement within the limits of their disabilites.

Plan of Operation

In California, as in most states, the welfare programs are administered by county welfare departments under the supervision of a State Department of Social Welfare. Because of requirements in the Federal Social Security Act, however, the determination of disability in Aid to the Needy Disabled is made by state medical review teams consisting of physicians and medical social workers instead of by counties. At the same time the applicant's disability is being evaluated a decision is made of *feasibility* for functional improvement services. The decision is based on medical, social and psychological factors.

If the case is considered feasible, the team authorizes *evaluation* services, which presently may not exceed $75 in the individual case. It is expected in most instances the evaluation will be performed by a medical specialist with the help of a physical or occupational therapist wherever indicated. Arrangements may be made with rehabilitation centers for these services.

Upon completion of the evaluation, the welfare department submits a rehabilitation plan including the cost of necessary services. A maximum of $300 may be allowed for treatment in a 12 month period for the individual case. It is expected that the emphasis in most instances will be on services that can be provided in the home since funds are insufficient to cover *treatment* services in rehabilitation centers.

Services

Five types of services are allowable under the functional improvement program:

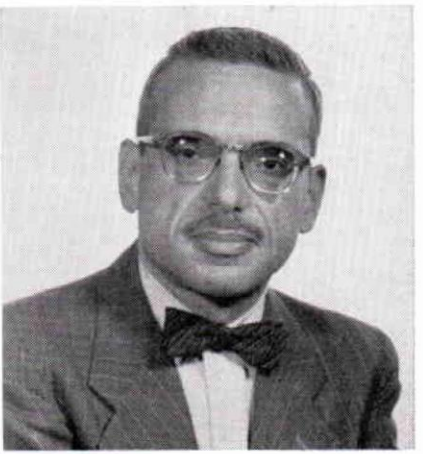
1. Physician home or office visits, including necessary X-ray and laboratory services
2. Nursing services, if not available from existing community resources
3. Physical and occupational therapy services
4. Appliances and assistive devices (excluding dentures, hearing aids and glasses)
5. Household rehabilitation equipment such as bathroom rails, parallel bars, modified chairs and toilet seats, etc.

Fees for the above services are paid according to established fee schedules. A fee schedule is currently being developed for appliances and assistive devices.

LEON LEFSON

Mr. Lefson is a graduate social worker having received a Masters degree in social work from the New York School of Social Work, Columbia University. From 1948 through 1951 he was with the United Nations Refugee Relief Program in Europe. Since 1951 he has been with the California State Department of Social Welfare as Public Assistance Specialist, Rehabilitation and Employment Consultant, and presently as Chief of the Aid to the Totally Disabled Bureau.

Before entering the field of public welfare Mr. Lefson spent time in the teaching profession and other miscellaneous types of work.



Certain services have been excluded because of fund limitations. Mainly these cover routine medical care and drugs. It is assumed that these will be met through existing community resources and the cash grant. California has an extensive system of county hospitals which by law are required to provide medical care for indigents.

Types of Disabilities

The approximate distribution of disabilities among the 8,000 welfare recipients of Aid to the Needy Disabled in California is as follows:

Parkinson's Disease, Cerebral Palsy and Epilepsy	24%
Mental Retardation	15%
Hemiplegia	14%
Other Circulatory Diseases	10.5%
Arthritis, all forms	11.4%
Multiple Sclerosis	6%
Other	19.1%

It is anticipated that the groups most likely to benefit from FIP services will be the arthritics, the hemiplegics, those with multiple sclerosis, muscular dystrophy, spinal cord injuries, and some cardiacs.

Progress to Date

Tooling up for a program of this kind is a slow process. After four months of experience it can be said that many county welfare departments have made gratifying progress in establishing the necessary procedures and enlisting the services of essential personnel needed to make the program work. It is anticipated that within a year, a significant number of individuals will begin to receive functional improvement services.

Prosthetists and orthotists have an important role in this program. The countless ingenious devices which are now available or can be developed are among the most beneficial services in improving an individual's capacity for self-care. The prosthetist and orthotist, together with the physical therapist, the occupational therapist, the nurse and other essential technicians can be of real service to the physician and the disabled person in developing a suitable treatment plan geared to maximum functional improvement.

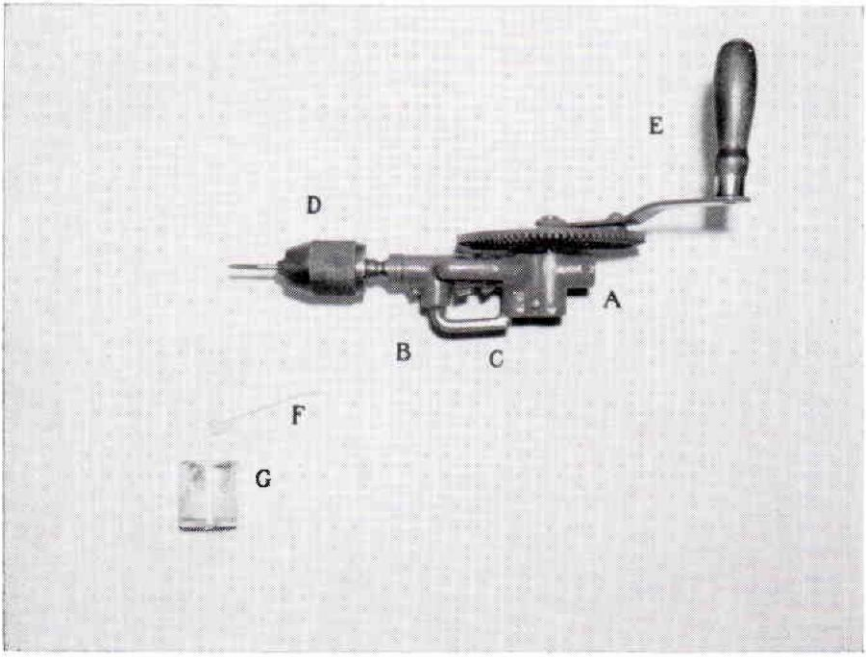
Those in California desiring further information may contact their local county welfare department. Those outside of the state may write to the author in care of the California State Department of Social Welfare, 722 Capitol Ave., Sacramento, California.

NELSON GADGETS

By KURT B. NELSON, C.O.
Nelson Orthopedic Company, Pittsburgh, Pa.

Gadget No. 3 — Tapping Device

In making braces we have a great many holes to tap and doing it with a regular tap holder is slow and hard on your hands. A Tapping attachment for drill press is expensive and usually ties up one drill press. Here is a gadget you can easily make and save your valuable time. Simply attach it in a vice and go to work.



To make it, use a 16" Breast Drill with a ½" chuck. Remove the breast plate and bar where it is attached to gear housing at A. Now unscrew the side handle at B and replace it with a bolt bent at right angle and long enough to reach gear housing at C where it is attached by brazing. Grip this bar, B-C, tightly in a vice and put a tap in the chuck, D. Press the work up against the tap and turn handle, E, with other hand. Cutting oil helps to make better thread and simple applicator will give the correct amount and save oil.

To make applicator, F; take a piece of felt ½ x ¼" and twist one end of a piece of soft wire (paper clip) around it for a handle, keep this in a small cup with cutting oil. G. A mere touch with this wet felt on tap or drill will lubricate it enough. To clean chips from tap, strike tap lightly with a piece of metal.

(This is the third in a series of articles by Mr. Nelson on gadgets he has found useful during his many years of experience. Gadget No. 1, a spacer, was described in the September 1959 issue of this Journal, Page 61. Gadget No. 2, a sky hook was described in the December, 1959 issue, page 36.)

A "MODIFICATION" OF A RECIPROCAL WRIST EXTENSION FINGER FLEXION ORTHOSIS

By THORKILD J. ENGEN, C.O.
Director of the Orthotic Department,
Texas Institute for Rehabilitation and Research, Houston, Texas

Patients afflicted with spinal cord lesions or injuries of the C-7 level often lose the activity of intrinsic hand muscles and the long flexor muscles acting about the wrist. When wrist extensor muscles with good strength are available, the patient often can get useful prehension of the first and second digits against the opposed thumb. Functional application of a modification of the Bisgrove type reciprocal wrist extension finger orthosis [1] can be used for this purpose. This device will provide flexion of the fingers at the metacarpophalangeal joint when the wrist is extended from a partially flexed position. The degree of digital flexion power obtained is dependent upon residual extension strength.

Blue prints and pictures in Figures 1-6 give a detailed view of the parts of the device, their assembly and application. Figure 1 shows a schematic perspective of the orthosis. Figure 2 shows the parts to scale with representative measurements for application to an adult. These measurements must be individualized. Some modification of the orthosis may be required with each application; for example, it is necessary to stabilize the thumb in opposition to the fingers with a crutch if the patient does not have an opponens muscle function.

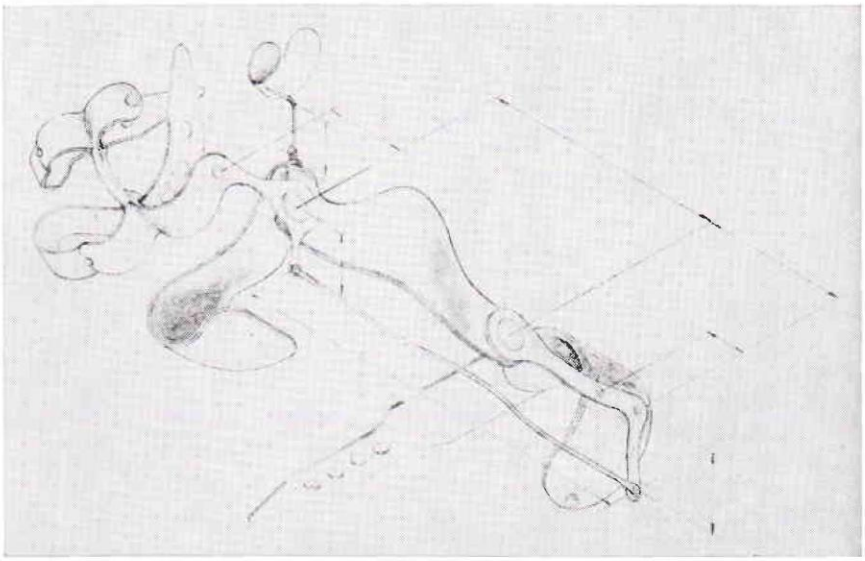


Fig. 1—Reciprocal wrist extension; Finger Flexion Orthosis.

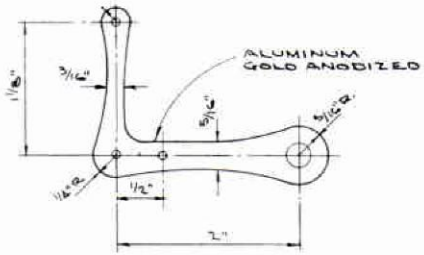


Fig. 2A—Hinge Detail

Fig. 2—Parts List: Reciprocal Wrist Extension Orthosis. Parts A-1. Note all parts made of 072-24 S. T. Aluminum unless otherwise shown. All measurements are for the viewer to gain a size perspective only.

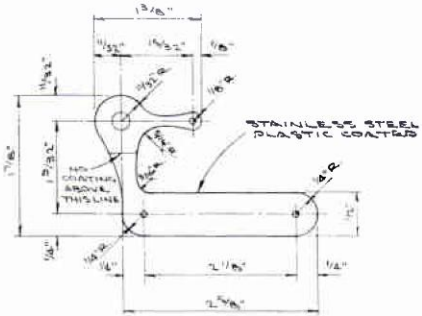


Fig. 2C—Finger Tip Piece Detail

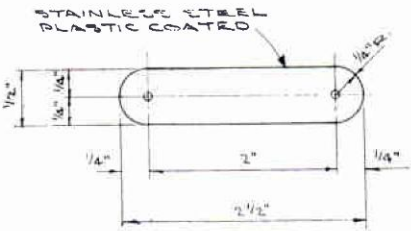


Fig. 2B—Finger Tip Detail

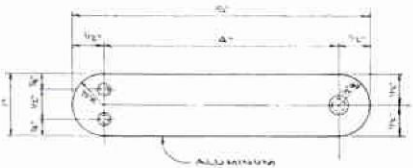


Fig. 2E—Wrist Band Detail

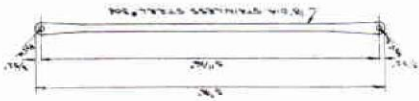


Fig. 2F—Control Bar

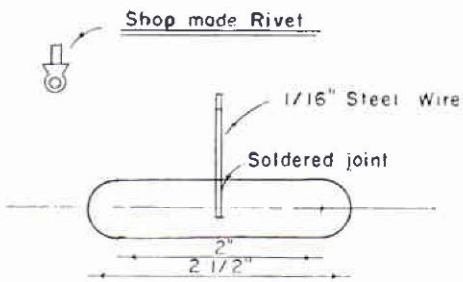


Fig. 2H—Thumb Piece Detail

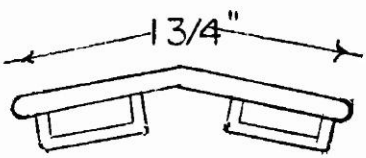


Fig. 2I—Finger Extension Holder

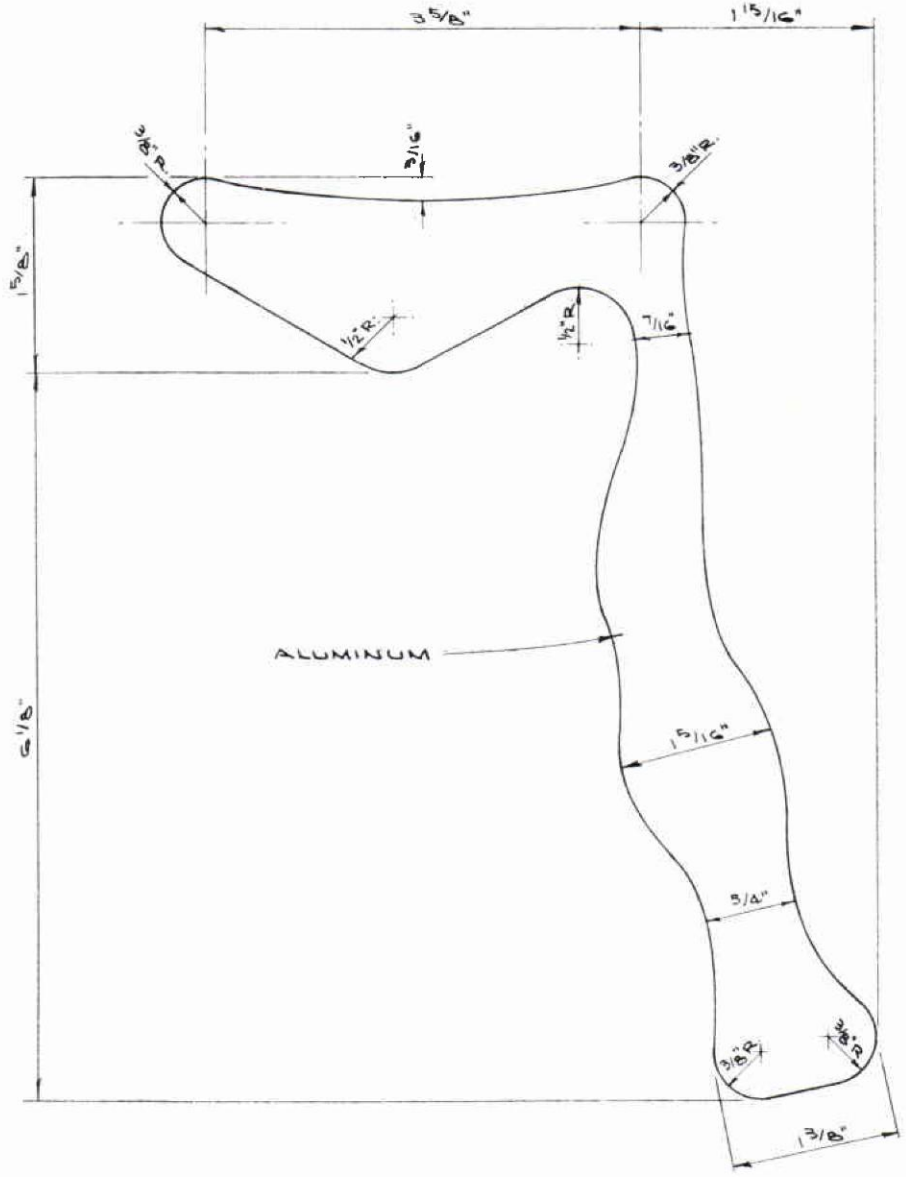


Fig. 2G—Hand Piece Detail

Figure 3 shows the configuration of a typical patient's hand so that the prominence of the extensor carpi radialis can be visualized. Figure 4 demonstrates prehension when the wrist is extended. Figure 5 shows over-all grasp when the wrist is in a flexed position. Figure 6 demonstrates the orthosis in actual use by a patient.

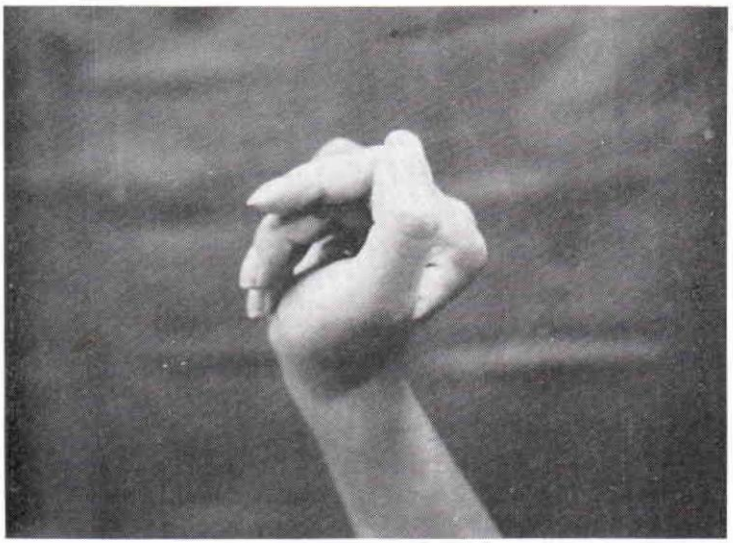


Fig. 3

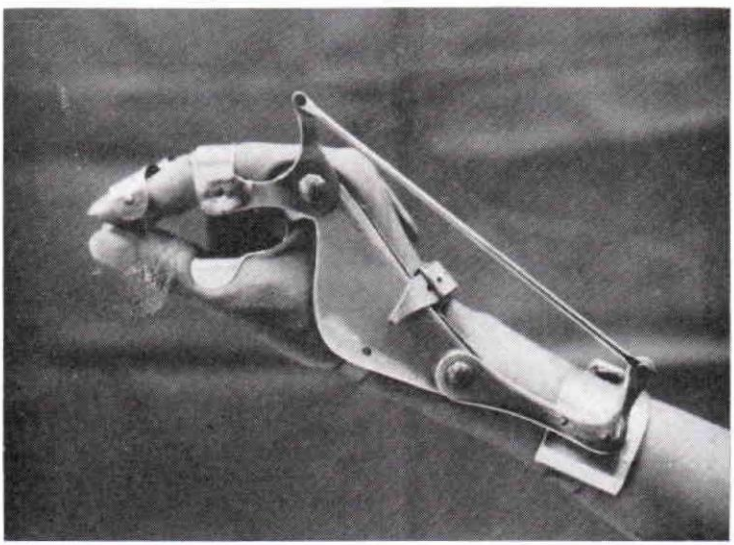


Fig. 4

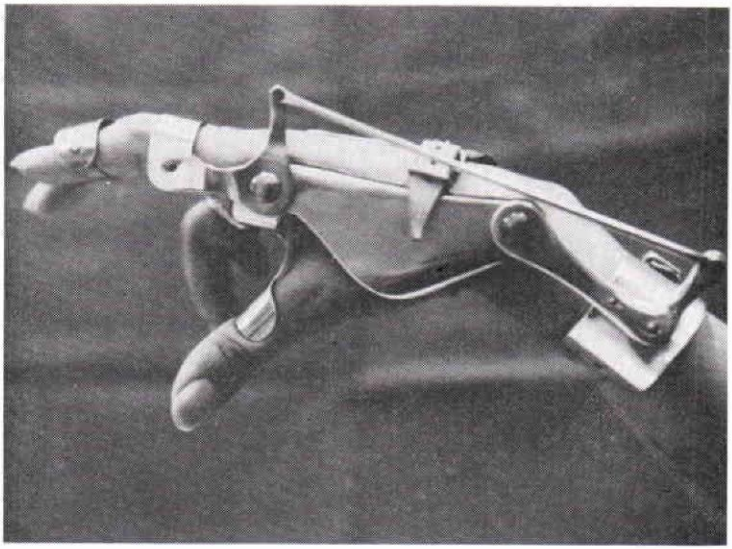


Fig. 5

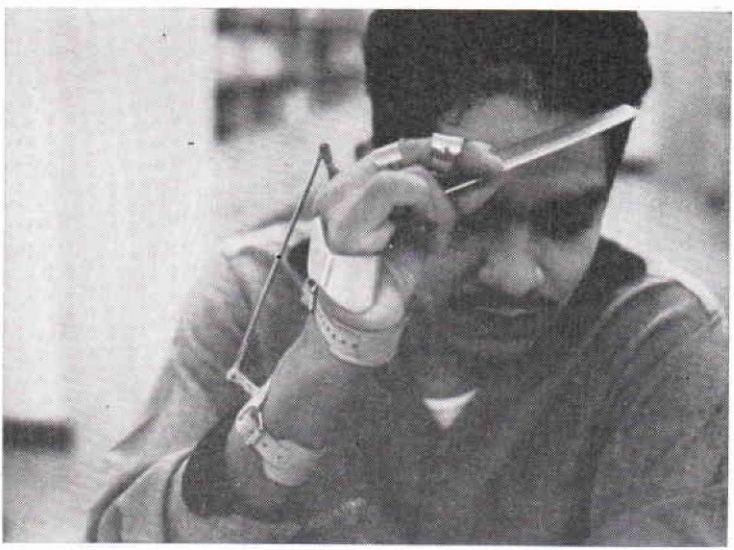


Fig. 6

Construction

The material used for construction of the orthosis is aluminum .072 - 2024 St. bar. This material is light and relatively easy to form over compound curves and yet it is rigid enough to serve supportive and mechanical purposes. The reciprocating rod and joint rivets are made from stainless steel. The parts for the finger section are made from stainless steel sheet metal .035 type 304.

Special attention must be given to the form and fitting of the hand piece which is designed to provide the basic features of an opponens orthosis, namely; support of the metacarpal arch and opposition of the thumb to the fingers. Precise locations of the fulcrum point of the wrist joint and metacarpophalangeal joint of the index finger are very critical. The length of the reciprocating rod connecting the wrist part and finger sections must be adjusted in length for the desired prehension in respect to the degree of suitable wrist extension that can be obtained. The orthosis must be individualized to the size and shape of the hand.

The fine wool felt obtained from discarded hats can be cleaned and provides an excellent lining for the orthosis because of its softness and durability. A good grade of cement (for example, Barge cement) will hold the felt lining in place and this eliminates riveting.

The device is anodized after final fitting. Anodizing the aluminum, especially for functional upper extremity equipment, serves several purposes. It preserves the device from deterioration caused by perspiration and eliminates the black smear on clothes and skin from the surface oxidation that is always associated with the use of aluminum.[2] The cosmetic appearance of any orthotic equipment is important to the individual using the device. The patient may have to accept permanent handicap so the equipment designed to aid him in his daily activities often becomes a part of him. On account of this, simplicity in the design is an important factor and if this is associated with other desirable features such as light weight and inconspicuous appearance, the device's acceptance and usage may be encouraged eventually. Women, particularly, appreciate the beauty of color and are less apt to discard or disguise an anodized device. The cost of anodizing is relatively small compared to the cosmetic gain and the other features described above.

The extensor muscles may tire rather quickly after the orthosis is first applied and used but this problem will gradually disappear as the patient gains coordination and strength in this new use of the residual extensors for effective prehension.

Acknowledgment

The kind assistance given by Doctors William A. Spencer, Director, and Paul R. Harrington, Director of the Orthopedic Program, Texas Institute for Rehabilitation and Research, is greatly appreciated. The photographs were made by Billye Bailey, R.T.

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2. Stiller, Frank P.: Coloring Anodized Aluminum. *Metal Finishing Guidebook*, 26th

Fitted initially with SACH foot, over 55

RECENT DEVELOPMENTS IN THE FITTING AND FABRICATION OF THE SYMES PROSTHESIS

By FRED HAMPTON

Northwestern University Prosthetic Research Center

The identifying components of the Canadian Symes prosthesis are the posterior opening laminated plastic socket and the laminated cellular rubber foot with an internal support or keel. There have been many variations, including the use of a prefabricated SACH foot, nylon reinforcing, medial openings, and proximal bearing sockets.

Recently a course in Special Prostheses was presented at Northwestern University Prosthetic Education School for prosthetists. In general, the material offered was founded on the experience of the author of this report who was intimately associated with the development since its conception at Sunnybrook Hospital in Toronto, and who has gathered further experience since joining the Northwestern University Prosthetic Research Center two years ago. The highlights of the course were the method of taking the cast, a glass epoxy method of socket fabrication, and a method of cutting down and attaching a standard SACH foot in a manner that allows adjustment in aligning when fitting. The method of taking the cast and the ease with which foot alignment can be adjusted makes it possible for an inexperienced prosthetist to obtain satisfactory results.

A good fit begins with a good impression of the stump. Instead of plaster, alginate is used because it is flexible enough to allow removal of the stump without splitting the cast. It is also very fast and clean and does not require any vaseline or separator on the stump, although soap may be used. Unfortunately, the alginate (produced for dental impressions) is expensive, about $5 worth being used for a typical Symes cast. Alginate comes in a powder form and when mixed with water forms a jelly-like solid. In taking a cast of a bulbous stump it is necessary to line the container with a light canvas bag. When the alginate has gelled the can is slipped off so that the gel can distort inside the bag as the stump is withdrawn. The bag with the impression is then put back in the container and the plaster positive is poured. Since the alginate dries out and shrinks very quickly it is important that the plaster positive be poured without delay. Very little modification to the cast is necessary, but the folds or creases in the distal area should be filled. It is desirable to flatten off the posterior area so that the back panel will fit snugly over the gastrox and prevent rotation of the prosthesis on the stump.

Glass has many disadvantages as a reinforcing material. It isn't as easy to lay up as stockinette; it dulls tools and the fine fibres from sanding or cutting can cause irritation. However, because it offers superior strength, especially when used with epoxy resins, and since structural strength is particularly important in Symes prostheses, it should be considered. Two types of glass are used: woven cloth and roving. The roving is a yarn made of many monofilament strands and is used where great strength concentration is required. In the Symes, this occurs at the radius of the cut-out where the edge is heavily loaded in tension when weight is applied on the ball of the foot. Although glass roving has a tensile value of 400,000 psi, only about 75,000 to 100,000 psi are realised in the actual laminate due

to uneven loading and because the resin itself is rather weak in tension. However, it is still as strong as most steels likely to be used; it also offers ease of fabrication and is shock and corrosion resistant. One of the difficulties in laminating with roving is keeping it in place. This is largely overcome by draping it over small nails driven into the cast along the line forming the posterior opening.

The position of this line is important since the posterior opening must be large enough to allow stump entry but not so large that the main structure is unnecessarily weakened. A reasonable compromise is to draw a vertical line down each side of the socket at the widest point to where the ball reaches its maximum diameter and then horizontally to the posterior. To avoid stress concentration at the corner a radius of at least ½" should be used.

Concern over toxicity of epoxy resin has often been a deterrent to its use in limb shops, but when used with the dry lay-up method there is little cause for apprehension if good housekeeping habits are maintained. A barrier cream can be used on the hands as added precaution. The amine hardener—not the resin—is the toxic agent, and if it is found that a workman does develop dermatitis from using epoxies, it is important that he avoid further contact

FRED HAMPTON

Mr. Hampton, a native of Canada, was employed by the DeHaviland Aircraft at Toronto from 1945-1947, where he did considerable work with plexiglas. In 1946 he first began to work in plastics and metals. He then served two years in the Royal Canadian Air Force, where he had considerable experience with metal fabrication in aircraft components and developed plastic crash helmets and rescue sleds.

Mr. Hampton's introduction to prosthetics as such began in 1949, when he joined the Prosthetics Research Laboratory of Sunnybrook Hospital at Toronto. There he began working with plastics in the field of prosthetics. Mr. Hampton made and fitted the first Canadian Symes and Canadian type Hip Disarticulation Prosthesis during these years. He was engaged in the production of all types of metal limbs.

In 1957 he came to the States to serve as Laboratory Supervisor at Northwestern University Prosthetic Research Center. He is also an instructor in the Prosthetics Education Program at Northwestern. With his associate, Mr. McLaurin, he appeared on the program of the National Assembly at Dallas in October 1959, presenting seminars on the Canadian Hip Disarticulation and the Canadian Symes Prosthesis.

Alignment

The functional characteristics of the prosthesis depend upon the character of the foot and alignment. In an end bearing Symes it is more comfortable to bear weight on the heel than on the toe since pressure at the forefoot induces a bending moment which must be resisted by pressure at the anterior of the socket. Since a soft heel quickly transfers weight to the forefoot and allows too much drop at the early part of the stance phase, a firm heel should be used. A smooth transition from heel to forefoot is easily controlled by the long stump.

In a normal individual the foot is in dorsiflexion during nearly all the stance phase, and the Symes foot should be similarly aligned. If the foot is not set in dorsiflexion the amputee will feel that he is climbing over an obstacle. This dorsiflexion gives an asymmetrical appearance when standing, but this is more than offset by the advantages in walking. Some of this discrepancy between standing and walking can be offset by setting the socket well forward on the foot. This also reduces the anterior pressure induced when the weight is on the forefoot.

Experience also indicates that the socket should be set medial to the foot. As a general rule the socket should be set as far forward and as far medial (with respect to the foot) as good appearance will allow.

The actual amount of dorsiflexion and toe-out is fairly critical for a good comfortable gait, hence it is desirable that some adjustment be possible after the amputee has worn the prosthesis for a short time in the fitting room. For this purpose a ball joint can be used in attaching the socket to the foot. This joint can be made of metal or from plastic as shown later in the article.

Although it is not necessary to use a SACH type foot on a Symes prosthesis the SACH is more easily faired into the socket and very often there is not enough room for a standard ankle. In many cases the amputation is so low that a Symes SACH cannot be fitted without modification, and the usual alternative is for the prosthetist to build up a foot. This can be time consuming, and unless the prosthetist has had considerable experience the result may be less than satisfactory from the standpoint of appearance, function or durability.

Accordingly, at Northwestern University Prosthetic Research Center a method was developed by which a standard SACH foot can be cut down and reconstructed so that it may be attached, using the adjustable ball joint, to any plastic socket. The system can also be adapted to Chopart amputations, but such a description is beyond the scope of this paper.

The step by step procedures used are described in the following section under the following headings: Impressions, Ball Joint, Socket Fabrication, and Foot Reconstruction.

I. Taking the Impression

The materials used in a typical case are a tapered can with open top—about 6¼″ diameter at the top, 5½″ diameter at the bottom, and 20″ high; a canvas liner for the can about 23″ long; 4 pounds of alginate powder; a polyethylene pail for mixing; and water as needed.

1. Checking the alginate setting time.

A small sample of alginate is mixed according to manufacturer's instructions (1 cup). The time available for pouring and the time required to gel should be noted. It may be necessary to use a leaner mix (less alginate) than specified. If fast setting Coe alginate* is used typical proportions are: 3 parts

* Source of Supply for Coe alginate: Coe Laboratories, 6033 S. Wentworth, Chicago, Illinois.

of powder to 4 parts water (cold, from tap) by volume. This allows about 75 seconds for mixing and pouring and the cast is satisfactorily gelled in six minutes.

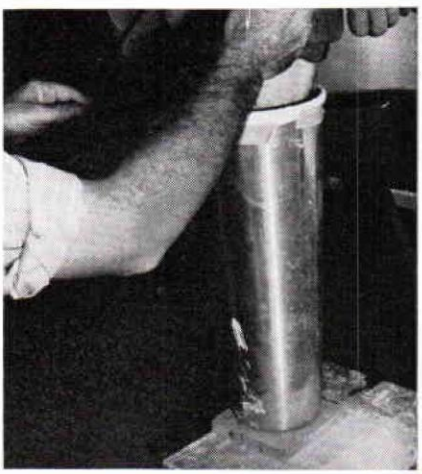
2. Checking can for size and distance from floor. (Fig. 1)

With the patient standing the stump is placed in the can and blocks are placed under the can until the stump bears one half of patient's weight with the pelvis level. With this done, the patient may be seated and the stump be withdrawn from can.

3. Placing liner in can.

The canvas liner is placed in the can. Excess length is folded over the top edge of can and any large wrinkles inside the can are smoothed especially at the bottom. A split ring is placed on the inside of the canvas bag to hold the bottom taut.

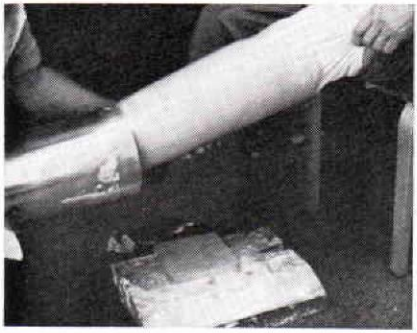
1. The correct level is obtained by using blocks.



2. The stump is centered in a can of alginate.

4. Mixing alginate and taking impression.

The correct quantities of alginate and water are measured and mixed quickly by hand. A slightly lumpy mix will cause no loss in effectiveness. The mix is now poured into the can and then the stump is placed in the can, making sure it is centered. (Fig. 2) This whole operation must be done in about one minute or the mix will begin to gel.



3. The can is removed from the alginate and stump.

4. The stump is removed from the alginate impression.

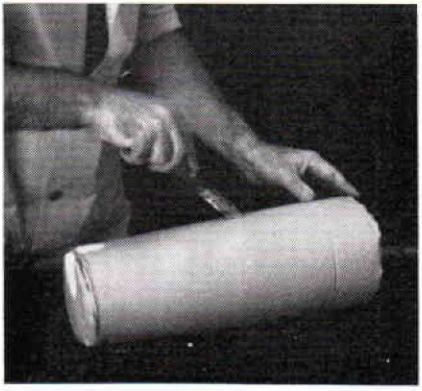
5. When the alginate is set (about 6 minutes) the amputee is seated and grasps firmly the canvas liner while the can is removed by the prosthetist. (Fig. 3) The top of the mold is held by the prosthetist while the stump is eased out of the mold by the amputee. (Fig. 4)

6. *Pouring the plaster positive.*

The alginate and liner are placed back in the can. A sufficient batch of orthopedic plaster to fill the mold is mixed and poured into the alginate impression. A length of pipe is placed in the centre of the plaster, the pipe being supported until the plaster has set.

7. *Removing the plaster positive.*

The canvas bag is peeled off, the alginate slit with a knife from end to end and is peeled back, (Fig. 5) and the plaster cast is lifted out. (Fig. 6)



5. The alginate is slit open.

6. The plaster positive is removed from the alginate.

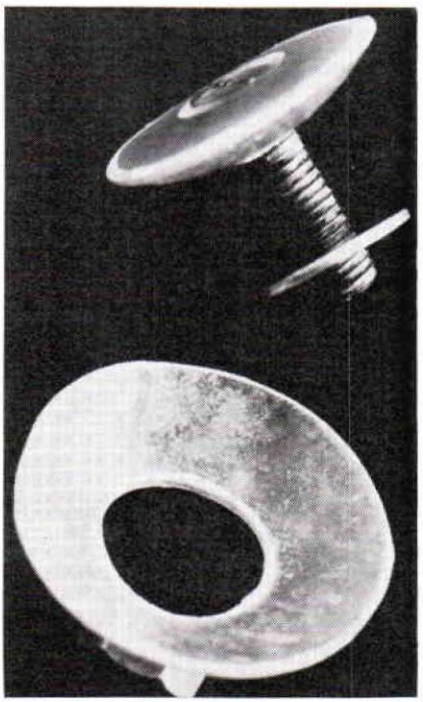
II. Making a Plastic Ball Joint for the Symes Prosthesis

A concave spherical mold is made by taking an impression of a rubber ball in plaster. The depth should not be more than one third the diameter. A suitable mold release is then applied to the plaster and ball (paste floor wax dusted with water ground mica* is satisfactory). (Fig. 7)

A spherical washer is then formed by laying about 8 layers of glass cloth* in the cavity saturating with resin and placing the ball with a light weight on it. The laminated washer is then trimmed and a 1" hole bored in the centre. (Fig. 8)

To form a spherical head to the bolt a hole is drilled in the centre of the plaster mold to hold the bolt with the head protruding about $\frac{7}{16}$". About 10 discs of glass cloth with a $\frac{3}{8}$" hole in the centre are placed under the head of the bolt. The threads are then greased and the bolt is placed in the hole. Resin is then added to just cover the top of the bolt. The top may be sanded flat after curing. A metal spherical washer and bolt head may be used in place of plastic. (Fig. 22)

7. Ball and plaster mold for making the spherical washer and bolt.



8. Spherical plastic washer and bolt with spherical plastic head.

* Source of Supply for Water Ground Mica: Wolverine Foundry Supply, 3211 Bellevue, Detroit, Michigan.

* Source of Supply for Fibreglas cloth: Cadillac Plastics, 727 W. Lake St., Chicago 6, Illinois.

III. Socket Fabrication

Preliminary to the lay-up, minor cast modifications are made. As mentioned in the introduction, any folds and creases in the distal end are filled, the gastrox flattened slightly, and sharp radii relieved as necessary. A strip of light horsehide scived about an inch wide is cemented with Barge over the tibial crest. This prepares the cast for the lay-up procedure. (Fig. 9)

A piece of ½" thick neoprene* is scived to the distal end to serve as a weight-bearing pad; it is held on by a PVA cover. (Fig. 10) The back panel parting line is determined as described earlier and drawn on the cast. Two coats of paste floor wax with reasonable drying between coats are applied; then the cast is dusted with water ground mica to complete the laminating resin separator. A row of small brads spaced about ½" is set following the parting line around the distal end and down 2" below the ball, with a few more near the lateral and medial proximal ends.

Next, the plastic spherical washer made earlier is set on the distal end with beeswax, bearing in mind that its position will locate the vertical axis of the foot. (Fig. 11) Refer to the introduction for the suggested position. The exposed face is cleaned to obtain a good resin bond later.

The lay-up procedure features dry placement of all laminating plies with resin added after the PVA bag is pulled over the lay-up. An optional underlayer of dacron felt* may be used to start the lay-up; if used, it should be pressed on, exposing the brads. Four plies of 181-8 shaft satin fibreglas* tailored over the distal end and lapped about 1½" over the lateral and medial parting line are then set, with 8 passes of glass roving* run over each layer of cloth on the socket side of the parting line guided by the brads. (Fig. 12) By keeping the roving close at the radius of the cut-out maximum strength is obtained where the greatest stresses will occur in the socket.

The bulbous end is further reinforced with two wide strips of cloth laid at right angles over the end down to the narrow section. Eight narrow strips crossing each other over the distal end, covering the mold on all sides, and tied snugly below the cast complete the dry lay-up. (Fig. 13) If desired, an optional nylon, dacron or cotton stockinette may be pulled over.

After driving in any prominent brads an open ended PVA bag is pulled over. (Fig. 14) About four 6 ounce cups of epoxy resin* are then mixed with colour (if desired) and hardener. The resin can be pre-heated at 125°F before the hardener is added to lower the viscosity. The resin is then poured into the open top of the bag and worked down through the lay-up. When the resin has reached the proximal end, the bag is snugged down on the mold and tied below it. The lay-up is strung and resin added until complete saturation of all plies is assured. (Fig. 15) Bridging of the laminate in the narrow region will not occur if tape or PVA strips are wrapped about the bag to hold it in. The top of the bag is tied off after being drawn upward, so that on release it keeps the distal end snug.

The lay-up is then allowed to set overnight, and cured 1-3 hours at about 160° F. After cooling to room temperature the back panel cut-out line is marked on the laminate. A Stryker cast cutter is used to make the cut, after

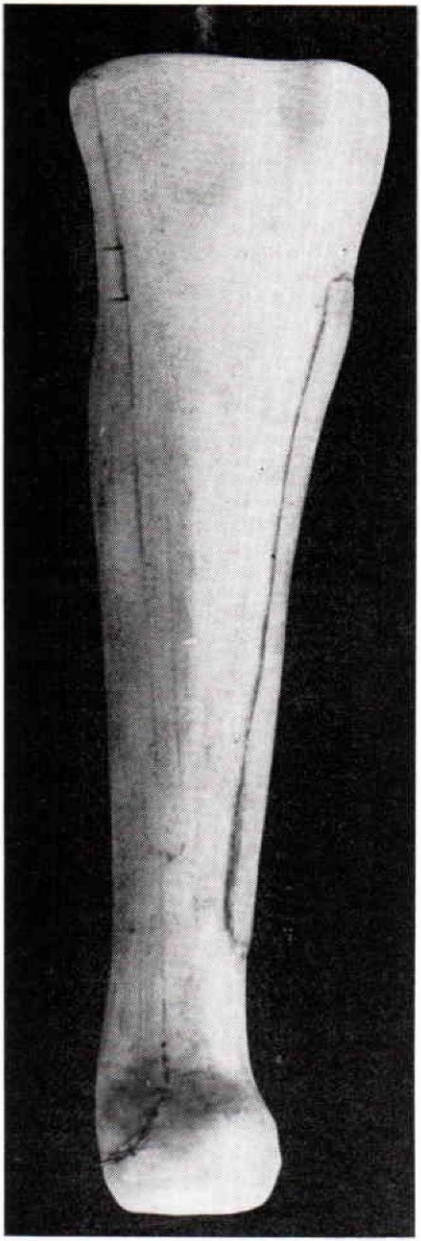
* Source of Supply for Neoprene: Leveton Co., 711 W. Roosevelt Road, Chicago 7, Illinois.

* Source of Supply for Dacron Felt: Troy Blanket Mills, 200 Madison Avenue, New York, New York.

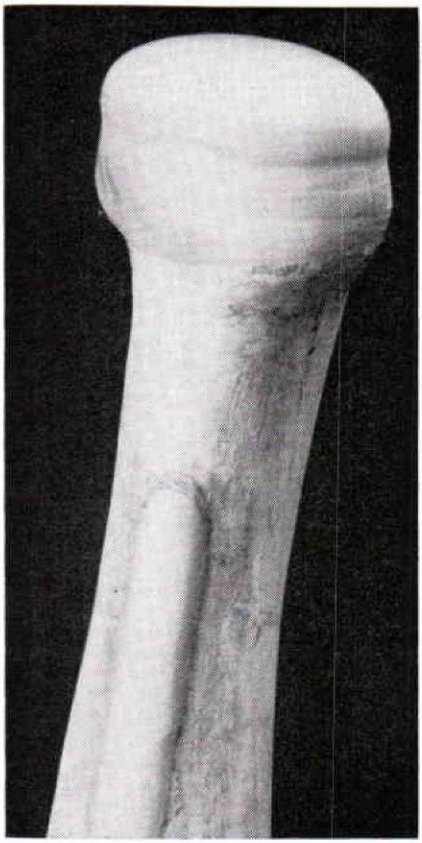
* Source of Supply for Fibreglas Roving: Cadillac Plastics, 727 W. Lake St., Chicago 6, Illinois.

* Source of Supply for: Epoxy Resin: Ciba Products, Plastics Division, Kimberton, Pennsylvania.

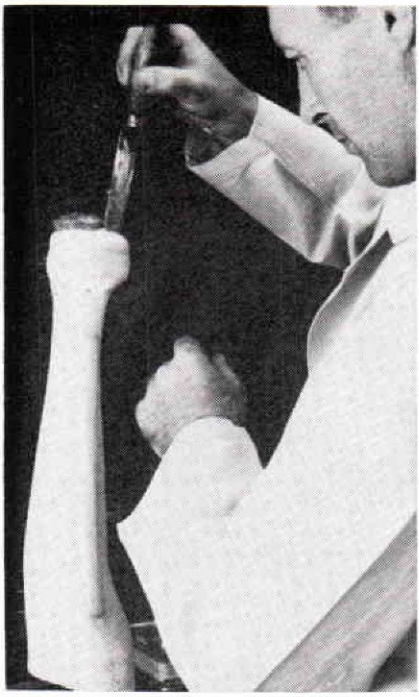
which the back panel and the socket are removed from the plaster. A drill is used at the radius. (Fig. 16) The neoprene distal pad is removed from the cast. The socket and back panel are trimmed along the cutting line, and the beeswax removed from the socket base. The hinge and straps are affixed, completing the socket fabrication.



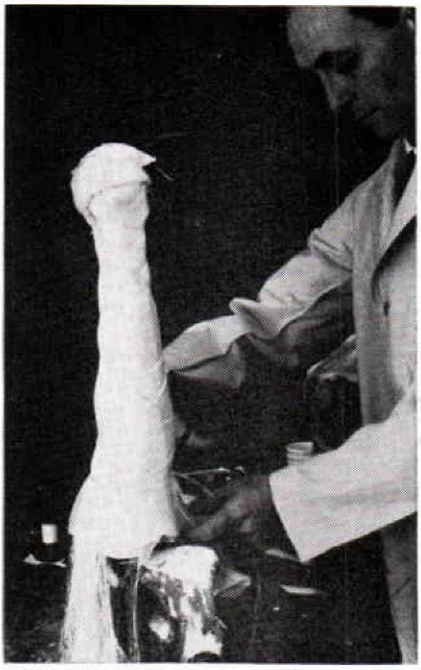
9. The plaster positive modified for the lay-up showing the cut out lines, brads and tibial build-up.



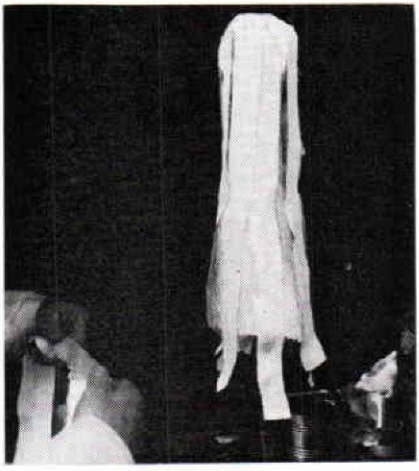
10. The neoprene distal pad is attached with tape.



11. The positioning of the spherical washer with wax.

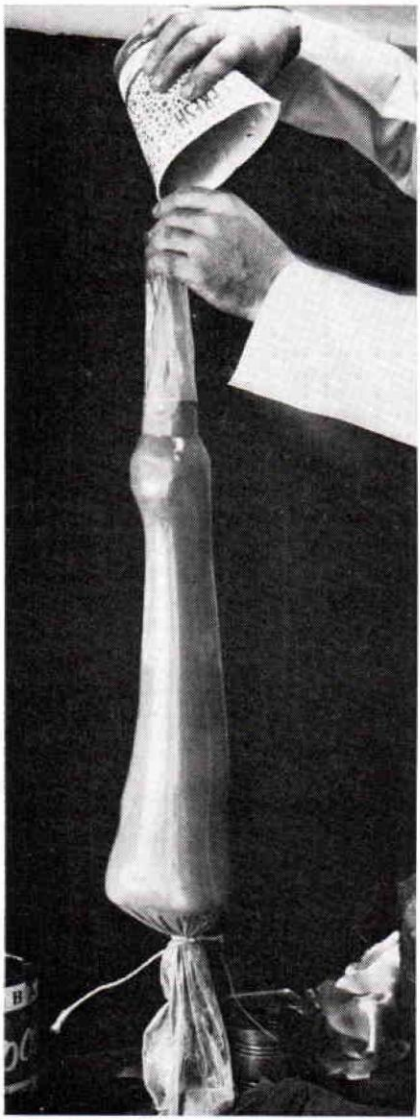


12. The first layer of glass cloth and roving.

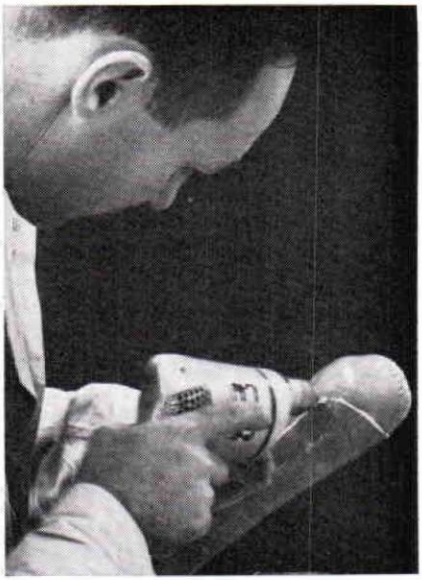


13. The final strips of glass cloth.

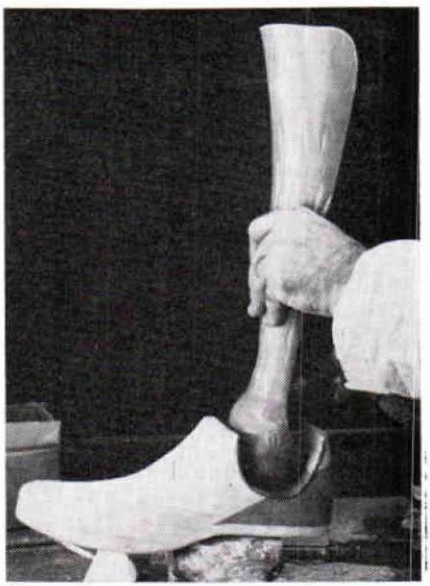
14. The complete lay-up with the PVA bag.



15. Pouring the resin.



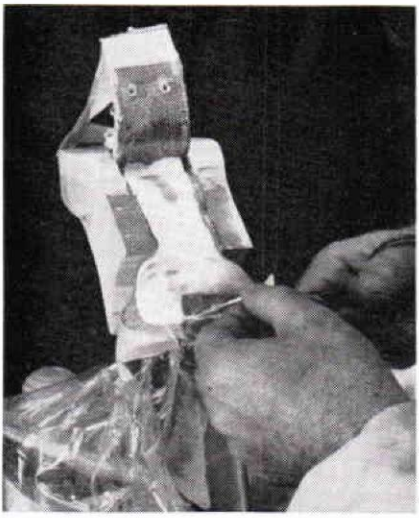
16. A small drill is used for cutting the radius.



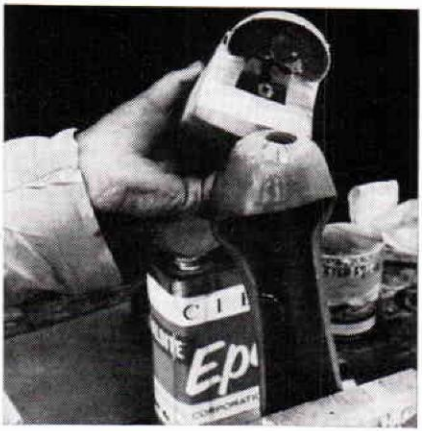
17. The SACH foot cut out for positioning the socket.

IV. Foot Reconstruction

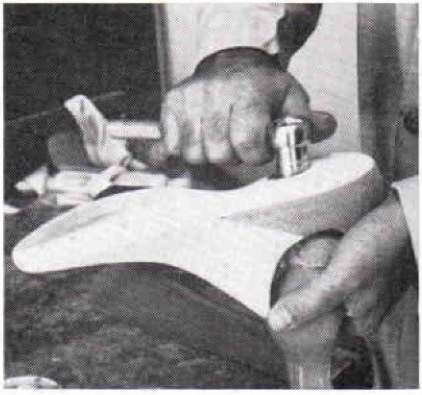
When the stump-to-floor distance is too small for a standard SACH foot the socket is used as a guide for marking the cut-out. The cut is then made with a bandsaw and the socket positioned in the cut-out and fastened with a screw into the keel. (Fig. 17)



18. Laying out the keel extension.



19. The keel extension showing how it fits on the socket.



20. Attaching the foot for trial walking.

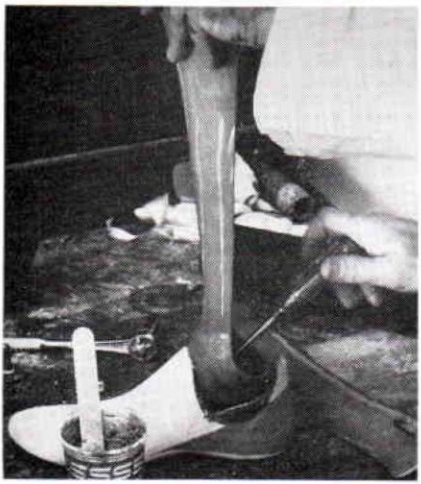
Since part of the keel has been cut away, an extension of fibreglas and epoxy is added to the bottom of the keel. The heel wedge is cut off, exposing the balata belting. The wood screws holding the belting are removed and the belting peeled back exposing the keel.

The socket is held in a vise and a small PVA sheet is pulled over the ball. Nine layers of cloth are tailored to cover the ball and extend up the keel. (Fig. 18) A small wedge of wood may be necessary to build up the keel to the socket. The layers of cloth are laid in place, each ply being saturated with epoxy resin. The balata belting is pulled down over the lastply and the screws replaced. The resin should be partially cured at room temperature before the final oven cure.

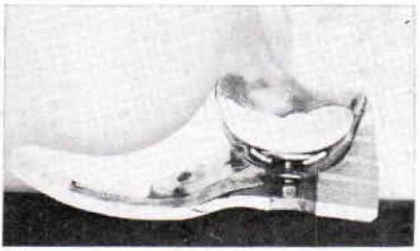
A 3/8" hole is drilled through the cup-shaped extension and the bottom of the socket. The foot is removed and the hole in the socket enlarged to a 1" diameter. (Fig. 19)

A corresponding hole, 1¼" diameter for socket wrench clearance is made in the heel wedge. The heel wedge is then contoured to the thicker keel and cemented to the forefoot and keel with Barge* or similar adhesive.

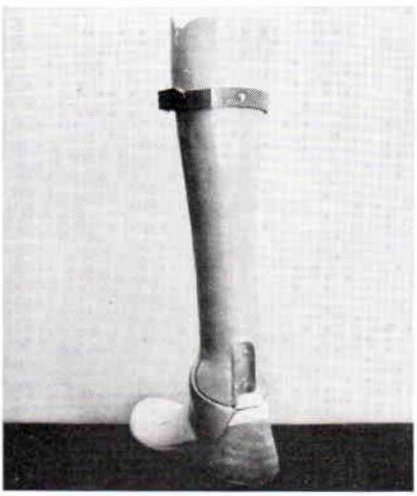
The reconstructed foot is then attached to the socket with the 3/8" spherical head bolt, washer and nut and is ready for trial walking. (Fig. 20)

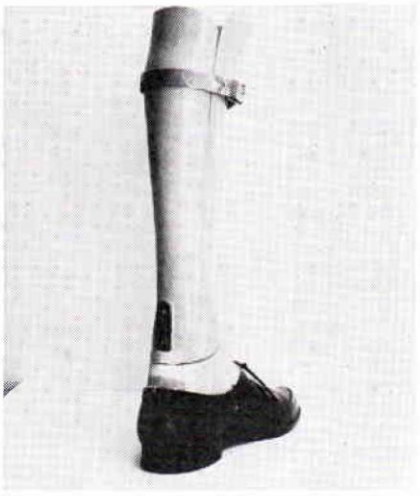


21. The socket is attached to the foot with a wood screw into the keel and a mixture of resin and sawdust is used as a filler.



22. A cross section of the complete prosthesis showing a metal washer.



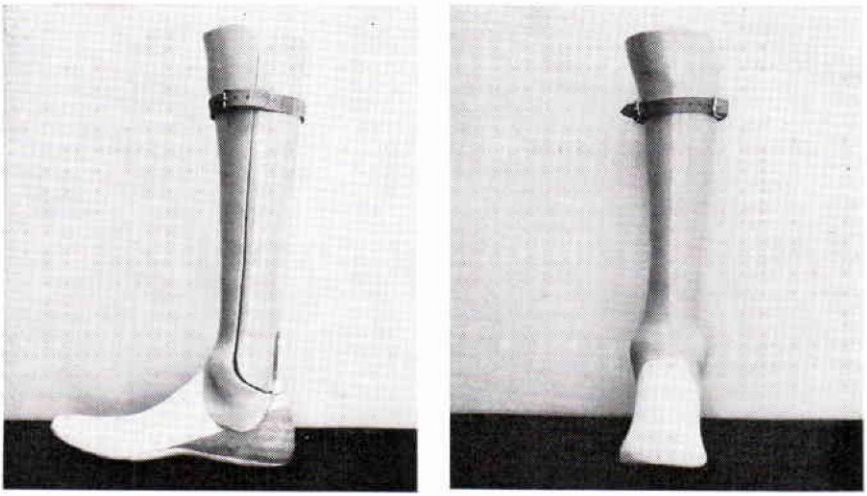


23-24—The Finished Prosthesis (rear view)

When all necessary adjustments have been made the socket and foot are bonded with epoxy resin and the space around the union is filled with a mixture of epoxy and sawdust. (Fig. 21). After oven curing, this filler is ground or sanded to provide a suitable contour.

Figures 23-26 show the finished prosthesis.

* Source of Supply for Barge Cement: Barge Cement Mfg. Co., 100 Jacksonville Rd., Towaco, New Jersey.



25-26—The Finished Prosthesis (side and front view)

Editor's Note: The preceding article was read in manuscript form by Mr. Howard V. Mooney, C.P., of Boston, a member of the Journal Committee. We think his comments will be of interest:

"I have read the article 'Recent Developments in the Fitting and Fabrication of the Symes Prosthesis' by Fred Hampton. It is written clearly and is excellent.

The information in this article supplemented a discussion of this type of Symes Prosthesis at a lecture during the Below-Knee course at New York University which I attended in January 1960. Of particular interest is the method used in casting the stump. I would agree that by comparison with plaster, alginate is expensive. However, if more accurate impression is obtained, I think that the expense would more than be justified.

"We, in the New England area, have had no experience with a Symes prosthesis fabricated in accordance with Mr. Hampton's article. I, therefore, am in no position to comment on its advantages or disadvantages as compared with what is used in our area. However, at New York University the instructors commented very favorably on it and I have every confidence in their judgment.

"Our most recent experience at the Boston Artificial Limb Company, has been with the Canadian type Symes prosthesis fabricated in accordance with the instructions written by Mr. Foort in a book dated December 1956. We found out early, however, that the glass cloth used with polyester resins did not provide the intended strength. We, therefore, eliminated the glass cloth and used 100% nylon stockinette, and did our reinforcing of the lay-up with 2" Dacron type. This method has worked quite well although some breakage has been experienced. In the most recent Symes prostheses we have made, we have used a medial opening instead of a posterior one.

"At the present time there has been no breakage of these."

GLOSSARY OF GERMAN NAMES FOR BRACES
A PRELIMINARY LIST COMPILED BY
GEORGE W. FILLAUER, SR., CHATTANOOGA, TENN.

Editor's Note: At our request Mr. Fillauer has compiled this preliminary list of German brace terms. It is the Journal's wish and that of Mr. Fillauer to continue and to expand this list. Suggestions of terms to be added will be appreciated.

Armabductionsschiene	Arm Abduction Splint
Aktives Korsett nach Schede	Corrective Corset by Schede
Armstutzapparat	Arm Brace
Beinschienen	Leg Braces
Blumentopfkorsett für Kyphosen	Flowerpot Corset for Kyphosis
Bruchband	Truss: Hernia Brace
Bungeschiene für Radialislähmung	Splint for Radial Paralysis
Celluloidkorsett	Cellulose Jacket
Coxitisapparat nach Roeren	Coxitis Brace by Roeren
Detrosionseinlage	Detorsion type arch support
Doppelbeinlähmungsapparat	Double Leg Brace
Dupuytren Fingerschiene	Dupuytren's Finger Splint
Ellenbogenfixationsschiene	Elbow Fixation Splint
Entlastungsapparate	Weight Bearing Brace
Extentionsapparat bei Hüftlaxation	Extension Brace for Hip Luxation
Extentionsgammasche	Traction Anklet
Fussgelenkentlastungsapparat	Ankle Joint Brace
Fusslähmungsapparat	Drop Foot Brace
Gabelspange bei Patella Luxation	Fork Splint for Patellar Luxation
Genentuberschiene nach Eckhardt oder Borggreve	Long Leg Brace with opposite ischial bearing
Geradehalter (Thorax)	Shoulder Brace
Gipsmieder	Plaster Corset
Gipsverband	Plaster Cast
Gurtbandage für geschwächte Beinmuskeln	Webbing bandage for weak leg muscles
Hallux Valgus Nachtschiene	Hallux Valgus Night Splint
Handgelenkspange	Hand Splint
Hebelkorsett	Corrective Back Brace
Hebelschiene nach Gocht	Corrective Leg Brace
Heidelberger Korsett	Heidelberg Corset
Hessing Korsett	Hessing Corset
Hohlfuss Einlage	Pes Cavus Support
Hüftbandage für Arthrosis	Splint for Arthrodisis of the Hip Joint
Hüftbandage nach Hohmann	Hip Brace by Hohmann
Hüftgelenkapparat nach Roeren	Hip Brace by Roeren
Hüftluxationsapparat	Hip Luxation Brace
Hüftexentionsapparat nach Jordan	Hip Extension Brace by Jordan
Klumpfusseinlage	Clubfoot Support
Klumpfuss Nachtschiene	Clubfoot Night Splint
Knie Arthose Apparat	Brace for Knee Arthrodisis
Kniegelenk Entlastungsapparat	Knee Brace

Kniehülse mit physiologischem Gelenk	Molded Knee Brace with Physiological Joints
Knie Kappe	Knee Cap
Kofstütze	Neck Brace
Kreutzstutzmieder	Low Back Brace
Kugeleinlage	Steel Ball Type Support
Lederkork Korsett	Leather-cork Corset
Leibbinden	Abdominal Support
Mahnbandage	Shoulder Brace
Mobilasionsschiene nach Schede	Mobilizer Splint by Schede
O Beinschiene	Bow Leg Splint
Opponenslähmungschiene	Opponent Splint
Peroneuslähmungschiene	Dropfoot Brace
Plattfusseinlage	Flatfoot Support
Reklinationskorsett	Reclination Brace
Spiralschienenapparat	Spiral Bar Brace
Schulder Abductionsschiene	Airplane Splint
Suspensionskorsett	Suspension Corset
Schienenhülsenapparat nach Hessing	Hessing Brace
Thomas Splint	Thomas Splint
Uberbrückungsmieder	Two Bar Low Back Brace
Walkleder Einlage	Molded Leather Arch Support

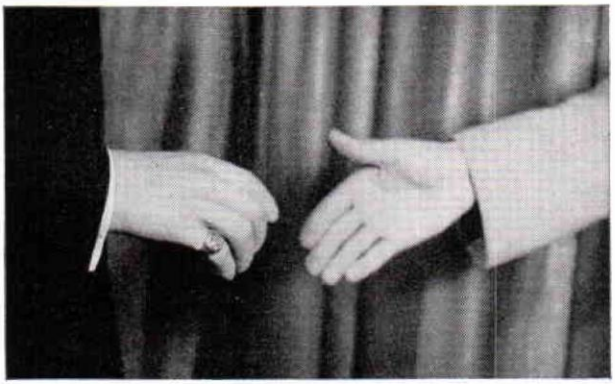
TRAUB JOINS U. C. L. A. STAFF

Joseph Traub, C.P., has been named to the staff of the University of California Child Amputee Prosthetics Project. He will work with the physicians in charge and with Harry Campbell, C.P.

The volume of work in Child Prosthetics has been such that an additional member of the staff was necessary. The Research Project is supported jointly by grants from the Children's Bureau, which is administered through the California Crippled Children's Service. This grant is through the Department of Pediatrics. There is a second grant from the National Institutes of Health to the Division of Orthopedic Surgery.

Mr. Traub received his prosthetist specialist training at the Institute for Physical Medicine and Rehabilitation at New York University under Dr. Rusk. He then was Director of Prosthetic Service at the University of Buffalo for six years. This was a position that involved teaching and research as well as some service on selected cases. Following this, he was a part owner of Arrowhead Orthopedics in Bakersfield, California, for two and one-half years. He has been a Certified Prosthetist since 1952 and is a member of the Society of Orthotists and Prosthetists.

Realastic®



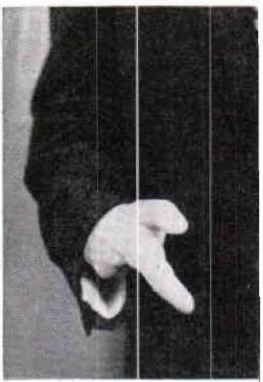
Don, whom you see above, is a salesman initiating a new contract. Don's company has long had him pegged — the young, eager, clean cut type. He was a "natural" for his job in every respect except one. Due to a childhod injury, Don had a very serious occupational deficiency — three fingers of his right hand had been amputated through the metacarpals. Neither Don's handshakes nor his gestures carried authority. Worse, he often had to take precious time from his selling to explain what had happened to his hand.

Fortunately, Don's firm realized this predicament and knew what to prescribe for it. They sent him to their artificial limb dealer for a ***Realastic*** Restoration.

FRIEN

Hand Pro
Function

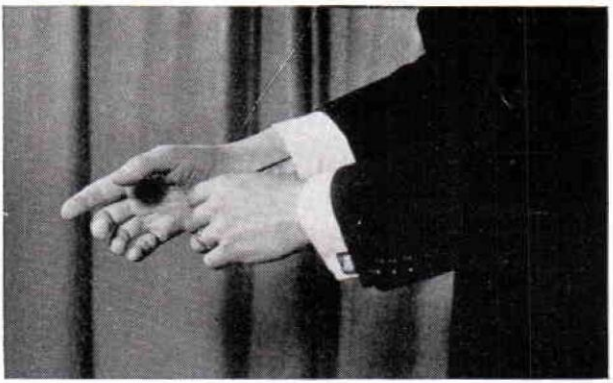
The Rea



Here you see a frus
give his opinion th
"hard sell". The ges
Big Deal escapes his
a two-fisted attack is

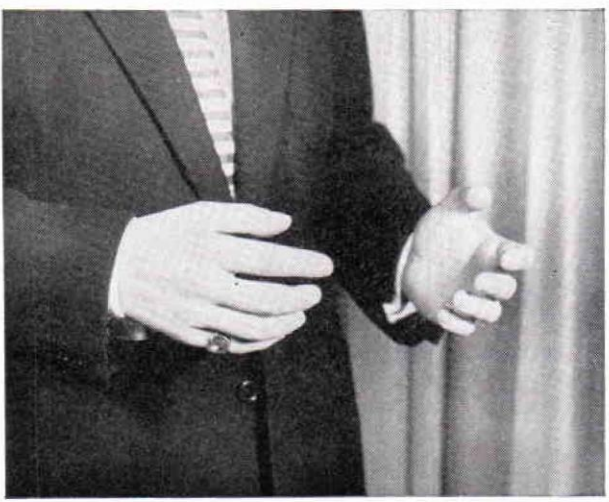
PROSTHETIC SERVICES OF

175 JESSIE STREET
SAN FRANCISCO 5, CALIF.
DOuglas 2-2865



Don is girding himself as for battle. The ***Realastic*** glove which looks and feels like human skin, fits perfectly over the amputation as the zipper pulls it tight. An "insert" filling out the missing portions of the hand permits Don to arrange the fingers for a convincing hand shake. The prosthesis seen here had had one year's continuous use before these unretouched photographs were taken.

Now, look at Don pictured below. Here you see the well-adjusted salesman making his pitch, power and confidence radiates in his stance. His company's investment in a ***Realastic*** prosthesis has paid off many times over. Don has found himself.



BACTERIOSTATIC AND FUNGISTATIC ADDITIVES

By GENNARO LABATE
Limb and Brace Section, VA Prosthetics Center

An article published in this Journal, March, 1959 (pages 53-57), described the early testing of Corobex "CP" as a bacteriostatic and fungistatic additive in polyester laminates. Tests conducted at Bendiner and Schlesinger, Wells Laboratories, Hudson Laboratories, Inc., Veterans Administration New York Regional Office Clinical Laboratory and the Walter Reed Army Medical Center at various times up until July 21, 1959 were designed to determine the effectiveness of the anti-bacterial additive Corobex as well as that of hexachlorophene, an additive which is now commonly used in soaps, toothpaste, etc.

Our findings in the early evaluations were inconsistent but yielded some positive indications; thus, it was decided to perform additional tests. The second evaluation series showed excellent bacteriostatic resistance with increasing Corobex concentration. However, test results for fungistatic effectiveness were still inconsistent.

Later, the Army Prosthetics Research Laboratory assisted by arranging for separate tests at Walter Reed. Corobex and hexachlorophene were both examined for bacteriostatic effectiveness and the duration of such activity. Corobex incorporated into polyester resin laminates exerted bacteriostatic action on staphlococcus aureus for a period of 21 days. The polyester resin laminates containing hexachlorophene exerted this activity for a period of over 68 days but with a decreasing effectiveness with time.

Although tests indicated some anti-bacterial effectiveness from these polyester resin laminate additives, the bacteriostatic activity has a restricted duration. If amputees are encouraged to use routinely those commercially available soaps, lotions, and powders containing bacteriostats, we see no need for a relatively short-lived anti-bacterial additive in resin laminate appliance parts.

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SELECTED CASE REPORTS FROM THE CHILD AMPUTEE PROSTHETICS PROJECT, UNIVERSITY OF CALIFORNIA, LOS ANGELES

By Robert Mazet, Jr., M.D. and Harry Campbell, C.P.

Editor's Note: This is the third in a series of case reports from the Child Amputee Prosthetics Project, University of California, Los Angeles. Previous reports appeared in the September 1959 issue of this Journal, pages 44-50, and in the December 1959 issue, pages 49-53.

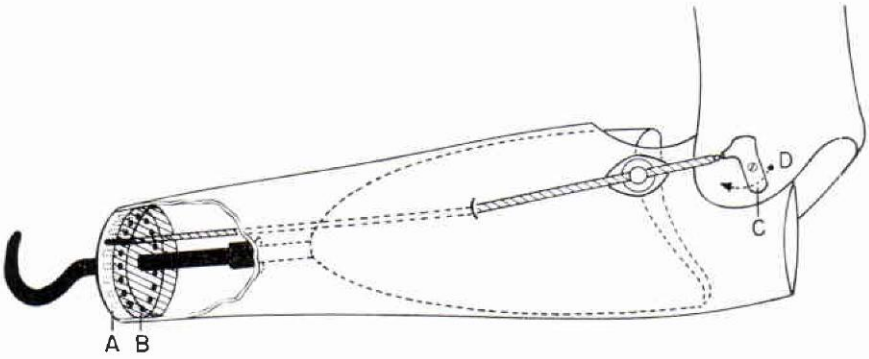
The Child Amputee Prosthetics Project is an outgrowth of the Research Program in Upper Extremity Prosthetics which commenced in the Engineering Department at U.C.L.A. in 1946. The desirability of including children in the investigative program became evident several years later. In 1953, the Department of Prosthetics asked Dr. Robert Mazet to institute a research program in children's prostheses at the Marion Davies Clinic. This was done in cooperation with Dr. Craig Taylor from the Department of Engineering and Dr. Milo Brooks of the Department of Pediatrics. Soon after the inauguration of the program, it became evident that some financial support was necessary. A grant from the U. S. Children's Bureau administered through the state's Crippled Children's Services was secured in 1955 and has supported the organization since that time. This effort has always been a multidisciplinary activity. In addition to orthopedists, engineers and pediatricians, there are, on the staff, a psychologist, a social service worker, two prosthetists and three amputee trainers. Other consultants, such as plastic surgeons, dentists, cardiologists, etc. are called in when needed.

V—R.G.

A 15-year-old boy sustained bilateral below-elbow amputations as the result of a chemical explosion in his home laboratory in 1953. Surgical revision and closure were done within a few hours. Healing was without incident. Moderate stump tenderness persisted for several months. The right forearm was 5 inches in length, the left 5½ inches. There was 15° pronation and 10° supination on the right, 20° and 15° on the left. Four months post trauma, he was supplied with prostheses. An experimental forearm rotation unit (right), wrist flexion units (B), with interchangeable Northrop 2 load hooks and APRL hands were incorporated in these.

His family afforded him maximum support and understanding. He made exceptionally good adjustment to his handicap from the beginning. He became a constant prosthesis wearer and a very good user with minimal training. His case folder is replete with notations such as "replaced broken retainer," "new cable today," "broken spring in 2 load hook," "right rotation unit had broken spring," indicating constant hard usage. He is of above average intelligence, and was happy to co-operate in evaluating the various devices he used. In September 1956, he was given a strait and a canted Dorrance hook. He rejected the hands within a year, since they were functionally much less useful to him than the hooks.

He reported a preference for the lyre-shaped fingers, he liked the wide opening of the 5x hook, but in general preferred the precision of the 2 load hook to the elastic tension of the Dorrance models. The APRL hook was rejected because it gradually lost the last fraction of an inch of pinch, and



WRIST ROTATION UNIT

When elbow is extended the cuff swings around axis of elbow joint, pin D rotates, activating bell crank lever C, which pulls on cable withdrawing pin from hole in rotating disc of wrist unit A. The stump rotates inner socket, dotted line, which in turn rotates shaft to which terminal device is fixed. Outer socket and stationary disc B do not rotate.

he felt he could not depend on it. He liked it for sustained constant pinch, as in holding a sandwich. He consistently resisted every suggestion that his wrist flexion and the rotation units could be dispensed with. They have been of great use to him. He finds the 2 load hooks are more useful for fine work at home and in school. For heavy work, he uses Dorrance 5x hooks.

He expressed a desire for an adapter which would enable him to shoot a pistol. One was fabricated and he uses it well. This device has been previously described.[1] Other hobbies have been experimental gardening, doing his own mechanical work on his car, and working in his dark room.

It is now almost six years since his initial fitting. His enthusiasm for the wrist rotation and flexion units persists. The original experimental APRL double-walled active wrist rotation unit succumbed to five years of hard usage. A new one was improvised by modifying a standard passive Hosmer PL-100 wrist unit. Outside the standard single-walled forearm socket, a second socket was fabricated. The outer socket, or shell, contains the Hosmer wrist unit. A ½" tube threaded ½ x 20 was incorporated into the distal end of the inner socket (Fig. 1). The end of the threaded tube is fixed into the rotating portion of the wrist unit. Pro-supination of the inner socket then rotates the wrist unit and terminal device while the outer socket remains stationary. Control of the positive lock is by means of a cable from elbow hinge to pin in wrist unit. A lever (C) attached to elbow hinge puts tension on the cable to pull pin out of its slot in movable disc A and unlock unit when elbow is extended. Active rotation is then possible. The outer socket, and fixed disc B do not rotate. Elbow flexion permits the pin to drop back into its slot, locking the wrist in the desired degree of rotation.

He is presently employed full time as a sales representative for a photographer's shop. This case demonstrates: (1) the utility and desirability to a young amputee of the wrist rotation unit, (2) the feasibility of fabricating such a unit by modifying commercially available components, (3) rehabilitation of a patient who desired to be self supporting.

[1] See "Pistol Attachment Device," page 62 in Prosthesis for the Child-Research Notes, Harry E. Campbell, Orthopedic and Prosthetic Appliance Journal, 12, 57-64, 1958.

VI—F.G.

Experience in bilateral fitting of short AE and shoulder disarticulation prostheses by the several groups interested in these problems at UCLA has repeatedly demonstrated that cross interference of the controls is a serious problem, which significantly interferes with function of the devices and is often exceedingly exasperating for the patient. On numerous occasions it has been necessary to abandon bilateral fitting in these people in order to permit unilateral function which has a useful range, is smoothly performed, and does not require the patient to divide his attention and efforts in shutting out the interfering involuntary movement of the opposite prosthesis.

In January 1956, an 11½-year-old boy was referred to the CAPP for prosthetic prescription. At the age of 8, he had backed up too near a caged bear. The animal tore the left arm off near the shoulder. Astonished and incensed at such misconduct on the part of the bear, he instinctively tried to retrieve the part with his remaining hand. The bear promptly disarticulated the right shoulder (Fig. 1). He had been using prostheses made elsewhere for two years, with reported fair function. These needed replacement. The left stump was 1″ in length, dictating SD prosthesis on both sides. A right prosthesis and left shoulder cap with UCLA (canted) shoulder plates,[1] nudge control elbow lock, manual wrist rotation, and 88x hook were fitted in April (Fig. 2). There were six siblings and no father. The mother needed both financial and psychological assistance.

The boy exhibited practically no prosthetic use. Nine training sessions with several minor adjustments to prosthesis and harness and addition of D ring to trouser zipper, resulted in limited use for eating, dressing, and toilet activities. The therapist from his local school was present at the final session to work out a program for him. His psychological adjustment to this handi-

[1] Unilateral Equipment for Bilateral Shoulder Amputees, in Manual of Upper Extremity Prosthetics, Dept. of Engineering, Univ. of California, Los Angeles, 1958, p. 294.

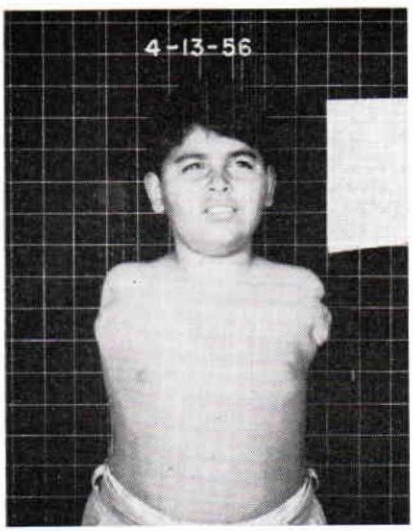


Figure 1—Showing very short left AE and right SD amputations.

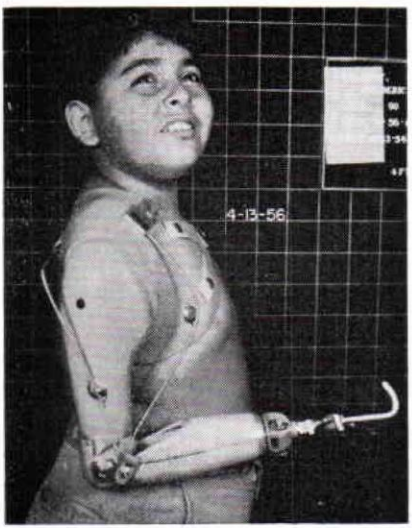


Figure 2—Showing single right prosthesis.

cap was quite good, but an underlying fear and uncertainty appeared on testing.

Two months later he demonstrated better general use; specifically, he used pen, pencil, and hammer. Unfortunately conflict developed between patient and local therapist causing him to avoid training whenever possible. His mother reported good use in household tasks, and complete urinary independence. Five months after receiving the device he felt that he could not go to the movies without it as he would not be able to go to the toilet alone. At the end of a year there was much spontaneous use. He attended a camp for handicapped children the next summer where he made a good adjustment. He became an exceptionally facile single prosthesis user with good understanding of mechanisms, use, and limitations of the device. He was, therefore, after fifteen months of use, selected for evaluation of bilateral devices. Trial fitting with two arms was made. On the left there was perineal strap activation of forearm flexion and TD operation. Biscapular abduction was utilized for these on the right. He could handle two prostheses when their controls were thus separated.

A special bowling attachment has enlarged this boy's sphere of activities with beneficial results (Fig. 3). His efforts in this are being sponsored by a local bowling establishment, and he is attaining some proficiency in the sport.

Good use of a single prosthesis in a bilateral SD amputee is more valuable than poor use of bilateral prostheses, particularly where there is cross control interference. When separated, non-interfering controls are used, bilateral function is considerably greater.

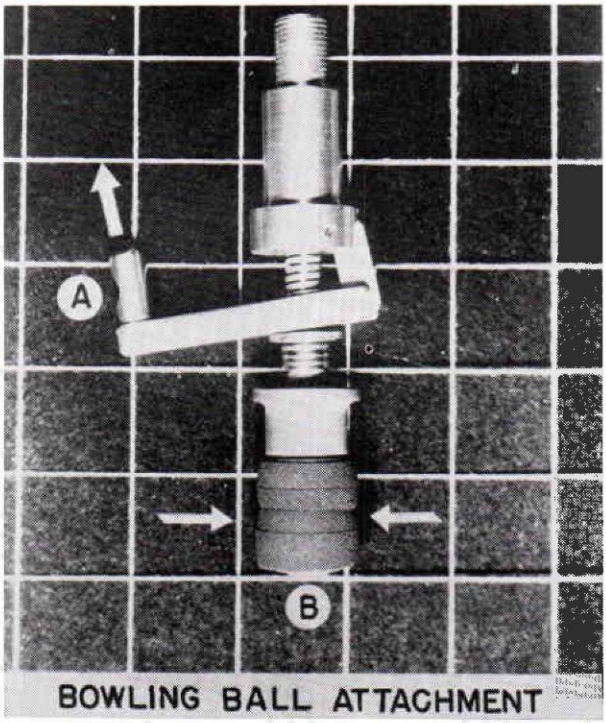


Figure 3—Sponge rubber plunger B fits snugly into thumb hole of ball. At the end of swing patient activates lever A through cable in the usual manner; the plunger contracts releasing the ball.

A REPORT ON THE SACH FOOT

By A. BENNETT WILSON, JR.

Secretary, Committee on Advances in Prosthetics,
American Orthotics and Prosthetics Association

In an attempt to solve many of the problems associated with the use of articulated ankle joints with the Syme stump, the Prosthetic Services Centre of the Canadian Department of Veterans' Affairs in 1952 developed a plastic socket with an extension, or keel, around which neoprene crepe shoe sole material was glued and shaped to form a foot (Fig. 1). Plantar flexion was afforded by compression of the crepe wedge under the keel and the keel extended to a point which permitted the crepe material in the toe to flex to yield the equivalent of a toe joint. Inspired by the success of the Canadians, workers at the University of California, who had felt that a foot without an ankle joint was desirable for conservation of energy during locomotion, adapted the principles of the Canadian device to a separate unit that could be used for all lower-extremity amputations at a higher level. Wood was used for the keel and the wedge-shaped heel cushion was fashioned from laminations of crepe rubber in order to decrease the amount of bulge occurring as a result of compression upon heel contact. A bolt through the keel was used to fasten the unit to the shin.

After extensive testing the UC design, which came to be known as the SACH foot (solid-ankle, cushion-heel) (Fig. 2), was released for general use in 1957, and three manufacturers began to make the SACH foot available to specifications developed by the Veterans Administration Prosthetics Center.

In an attempt to determine to what extent the SACH foot is being used and what problems, if any, were arising as a result of the SACH foot, the Committee on Advances in Prosthetics developed a questionnaire (Appendix "A") which was mailed to all members of the Association.

Questionnaires were received from ninety-nine prosthetics facilities. Of these only two firms reported that they had no experience with the SACH foot.

Use of Sach Foot by Amputation Type

A table showing the number of firms reporting the percentage of use of the SACH foot by amputation level is given below:

Percentage use reported	1-9%	10-29%	30-69%	70-89%	90-100%
Symes	19	3	8	5	42
BK	8	19	16	11	39
AK	10	11	13	15	37
HD	14	8	11	4	32

For each amputation level more firms reported fitting 90 - 100% of their cases than for any other category. Nearly half the firms reporting are using SACH feet for most of their lower-extremity fittings.

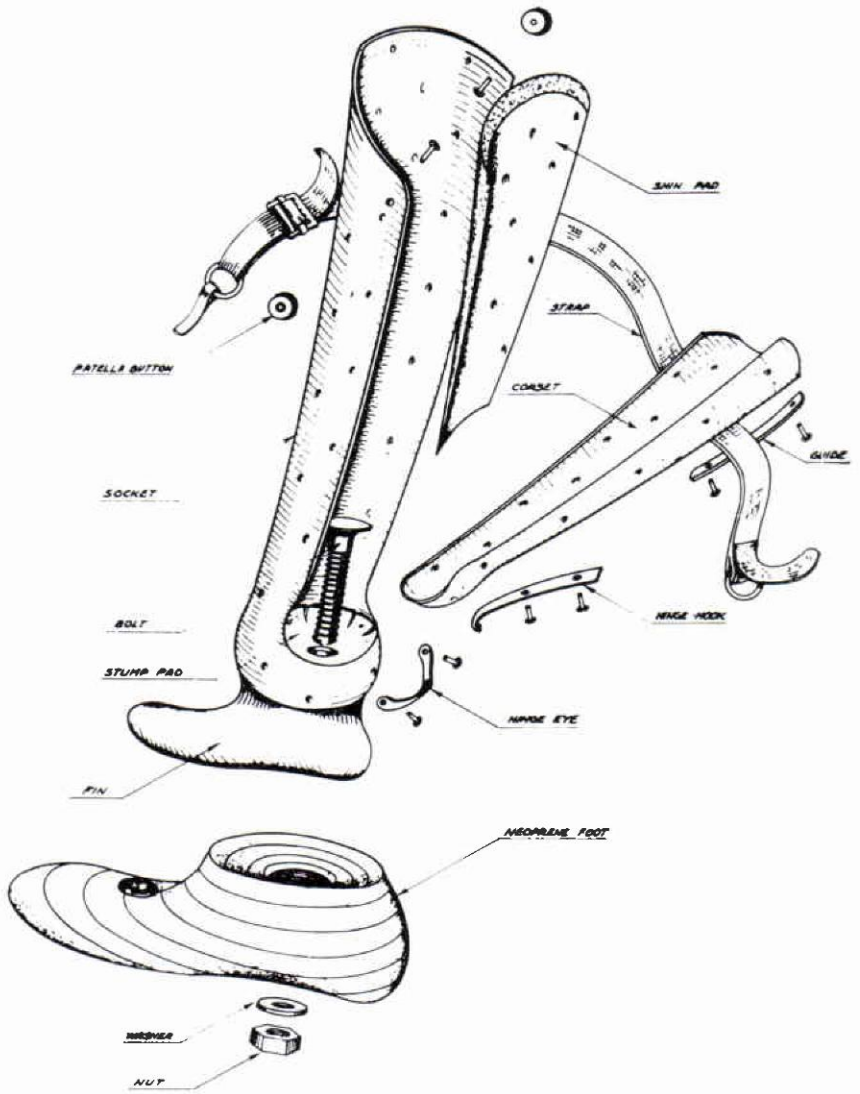


Fig. 1. Early version of a plastic prosthesis developed by the Prosthetic Services Center, Department of Veterans' Affairs, Canada. Note the fin, neoprene foot, and lack of an ankle joint. Courtesy of the Department of Veterans' Affairs, Canada.

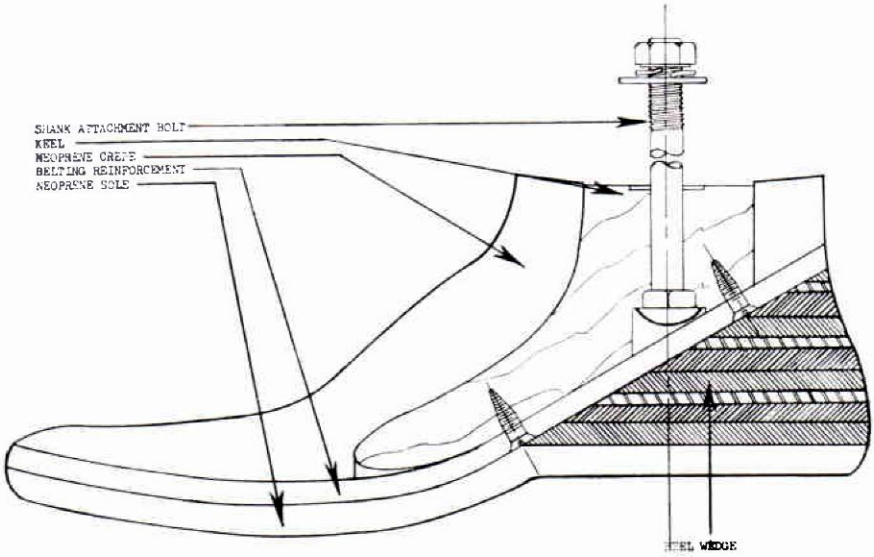


Fig. 2. Cross-section view of the SACH Foot. Courtesy of "Artificial Limbs."

Use of Sach Foot with Respect to Men, Women, and Children

A breakdown of the number of firms reporting percentages of SACH foot fittings with respect to men, women, and children pretty well follows the pattern of the breakdown with respect to amputation level. The one significant point perhaps is the fact that a greater percentage of women are fitted with the SACH foot than are either men or children.

Percentage use reported	1-9%	10-29%	30-69%	70-89%	90-100%
Male	7	13	15	16	31
Female	9	4	13	12	45
Children	11	6	10	5	39

Source of Units Used

In reference to the question concerning whether the units used were purchased or made in the shop, 86 reported that they used the commercially available unit, 3 make all their own, 5 reported making some and buying some, and 3 purchase all except those for the Syme prosthesis.

Fitting, Aligning, and Adjusting

Fifty-eight respondents declared they encountered no problems in fitting, aligning, and adjusting the SACH foot while 35 reported that they did.

A tabulation of the problems reported and number of shops reporting

they had these problems is given below. No one problem seems to be much greater than the others.

PROBLEMS	Number of Shops Reporting Frequently	Occasionally
Fitting the Shoe	6	17
Achieving adequate fore-and-after position	8	12
Selection of appropriate heel cushion	7	16
Fairing to shank	5	8
Other		9

Maintenance

Fifty-nine of the respondents felt that maintenance problems were significant while 34 felt they were not.

A tabluation of the problems reported and the number of shops reporting each problem is given below:

PROBLEMS	Number of Shops Reporting Frequently	Occasionally
Breakage of keel	7	35
Delamination of the rubber	22	28
Curling of the toe	22	24
Packing of heel cushion	11	14
Breakage of the attaching stud	2	19
Noise resulting from delamination of belting	23	27
Breakage of belting	3	10
Other		

In response to the question, "With respect to maintenance, how does the SACH foot compare with other types of feet in general use?", seventy-three reported less maintenance for the SACH foot, 10 felt that the maintenance required was about the same and 9 reported that more maintenance was required.

Fitting Failures

30 facilities reported no fitting failures.
31 " " 1% or less fitting failures.
18 " " 2-5% fitting failures.
13 " " 10% or more fitting failures.
14 facilities reported failures were predominately in cases below 55 fitted initially with SACH foot.
1 facility reported that failures were predominately in cases over 55 fitted initially with the SACH foot.
33 facilities reported failures were predominately in cases below 55 that changed to the SACH foot.
12 facilities reported failures were predominantly in cases above 55 that changed to the SACH foot.

Fitting of Bilateral Cases

To the question, "In your opinion should SACH feet be fitted to bilateral cases?" shops replied as follows:

	Yes	*No*
BK - BK	60	26
BK - AK	46	31
AK - AK	35	43

Comments Offered

Most of the respondents offered some comment and aside from the fact that most felt it could and should be used in most cases the only remark that seems to be of significance statistically is "Not suitable for heavy-duty use." This was offered eight times.

A tabulation of the comments of a critical nature and those offering indications and contraindications for prescription are given below:

Not for BK with flexion contracture because of adjustment problem. 1
Trouble fitting high heel shoes. 3
Too heavy. 1
New amputees are best suited to SACH. 5
Not suitable for heavy duty use. 8
Good for use where waterproofing is necessary. 5
Not enough heel action—too much toe action. (Toe break too far posterior.) 1
For active people. 1
Not waterproof. 2
Objectionable Color. 2
Poor finish. 1
Not for older people. 1
Good for older people. 3

Preliminary Conclusions

A punch card was made up for each shop reporting in an effort to correlate the data offered. Nothing of significance was uncovered. No types of fitting and alignment problems could be correlated with types of maintenance problems, etc.

The SACH foot is now in widespread use, and although 61% (59 shops) of the respondents felt that maintenance problems were "significant," 75% (73 shops) reported that less maintenance was required for the SACH foot than for other types in general use.

Slightly larger percentages of Syme and BK cases were fitted with the SACH foot, but all levels of leg amputation are being fitted successfully.

These findings do not, of course, mean that the SACH foot is the best foot than can be developed or that the manufacturers should not attempt to improve on the quality of the present product. It also might be in order to review the present fitting instructions to determine if additions or modifications could be introduced that might be helpful to prosthetists that are encountering some trouble in fitting.

The data given above was discussed during the 1959 National Assembly of the Orthopedic Appliance and Limb Manufacturers Association by a panel consisting of Kenneth C. Kingsley, Howard R. Thranhardt, C.P., Donald Colwell, C.P., and Charles Hennessy, C.O., C.P. The discussion brought out the following points:

1. The manufacturers all agreed that the total troubles were less than 1% of the feet produced.
2. The heel collapsing trouble has been rectified by using another type of rubber in the heel cushion.
3. The noisy feet due to unsaturated belting has been corrected by the substitution of a high grade rubber belting for balata belting.
4. The keel breakage has been helped by the use of the reverse bolt.
5. The bolt breakage was thought to be 100% the result of the prosthetists not realizing that the depression around the bolt was a shear relief. When this is ground off or filled with epoxy, the bolt can be sheared. Proper education should help eliminate this problem.

Appendix "A"

1959 NATIONAL SURVEY — SACH FOOT

Conducted by the Committee on Advances in Prosthetics of OALMA

Name of Firm _____ Date _____
Street Address _____
City _____

1. Have you had experience with the SACH Foot? Yes _____ No _____
2. If the answer is yes, please estimate the percentage of the following amputees you fit with SACH feet in your current practice:

Syme	____%
Below-Knee	____%
Above-Knee	____%
Hip-Disarticulation	____%
Male	____%
Female	____%
Children	____%

3. Do you use the SACH foot as commercially available, or do you make your own?
4. Have you encountered problems in fitting, aligning, and adjusting the SACH foot?
   Yes _____
   No _____
   If the answer is yes, please check the appropriate boxes below:

	Frequently	Occasionally
Fitting the Shoe		
Achieving adequate fore-and-aft position		
Selection of appropriate heel cushion		
Fairing to shank		
Other (please state)		

5. Have you encountered significant maintenance problems with the SACH foot?
   Yes _____
   No _____
   If the answer is yes, please check the appropriate boxes below:

	Frequently	Occasionally
Breakage of keel		
Delamination of the rubber		
Curling of the toe		
Packing of heel cushion		
Breakage of the attaching stud		
Noise resulting from delamination of belting		
Breakage of belting		
Other (please state)		

6. With respect to maintenance, how does the SACH foot compare with other types of feet in general use?
   More maintenance required than with the other types _____
   About the same maintenance required as with the other types _____
   Less maintenance required than with the other types _____
7. What percent of SACH foot wearers have had to change to another type of foot?
8. Did the "failures" occur predominately in one of the classes of amputees listed below? If the answer is yes, please check.
   Fitted initially with SACH foot, below 55 _____
   Fitted initially with SACH foot, over 55 _____
   Changed to SACH foot, below 55 _____
   Changed to SACH foot, over 55 _____
9. In your opinion should SACH feet be fitted to the following classes of bilaterals?

	Yes	*No*
BK - BK	_____	_____
BK - AK	_____	_____
AK - AK	_____	_____

10. Please give us your general comments concerning the SACH foot, especially in reference to when it should be used.

Note: A signature or name below is optional. If you prefer your answer to be confidential, leave space blank.

_____
Name of person who filled out this form.

THE THIRD INTERNATIONAL PROSTHETICS COURSE
August 15-26, 1960

The New York University Post-Graduate Medical School will offer a series of two-week courses in prosthetics in cooperation with the International Society for the Welfare of Cripples, just prior to the 8th World Congress. These courses will constitute the Third International Prosthetics Course sponsored by the Committee on Prostheses, Braces and Technical Aids of the ISWC. They will meet from August 15 to 26, 1960.

Course Content

Separate two-week courses for (1) physicians and surgeons, (2) therapists, and (3) prosthetists will be offered, each meeting from August 15-26.

Course No. 741-I for Physicians and Surgeons—This course will cover principles of biomechanics, fabrication, fitting, alignment, suspension, harnessing, prescription and evaluation of lower and upper extremity prostheses. Additional topics such as surgical techniques, prosthetic components, performance analysis and training will also be included.

Course No. 742-I for Physical and Occupational Therapists—Major topics will include pre- and post-operative care, prosthetic components, biomechanics, fitting and alignment principles, prosthetic evaluation and training of both the lower extremity and upper extremity amputee. Special attention will be given to the analysis of amputee performance, methods of prosthetic training, and correction of problems.

Course No. 743-I for Prosthetists—Major topics to be covered are biomechanics, fabrication procedures, including use of plastics, fitting principles, dynamic alignment, the adjustable leg and duplication jig and suspension methods. Two complete prostheses (one below-knee and one above-knee) will be fabricated and fitted by each student. Additional subjects will include anatomy, surgeory, pre- and post-operative care, and prescription principles.

In the area of lower extremity prosthetics, emphasis will be placed on the above-knee quadrilateral socket and the below-knee patellar-tendon-bearing socket. Instruction in upper extremity prosthetics will cover all types of prostheses from the wrist disarticulation to the forequarter. It should also be noted that the materials to be covered in the three courses vary to some extent. This is due to the fact that only the prosthetists' group will actually fabricate prostheses. Since participation in this time-consuming process is not indicated in the physicians' and therapists' curricula, it is possible to include additional topics in these latter courses.

All three courses will include laboratory sessions with amputee patients to afford practical experience in applying the material covered in the lectures and demonstrations. As time permits, a number of sessions in the field of lower extremity orthotics (bracing) will also be included.

Faculty—The regular medical, surgical, therapist, prosthetist, and orthotist faculty at the New York University Post-Graduate Medical School will be augmented by specialists from other clinical, research, and educational institutions within the United States and throughout the world. Although the basic instruction will emphasize the techniques and procedures current in the United States, it is planned that the faculty from other countries will have an opportunity to share information concerning the prosthetic and orthotic techniques used in their own countries.

Registration—The tuition fee for each of these courses will be $50. This fee will include all necessary prosthetic supplies, textual material, and uniforms. This modest tuition fee is possible due to the fact that the Office of Vocational Rehabilitation of the United States Government is helping defray the costs of conducting this course through a grant to New York University.

Applications and further information concerning these courses may be obtained by writing Sidney Fishman, Ph.D., Director, Prosthetics Education, New York University Post-Graduate Medical School, 342 East 26th Street, New York 10, New York.

REVIEWS

PROSTHETIC PRINCIPLES—ABOVE KNEE AMPUTATIONS

By Miles H. Anderson, John J. Bray, Charles A. Hennessy, Charles C. Thomas, 331 pp., $10.

Reviewed by A. Bennett Wilson

Prosthetists who have attended one of the courses in Above-Knee Prosthetics at either the University of California at Los Angeles or New York University will immediately recognize that this volume is a revision, with additions, of "Manual of Above Knee Prosthetics," published by the University of California, Los Angeles in 1957 and used as a text in the "above-knee" courses.

The section on functional anatomy has been augmented by additional illustrations, and a discussion of the skeletal lever system has been added to the chapter on locomotion. The material covering measurement, socket planning, layout and initial shaping have been largely rearranged and revised. Many of the line drawings have been replaced with excellent photographs. New illustrations in the form of photographs have been added. Also added is a thorough discussion on the use of the so-called "tension analysis" in shaping the socket.

The discussion on the biomechanics of fitting and alignment is essentially unchanged except for the addition of a discussion of the effects of hip extension and adduction. The chapter on initial fitting has been completely rewritten and re-illustrated to provide more detail. The section entitled "How to Assemble the A.K. Socket to the Adjustable Leg" has been replaced by "How to Do Static Alignment," a new assembly procedure developed by the authors as a result of this experience in the Prosthetics Education Program, and some revisions have been made to the procedures for dynamic alignment. Recommended procedures for use of the alignment jig remain unchanged but the photographs are reproduced more clearly.

The discussion on auxiliary suspensions has not been changed except for the deletion of a description of hip joints and the addition of a few illustrations.

"Commercially Available Components" in the "Manual" has been replaced by "How to Apply a Cosmetic Cover to an Above Knee Prosthesis Shin," "How to Prepare a Male SACH Foot," "How to Prepare a Female SACH Foot," and explicit instructions on applying and using the Hydra-Cadence Leg.

Every prosthetist regardless of his experience should have a copy of this book. No doubt it will be used as the standard text in the above-knee prosthetics courses to be held for the next several years.

THE SECOND INTERNATIONAL PROSTHETICS TRAINING COURSE

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

Technical Director, Prosthetics Research and Services,
Institute of Physical Medicine and Rehabilitation, New York City

The International Society for the Welfare of Cripples is the leading organization in the field of rehabilitation for the handicapped, with member organizations in 43 countries. The Society conducts a World Congress every third year, in addition to regional meetings in many areas of the world. At the World Congress in Stockholm in 1951 it was decided to establish a Committee on Prostheses, Braces and Technical Aids. It had been realized that this field required rather specific approaches which could best be handled by a special committee.

Mr. Glenn Jackson, Executive Director of the American Orthotics and Prosthetics Association, was a charter member and the committee has gradually been enlarged to the present membership of 22, with headquarters in Copenhagen, Denmark, under the chairmanship of Dr. Knud Jansen, with Dr. J. Saugmann-Jensen as Secretary. The primary aim is to provide better information in the area of prostheses, braces and technical aids. For this purpose a library is maintained where pertinent publications are collected and disseminated, such as research reports, journals of organizations working in this field; and also such films as are of help in the educational process.

At the World Congress at Scheveningen in 1954 it was decided to organize and conduct an international traning course if sufficient interest for such an undertaking should exist. Questionnaires were distributed. When the definite need and interest were established, the first prosthetics training course was conducted in Copenhagen, following the World Congress in London in 1957. This course took place at the Orthopedic Hospital in Copenhagen, where almost ideal facilities exist for such an effort. Through the cooperation of the International Society for the Welfare of Cripples and the Society and Home for Cripples in Denmark, it was possible to conduct this course at a relatively low cost to participants. Through funds made available by several American organizations, it was possible to provide several instructors from the United States. Other nations were also represented on the faculty of this course.

The success and great interest shown in the first course led to a second one, also conducted at the Orthopedic Hospital, from July 30 to August 8, 1959. Eighty-five students from 18 countries participated. There were almost equal numbers of physicians, therapists, and prosthetists. Whereas the curriculum for the first course had included braces and also technical aids, the second course was restricted to areas of prosthetic service, including surgery, prosthetic prescription, prosthetic devices and training.

Areas of primary importance were new techniques in lower extremity fittings as demonstrated by the American faculty and demonstrations of the construction of upper extremity prostheses by the Germans. The new fitting technique for below-knee prostheses which was developed by the University of California at Berkeley created great interest. From conversation among students, it appears that this item will probably be as favorably accepted as the Canadian hip disarticulation prosthesis, which was introduced during the first course.

Of special interest from the American point of view were surgical procedures relating to above-knee stumps as shown by Dr. Dederich from Bonn, Germany. Dr. Henry Loon, a member of the American Prosthetics Research group, has spent considerable time in Europe investigating amputation techniques. He has cooperated with Dr. Dederich in above-knee stump revisions and also in primary amputations. Dr. Loon will probably submit a paper on these techniques at a future time.

From the prosthetics point of view, it appears that an above-knee stump fashioned according to this technique is best fitted with a closed socket where the stump is actually in contact with the end. The claims of Dr. Dederich are that the amputee has a better proprioceptive sense, that the circulation within the stump is improved, and that terminal edema will be minimized. Only one amputee was seen upon whom such a revision had been performed. He had been provided with a socket which was in complete contact with the end of his stump. When interviewed, the amputee claimed definite benefits from this procedure. Dr. Dederich stated that a considerable number of operations have been performed and wherever those amputees were fitted with a prosthesis as recommended, medical complications of long standing have been overcome, the patient has not complained of further stump problems and has worn the new prosthesis with comfort and added facility.

Another item of interest was the almost complete absence of hip joints and pelvic belts in above-knee prostheses at the Orthopedic Hospital in Copenhagen. Members of the German group present remarked that the same is true in most of the advanced German facilities. If the prosthesis cannot be suspended by means of a suction socket valve alone, a Silesian bandage or a similar suspension mechanism is resorted to. The only exception to this at the Copenhagen Hospital was one bilateral above-knee amputee who wore shoulder suspension straps.

It was surprising to see a great number of weight-bearing knees and also some hydraulic knee mechanisms. The claim of the chief Danish prosthetist was that this was necessitated by the terrain. Above-knee amputees were frequently seen using canes, the claim again being that in Europe amputees are forced to do considerably more walking than in the United States.

U/E Prostheses

Upper extremity fittings as demonstrated by Prof. Hepp and Dr. Kuhn of the University of Munster, Germany, were of great interest since they differed considerably from the American practice. Artificial arms are fitted much closer to the contours of the stump. Sockets for below-elbow prostheses are almost always enclosing the condyles of the humerus and the olecranon of the elbow. In this manner the prosthesis can be suspended with a minimum of dependence upon harnessing. In a longer stump where this technique of fitting interferes with pronation and supination, a second socket is made, which encloses the terminal end of the stump rather tightly. The socket which encloses the elbow is fitted rather loosely at the distal end in order to

allow for pronation and supination which is still retained within the stump. Through the special construction of the wrist units this motion is then transferred to the terminal device.

The casting technique for their above-elbow amputations also differs from the American technique inasmuch as the cast is very accurately molded to conform to the musculature of the shoulder. The cast is carried high at the shoulder and encloses part of the shoulder anteriorly as well as posteriorly. The area between the pectoral muscles and the clavicle is depressed. The prominence of the pectoral tendon is molded into the cast and the cast also encloses the axilla. Before the cast hardens, it is molded to conform accurately to all the prominences of the shoulder joint. All casts for upper extremities are made from elastic plaster of paris bandages. Before the cast sets fully, the amputee is asked to tense and relax his muscles in order to get a good reproduction of the functional stump.

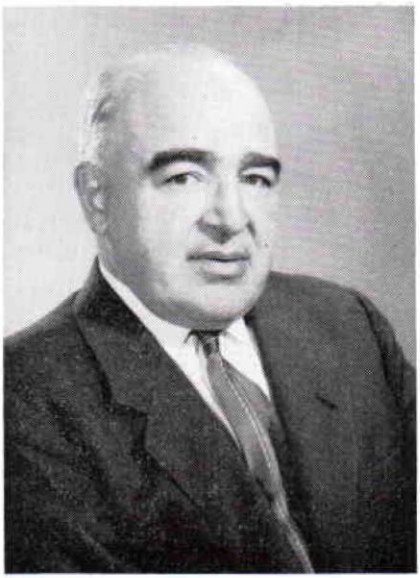
A positive cast made from such a negative shows rather severe undercuts. In order to obtain an exact plastic socket from such a cast the Danes, the Germans, and also other European technicians have resorted to a system which uses negative pressure to mold the final socket to the shape of the cast. This system has been perfected by Dr. Kuhn at the University of Munster and he has introduced it through visits and demonstrations to many other countries. At the course Dr. Kuhn fitted several sockets of different lengths for amputations below as well as above the elbow. The retention of the finished socket to the stump was rather amazing. Most stumps were pulled into the socket by means of stockinette similar to above-knee stumps and the suction socket. It is claimed that many amputees prefer to use a suction socket valve with their sockets. The harness system is not used for suspension but primarily to activate elbow flexion and the terminal devices.

A hook was demonstrated which uses a different prehension mechanism. It appears to be a combination between a hook and hand. The inventor claims great advantages for this particular hook but only a limited number have been constructed and no evaluation at this time appears to be valid.

The British members of the teaching staff discussed and demonstrated prosthetic devices for children with congenital anomalies. They differed little from those shown in the literature. The indications vary, of course, widely since the conditions change from case to case. Extensions made from cork or light wood were used in combination with molding leather and steel bars. A knee-bearing leg with adjustable knee friction for knee disarticulation stumps appeared to be advantageous.

The organization of the course was excellent, just as in the previous one. Visits to rehabilitation centers and a reception by the Mayor of Copenhagen were welcome diversions from the very strenuous schedule. A farewell party at the conclusion of the course found all participants in full agreement regarding the benefit as well as the need for further efforts along similar lines.

THE VA'S PROSTHETIC AND SENSORY AIDS ACTIVITIES IN NEW YORK



FRANK SCHENCK
Heads Orthopedic Shoe Section

FRANK A. WITTECK
Heads Limb and Brace Section

The Regional Office of the Veterans Administration at 252 Seventh Avenue, New York, is the scene of a wide variety of prosthetic and sensory aids activities. We believe it may be helpful to describe the several programs which are housed in this New York facility.

The VA Prosthetics Center

The VA Prosthetics Center in New York is a unique *centralized field activity* functioning under the direct supervision of VA Central Office in Washington, D.C. It was organized in February 1956 with the specific aim of bringing together engineers, other research personnel and skilled technicians who could work closely in meeting the prosthetics needs of disabled veterans. The Center is divided into three sections: The Limb & Brace Section, the Orthopedic Shoe Section, and the Testing and Development Laboratory.

The Limb and Brace Section under the direction of Frank A. Witteck, an engineer, fabricates and fits artificial limbs and braces. It participates in experimental work on techniques and devices which may result in greater economy as well as in more satisfactory artificial limbs. It is the only all-around prosthetics and orthotics shop maintained by the Veterans Administration. Because of its specialized nature, the Limb and Brace Section serves not only those veterans in the New York area who choose to be fitted there, but it also provides service for problem cases referred by any VA field station. The Limb and Brace Section has become recognized as a leader in the prosthetics field, and has been widely used in training and educational programs.

The Orthopedic Shoe Section under the supervision of Frank Schenck, an Orthotist, provides the framework for a nation-wide program of procurement of orthopedic shoes for eligible veterans. Since October 1951

OTTO ROTHMAN

MRS. A. S. KEANE

considerable savings have been realized by a mail order system of prescription, measurement, and delivery of orthopedic shoes for beneficiaries throughout the United States. Physicians in VA field stations provide pertinent medical and occupational data on a measurement form which is sent to the Orthopedic Shoe Section. In particularly difficult cases, casts may also be sent. The Orthopedic Shoe Section orders shoes from one of several Central Office contractors except for a small percentage of shoes which are fabricated by highly skilled technicians in the Shoe Section. Upon receipt of the completed shoes from the contractor, the Orthopedic Shoe Section inspects them to assure compliance with the prescription and with contract specifications. If the shoes are acceptable they are mailed to the veteran.

A centralized system of repairs to the orthopedic shoes has also resulted in considerable savings. Major repairs to shoes can be obtained from the Shoe Section in all cases where the lasts over which the shoes were fabricated are stored in that section. A large portion of the Orthopedic Shoe Section is set aside for the storage of lasts, casts, patterns, and records to facilitate the processing of future orders.

The third section of the VA Prosthetics Center, the *Testing and Development Laboratory* under the leadership of Otto Rothman, an engineer, is particularly active in the development and enforcement of specifications for prosthetic devices and components. Its personnel work closely with the technicians of the Limb and Brace Section and Orthopedic Shoe Section in developing improved devices and techniques as well as in evaluating the performance and durability of new hardware. The Laboratory has excellent machine shop and testing facilities as well as a complete photographic installation.

The Center as a whole is under the general management of Anthony Staros, an engineer. He has the staff assistance of Henry Gardner, a prosthetist, William McIlmurray, an orthotist, and Mrs. Anastasia Keane as Administrative Officer.

The Center is quite active in cooperating with other research-oriented organizations in the integrated national prosthetics research program of which the Veterans Administration has been a prime sponsor for a number of years.

On-the-job training, available in the Center's shops and labs, has been given to several foreign trainees; four young men are presently working in the Center's Limb and Brace Section under such a program. It is possible that there are men in the United States who might qualify for such training. Duration of on-the-job assignments of trainees to the Center depends on the needs of the trainees and the wishes of his sponsor.

(To be continued in the next issue)

REGION VII TO MEET IN THE ROCKIES

AOPA Middle Western members will hold their Regional session June 16, 17 and 18, at beautiful Estes Park in the Rocky Mountains of Colorado. The Stanley Hotel will be the scene of the Meeting.

George Thornton of Denver, who is Regional President of Region VII, extends a cordial invitation to *Journal* readers everywhere to attend this meeting. A technical program of real value to the orthotist and prosthetist is being arranged. And since the Stanley Hotel is a major resort hotel, the recreational and entertainment facilities available will add to the enjoyment, especially for the wives of members.

The tentative program opens with a reception the evening of June 17, sponsored by the local Committee. Meetings will begin Saturday and will continue through noon Sunday. Unusually attractive rates on the American Plan of $17.00 a day per person, two people to a room, will include any pre- or post-meeting stays which members desire to make.

How to get there? Roads are excellent for those who drive. For those who are flying in to Denver, there is a bus leaving at either 9:00 in the morning or 2:30 in the afternoon. The three hour trip will take you through some of Colorado's most beautiful scenery.

Mr. D. H. Heijne, together with Mrs. Heijne of Amsterdam, Netherlands, recently spent a week in Jackson, Michigan at the home office and factory of the S. H. Camp & Co. Mr. Heijne is the owner of Bandage & Corset Industrie "Basco" of Amsterdam, who manufacture Camp products for distribution in Belgium, Netherlands and Luxemberg. Mr. Heijne's visit was for the purpose of reviewing new products and manufacturing methods to better serve the "Benelux" Countries. "Basco," through the promotional efforts of Mr. Heijne, has had a rapid development since the last war. Earlier this year he produced the motion picture "CAMP, SYMBOOL VAN GEZONDHEID EN LEVENSVREUDGE" which has received acclaim in the press as an outstanding industrial film production. Mr. Heijne states that its story is making many more wearers for the functional type supports with style.

Orthopedic-Prosthetic Idea Exchange

Contributing Committee: Everett J. Gordon, M.D., *Chairman;* Joseph Ardizzone, P.T.; Raymond Beales, C.P.; Victor L. Caron, C.P.; Charles Ross, C.O. & P.

The rehabilitation of amputees has gained considerable impetus as a result of constant improvement in available prostheses. The most recent research attention has been given to the below-knee prosthesis, now that problems involving more difficult amputations for which suitable prostheses were least developed have been solved. These included principally the upper extremity and the above-knee amputations. The laminated plastic arms with light weight components and mechanically improved methods of harnessing have definitely increased the number of users of upper extremity prostheses and the suction socket has long been accepted by suitable above-knee amputees and is now a standard item of issue.

Now we have the latest device, the so-called "UBC Below-Knee Leg" which will most likely become commercially available during this coming year. This prosthesis, developed at the University of California at Berkely, is a closed end, soft socket which makes total contact with the below-knee stump with pressure points about the entire stump and also over the patellar tendon as well as end bearing. The socket is suspended by a simple thigh strap just above the knee without a thigh corset and without knee joints. It is fitted within a plastic laminated shin attached to a SACH foot. The fabrication and prescription of this corset is now being taught in courses being held at New York, Chicago, and Los Angeles, designed for prosthetists, physical therapists, and physicians. Although not officially approved by the Veteran's Administration as yet, it can be ordered on a non-contract basis, provided there is a prosthetist available who has completed the prescribed course. Your editor has completed the course at New York University and was very much impressed with what he saw there, and has already prescribed three such prostheses. However, we have not as yet gained sufficient clinical experience to give any progress reports or observations but we promise a preliminary report in our next issue.

The new patellar tendon bearing, cuff suspension appliance is not to be confused with the old Muley limb which has an open end socket of wood construction without a soft liner, and is not carefully fitted with total contact as with the newer prosthesis.

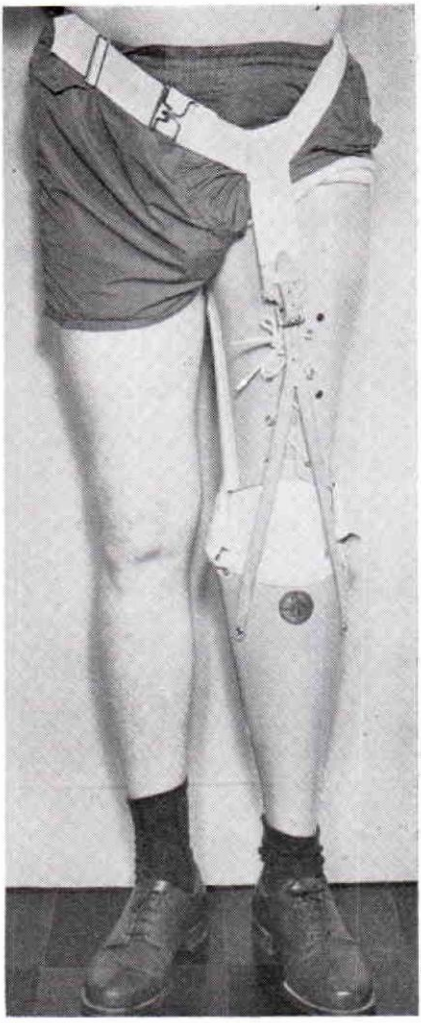
Dr. Edward Holscher of St. Louis will soon distribute a carefully prepared questionnaire to all V. A. Field Stations and other amputee centers to collect information regarding hip disarticulation prostheses. This survey represents several years of careful planning and it is hoped that everyone will offer him the utmost in cooperation, as this is a field of prosthetics in which clinical information is lacking because of the scarcity of such amputees in any one center. In our own clinic we have found that in some cases the Canadian type hip disarticulation prosthesis may be modified by changing the elastic strap from the position below the knee to mid-thigh and also displacing it posteriorly on the hip, which aids in the stride and particularly facilitates getting in and out of automobiles and sitting.

One little item that we have noted used here and there which may be old news to the veteran prosthetist is the insertion of the suction socket valve in the socket at an angle instead of flat or perpendicular to facilitate removal of the stockinette used in applying the prosthesis to the stump. Such a simple modification may save considerable exertion on the part of some amputees and thereby improve their tolerance of this prosthesis, especially in the initial weeks of such use.

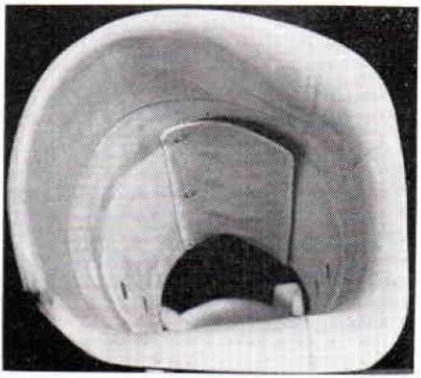
The SACH foot continues to be popularly used, particularly in the Washington area, with a great majority of satisfied users. Occasionally squeaking noises have been found to be due to loose belting, particularly noted after long periods of wear. The noise can easily be eliminated by repairing the defect. Amputees should be informed of this possibility and advised to return for necessary repair rather than tolerate the objectionable noise.

Plastic Corsets for L/E Prostheses

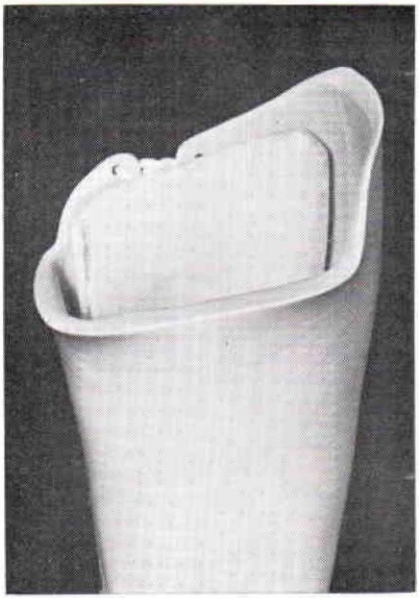
We have had a very interesting communication from Dr. H. J. Bugel, Chief of Physical Medicine, Rehabilitation Service at the Veteran's Administration Hospital in Nashville, Tenn., regarding the use of plastic corsets for lower extremity prostheses. Dr. Bugel writes, "We have been using a plastic corset with, and without, ischial seat with both full lacing and partial lacing, for approximately five years. Our experience has been very good. Appreciation expressed by the wearer has been excellent. No unusual problems have developed which would indicate the discontinuance of this corset. One wearer, after 18 months—up to 18 hours a day—of constant hard usage over rough ground as a farmer, hunting, and fishing, had a crack in his corset posteriorly but he wanted an identical replacement. Approximately 30 such corsets are in use at the present time."



a. Ischial weight bearing below-knee prosthesis with partial lacing of thigh corset, molded plastic, (Constructed by courtesy of J. E. Dillard of Hanger Limb Company, Nashville, Tennessee.)



b. Wood quadrilateral pattern inlay in prosthesis (a).



c. Molded plastic thigh corset for a below-knee prosthesis, fully laced, ischial weight bearing. (Constructed by courtesy of Snell Artificial Limb Company, Nasheville Tennessee).

"More recently, for special problems in those patients amputated for peripheral vascular disease, where no weight bearing is desired on the stump, a quadrilateral socket, fabricated from wood has been incorporated into the plastic corset, comparable to quadrilateral socket fitting principles. In the three instances in which this type of corset has been used, success has been very good." The photographs demonstrate the points made by Dr. Bugel.

New York University has announced the first four year curriculum leading to a degree of Bachelor of Science in the field of Prosthetics and Orthotics. This program is being offered by their school of Education and will begin in September, 1960. This certainly appears to be a fitting development of the growth of our field of endeavor and would especially be intended for those who wish to qualify for a position of leadership in Prosthetics and Orthotics. The program will combine the usual college curriculum with specialized courses in the field of upper and lower extremity prosthetics and orthotics, supplemented by a clinical training program. Our members are urged to stimulate interest in this program and to direct any interested young people to contact Dr. Sidney Fishman, Director of Prosthetics Education at New York University.

In the field of bracing, there is now being used a double Klenzak type of stirrup to provide spring loading for both plantar flexion and dorsiflexion of the foot in cases of severe paralysis, instead of the usual limited motion ankle joint. It is wondered whether this idea has been used generally, or whether some of our orthotists may have improved ideas regarding this particular problem. We would be interested in receiving your comments.

Children's prosthetics is receiving more widespread attention throughout the country. At the recent meeting of the American Academy of Orthopaedic Surgeons in Chicago, there were excellent exhibits on children's prosthetics, one by the Duke University Group which has been doing notable work in this field and has been successfully fitting very young amputees.

Since the above was written we have received a very interesting and thoughtful letter from William A. Tosberg, C.O. & P. Mr. Tosberg is Technical Director of Prosthetics Research and Services at the Institute of Physical Medicine and Rehabilitation in New York City.

He writes as follows: "In the December 1959 issue of the *Orthopedic and Prosthetic Appliance Journal* there is a column entitled "Orthopedic-Prosthetic Idea Exchange." All of the items are very interesting.

"We have just obtained a good supply of 2% Prantal dusting powder which we are using on an experimental basis, with the idea of supplying the Schering Corporation, Bloomfield, New Jersey, with the results obtained by our amputees.

"Another item of particular interest to us was the observations on biceps cineplasties. I suppose the general observations are valid but where it says, 'we have yet to find a single cineplastic amputee who continued with the use of his cineplastic prosthesis for more than a few weeks or months,' that does not apply to the cases where our physicians have performed cineplastic operations or where we have provided prostheses. As a matter of fact, the biggest problem we have with one of our amputees is the fact that we are unable to provide him with cables strong enough to last longer than about two or three months. This man was a furniture mover but has now gone over to automobile repairs. There are three other people I can think of at this moment who are using their biceps cineplasty prostheses routinely. One of them was provided with a standard arm in addition to his arm provided with tunnel pin. Only last week he told me that he does prefer the use of his tunnel.

"I am not giving you these comments for the purpose of bragging, but only because comments have been asked for. (Editor's Note: Immediately after writing this last column our clinic had two biceps cineplasty amputees who were using their protheses well—we prescribed a replacement prosthesis for them!)

"The paragraph concerning follow-up service on above-elbow wearers appears to be extremely valid, because I know from past experience that prostheses for this level of amputation have been discarded by many amputees since the functional return is at best very limited. This consideration was one of our reasons at the Institute for following up children either through a letter or, if this showed no results, by means of a visit by a social worker.

"We have contacted adults every six months in the beginning, and only if we found that they were regular arm wearers did we get in touch with them at least once a year thereafter. Through these means we have prevented the waste of time and money which would be involved if a prosthesis were discarded before it was tried thoroughly.

"I hope that this column has given as much stimulus to thought in others as it has given me.—WILLIAM A. TOSBERG

Your editor is extremely gratified to receive Mr. Tosberg's comments. They are just what we like to hear: your opinions, whether they agree or disagree. So that everyone can benefit from the dissemination of prosthetic knowledge, let's hear from you too!

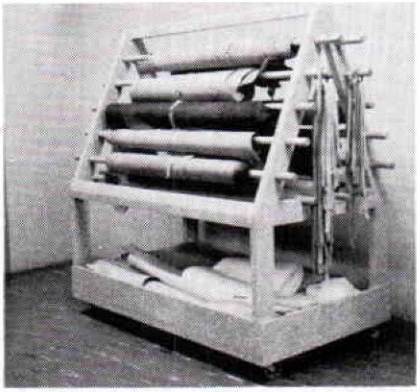
Everett J. Gordon, M.D.

SHOP NEWS COLUMN

Conducted by Alvin Muilenburg

This is meant to be a practical column devoted to methods and equipment used in the actual fabrication of appliances. Every reader of the Journal is cordially invited to send in his suggestions and contributions to this column. They may be anywhere from a paragraph to a page or two in length.—The Shop Notes Committee; Al L. Muilenburg, Chairman, G. E. Snell, C. O. Anderson, Erich Hanicke, Joseph Martino.

From *Richard Locke*, J. E. Hanger Incorporated, Orlando, Florida: There is now available a white Micro-balloon instead of the deep maroon which is now being used in the Below Knee Schools. This particular Micro-balloon may be used without color or if desired, with the color of the leg being fabricated. We have found that this is also an excellent material to build up the shin of children's prosthesis to conform with the growth of a child. This product is available from Southern Prosthetics Supply Company.



A compact Storage Unit for Leather.

From *Thorkild Engen*, Texas Institute for Rehabilitation and Research, Houston, Texas: This photograph shows the compact removable storage space for leather and other fabrics. The length of the dowels should not be less than 54" in order to accommodate standard width of plastic materials and fabrics. Materials used for construction are 2x4's and 1¼" diameter dowels mounted on large casters making it easy to move about. The advantage with this arrangement is that you have an easy view over the variety of leather and plastic material you have in stock. On the bottom shelf, you can store webbing, felt and other items.

From *Al Muilenburg*, Houston, Texas: During a visit to our shop, Henry (Hank) Gardner dropped a pearl of wisdom that has been very helpful. This is a simple method to make a cast of a socket that we want to duplicate without damage to the socket. Grease the inside of the socket with vaseline. Cut strips of plaster paris bandage the length of the depth of the socket. Dip two or three strips at a time in water and place vertically inside the socket. Continue this until there is a wall of a least ⅛". When the plaster has set, cut vertically along the lateral wall and remove the cast. This cast can then be wrapped to obtain a negative mold which can be filled to obtain the positive mold. A plastic socket can then be readily laminated.

SHOP NOTES (Continued)

Kenneth Kingsley advises that you ask your lady patients to buy high-heeled shoes with flat toes. Some ladies' high-heeled shoes are made with toes that are quite flat and others that have too much toe-up. For fitting to artificial feet, shoes with flat toes are the more desirable, as greater stability is obtained.

Don Strand writes us from Mexico about the procedures they are using at the Institute of Rehabilitation there: "We do not use wax build ups for humeral or forearm extensions. I have very good luck in pouring the extension with a rigid polyurethane foam, AA 402, an American Latex product. It is very fast and easily mixed. The resultant weight is negligible; it can be sanded, sawed, shaped quite easily prior to applying the stockinet.

"I have not used this material in split-socket fabrication, but feel that with some modification of technic, it could be adopted. It is a good filler on B.K. prosthesis prior to the finish laminate, and we use it for extensions in our plastic A.K. suction socket manufacture."

The Institute of Rehabilitation where Don is assigned, was the scene of the OALMA sessions in Mexico last October, sponsored by the American Orthotics and Prosthetics Association.

PORZELT OFFERS SHOES MADE TO ORDER

A service of interest to readers of the *Journal* is offered by Robert O. Porzelt of 3457 North Lincoln Ave., Chicago, Illinois. Mr. Porzelt specializes in shoe corrections and makes custom shoes when needed. He specializes in extreme and unusual cases—also does inside extensions, cork or leather extensions. Among AOPA members for whom he has done work are: the Indiana Brace Shop of Indianapolis, DeBender & Company of Chicago and Mr. Ralph Storrs of Kankakee, Illinois.

KARCHAK JOINS ORTHOPAEDIC SUPPLIES CO.

Andrew Karchak, Jr., has joined the staff of the *Orthopaedic Supplies Co., Inc.*, as Vice President in charge of engineering. The company, which is located at 9126 E. Firestone Boulevard, Downey, California, is a source of supply for artificial muscle equipment, hand splint kits and other appliances used in making up devices for the paralyzed or spastic extremity.

Mr. Karchak graduated from the University of California at Berkeley in June 1953 with a BS degree in mechanical engineering. He was formerly chief design engineer for the Don Nittinger Co. of San Francisco. At present Mr. Karchak divides his time between the orthotic research program at Rancho Los Amigos Hospital and the manufacturing activities of Orthopaedic Supplies Co., Inc.

GEO. SMITH TO REPRESENT HORN SURGICAL CO.

The *Horn Surgical Company* has named George Smith, well known Manufacturers Agent, as their representative in eleven Western States and El Paso, Texas. George Smith, a well known manufacturers' agent, has had over twenty-five years experience in the surgical belt and orthopedic appliance field, interrupted only by service in World War II at Fort Mason, California. Mr. Smith's office is located at 2641 Martinez Drive, Burlingame, California. He will welcome inquiries on "HORNSCO PRODUCTS" from all his dealer friends and AOPA members in the above territory.

THE FIRST REGIONAL MEETING

A Report to you by the President of the American Orthotics and Prosthetics Association

On Saturday and Sunday, March 5th and 6th, I attended Region XI's Meeting in Seattle, Washington. This was not only the First Regional Meeting in 1960 but also the first Regional Meeting to be held under the new name of our Association: The American Orthotics and Prosthetics Association (AOPA).

Region XI has another first to their credit: Its members are the first to adopt our new Regional By-Laws. These new By-Laws carry out the action taken by your Regional Directors at the Dallas Assembly when they adopted the report of the Committee on Regional organizations as presented by Ralph Storrs, Chairman. The significant feature of the By-Laws will be the fact that the Regional organizations become an official part of the National Association. Charters will be issued to each Region as soon as the By-Laws are adopted. Thereafter the elected Regional President will automatically be Regional Director and will officially become a member of the National Board of Directors. This eliminates the present system of electing the directors by mail ballot. In many areas it will also eliminate a situation caused when one man is elected Regional Director and yet another and different individual is selected for the President of the Region. Mr. Jackson or some other member of the National Office will explain the new By-Laws in detail at each Regional Meeting so there will be no misunderstanding.

Getting back to the Seattle Meeting I felt it was a well rounded program under the able supervision of William Brownfield, Regional Director. At the opening session I gave a report on the outstanding current activities of the Association. This was followed by Glenn Jackson's presentation of the Regional By-Laws and additional comments on what projects the National Office are working on.

John J. Bray of UCLA then gave an excellent lecture on "Lower Extremity Anatomy and Locomotion."

After lunch Colin McLaurin and Blair Hanger of Northwestern University presented a well-planned lecture demonstration and movie on "Special Prosthetic Appliances."

After the banquet Saturday evening I showed and narrated my motion pictures on the fitting of congenital deformities with plastic appliances. I was well pleased with the group's acceptance of this film.

On Sunday morning after a short Business Meeting, local members of Region XI presented interesting papers, talks and demonstrations. Robert Horne's paper on plastics was read, Eric Gustavson demonstrated the new Patty Bear below-knee prostheses, August Pruhsmeier discussed the Bock Knee, Len Ceder discussed and demonstrated Functional Arm Bracing of Upper Extremities and last but not least Jerry Leavy showed some handy new products and also colored slides of the new George Robinson Mechanical Hand. So you can see Region XI had a well balanced full program.

The new officers of Region XI, are as follows: President, August Pruhsmeier; Vice President, Russell Brain; Secretary, Mrs. August Pruhsmeier; Treasurer, Robert E. Lebold of Salem, Oregon.

Paul E. Leimkuehler

KNIT-RITE AND W. E. ISLE COMPANIES HONOR PERSONNEL

Left to right—Harry F. Jones, Mrs. Jones, Riley W. Vance, Mrs. Vance, Ted W. Smith, Mrs. Smith, Mrs. McCluskey, Haskell McCluskey.

The Knit-Rite Company and W. E. Isle Company honored four of their personnel at a dinner December 11. These four persons were each completing twenty-five years of service:

Harry F. Jones, Machine Shop Supervisor, who is responsible for the production of those good side joints for B/K limbs and other products.

Riley Vance, Kansas Representative of the Company.

Haskell McCluskey, C.P., Limb Shop Supervisor. Mr. McCluskey, a bilateral amputee, is renowned for his skill in fitting.

Ted W. Smith, partner in the company. This was a complete surprise to Ted, who completed twenty-five years service on January 15. He understood he was there just to introduce the head table.

ARE WE?— ARE YOU?— PROFESSIONAL?

An Editorial by the President of the American Board for Certification

By what standards are we to measure ourselves as members of the profession known as orthotists and prosthetists? And by the same token, by what standards do others see us or measure our behavior?

First in the matter of education and training: Some have criticized the lack of formal training courses. But others have complained that the educational requirements set forth by the American Board for Certification are too high. Yet we only require a high school diploma as a prerequisite, plus the equivalent of four years' practical experience in the field in order to be eligible to take the examination. In contrast, doctors of medicine first go through high school, then spend several years in college. After that they are required to spend several years in practice before attaining the degree of proficiency required in order to take the Board Examinations in the specialty fields of medicine.

But the mark of professionalism is not obtained by merely passing an examination. We are judged by our abilities to communicate with the doctor, to have an intelligent discussion with him, by our skill in fulfilling the prescription, by the manner in which we handle the amputee or brace wearer.

I will not attempt in this short column to try to enumerate the many, many ways in which we could uplift ourselves and thereby improve the professional aspect of our entire field. But I would like in this March 1960 issue to remind you that professionalism is somewhat like a smile in that if it is used often enough it becomes contagious. Courtesy and professional regard extended to our colleagues in this field can also become contagious. We all can learn from one another. Let me urge that we all study the good points of the competent prosthetists and orthotists. Make it your personal aim to do a better job. Take advantage of the educational opportunities offered you to broaden your scope. This will enable us to set even higher standards and thereby attain an even higher degree of professionalism.

Howard Thranhardt

CROSS COUNTRY REPORT

What's New in the Brace and Artificial Limb Field
Meetings - Suppliers - Certifees

NEW MEMBERS FOR AOPA

Vice President Quisenberry Announces Election of Members
In Indiana, Illinois, Mexico City, Oregon, New York and Oklahoma

"AOPA is growing and the enrollment of new members is a sign of its value to the limb and brace field." So said Vice President Fred Quisenberry in announcing the election to membership in AOPA of the firms listed below. Mr. Quisenberry is the new Chairman of the AOPA Membership Committee which consists of the eleven Regional Directors of AOPA and the Second Vice President of AOPA ex officio.

The *J. J. Hill Brace Company* of Gulfport, Mississippi was enrolled in AOPA as of January 20. This company is located at 2720 25th Avenue, Gulfport, Mississippi (Telephone: University 3-0381). Mr. J. J. Hill, the owner, reports that the firm was founded six years ago. It serves a growing clientele in the field of braces, surgical supplies and also handles canes, crutches and wheelchairs. The firm was initially recommended for membership in OALMA by J. M. Bonds of Nashville, Tennessee.

The second new member to be enrolled is the *Calumet Orthopedic Appliance Company* of Gary, Indiana. This firm is located at 2631 Wabash Avenue, Gary, Indiana (Telephone: Turner 2-9012). Walter A. Pawlowski, C.O., is President of this company, which was recommended for membership in AOPA by Vice President Ralph Storrs (Editor's Note: Vice President Storrs brought Mr. Pawlowski to AOPA Conference held in Chicago during the recent meeting of the Academy of Orthopaedic Surgeons. While attending the Academy I had the pleasure of meeting Dr. Acker, orthopedic surgeon of South Bend, who commented in very favorable terms on Mr. Pawlowski's skill and the ethical conduct of his appliance company.)

The third member of AOPA is a firm located in Mexico City, which qualifies as an Associate Member. *Dr. Rodolfo Martinez Herrejon of Servicios Prosteticos*, Monterrey 230, Mexico City, Mexico, operates both an artificial limb and a brace facility there. The establishment was originally founded by his father, and Dr. Martinez Herrejon smilingly said he was "practically born in a limb shop." Dr. Martinez Herrejon served as one of the Program Chairmen for 1959 Seminar held at Tlalcan, Mexico and sponsored jointly by OALMA-AOPA and the Mexican Rehabilitation Association. He was recommended for membership by President Leimkuehler and Past President Charles A. Hennessy.

The fourth new member is the *La Torre Orthopedic Laboratory* of Schenectady, New York, located at 55 North Brandywine Avenue. (Telephone: EXpress 3-3797). This facility was originally established in 1920 by Mr. Domenico La Torre, who continues active, although his son, Richard, serves now as head of the laboratory.

Richard La Torre, after serving in the Armed Forces, attended a branch of New York State University, majoring in Business Administration. He then entered the nine-month Orthotics training course offered by the Institute for Crippled and Disabled in New York City under the direction of Charles Goldstine. To gain additional experience he was associated for a three year

RICHARD LA TORRE

ROBERT E. LEBOLD

period with the Vogue Orthopedic Appliance Center in Sherman Oaks, California. After receiving his Certification as an Orthotist, Richard returned to Schenectady, where he and his father set about fulfilling their ambitions for a complete orthotic facility serving the Upstate New York Area. More adequate space in a favorable location and convenient parking facilities were obtained.

The Salem Orthopedic Company, 1728 Center Street, Salem, Oregon, is headed by Robert E. Lebold. (Telephone: EMpire 2351). Mr. Lebold studied at the Oregon Technical Institute, 1948-1949, then joined the staff of the Shriners Hospital in Portland, Oregon for on-the-job training in braces under the direction of Dr. Leo Lucas and Mr. Earl Tompkins. He opened his own company in the summer of 1950 and has been active ever since then with the exception of two years, 1955-1957, spent in the Army. During his military duty he was assigned to brace shops at Walter Reed Medical Center in Washington and at U. S. Army Hospital in Japan.

Braun Brace and Surgical Appliance Company, 618 Northwest 11th Street, Oklahoma City 3, Oklahoma (Telephone: CEntral 2-8220). Thomas M. Braun, C.O., is President. This is a Certified Facility and has been in operation for over thirty years in the field of braces and the supply of canes, crutches and wheelchairs. This firm was nominated for membership by Regional Director F. L. Lake.

Feiner Brothers, located at 381 Fourth Ave., New York 16, N. Y., has been elected to Associate Membership in AOPA. (Telephone: MUrray Hill 4-3878).

The firm, which has been in operation for fourteen years, is headed by Sidney H. Feiner and his brother Joseph. Their total years of experience as supplier to the limb and brace field is over sixty years.

Their company is a leading supplier of materials, elastics, webbing, buckles, as well as cotton and nylon stockinette, to the surgical, orthopedic and prosthetic industry, for the manufacture of surgical garments, orthopedic braces and artificial limbs.

Both brothers are active in calling on orthopedic and prosthetic appliance firms. They are also represented by Messrs. Lester E. Loos, Werner Gutkin, Bob Burkhalter, Everett Jenkins, Walter A. Noyes.

Region IV Invites–Announces Meeting April 29-30 Fishing Trip to be Important "Fringe Benefit"

Orthotists and Prosthetists in the area known as The Old Confederacy will meet in Pensacola, Florida, April 29-30 and May 1 for the annual spring session of Region IV, the American Orthotics and Prosthetics Association.

D. A. McKeever of Atlanta, Ga., is Regional Director and Mrs. Louise Gillespie of Pensacola, Florida, is Program Chairman for the meeting. They report these special features of the meeting:

A three-hour session on Anatomy and Locomotion (Lower Extremity), for the orthotist. Dr. Cameron B. Hall, noted orthopedic surgeon of Los Angeles and lecturer in orthopedic surgery at UCLA will come to Pensacola to give this class.

"Upper Extremity Harnessing"—a three-hour presentation incorporating the latest features presented in the Prosthetics Education Program at New York University.

A "get-together" Reception the evening of April 29. Mr. Terry Moore of the Florida Manufacturing Company is host for this occasion.

Opening event is a fishing trip in the Gulf of Mexico on the motor vessel "Gulf Tide." En route those aboard the boat will pass the U.S. Naval Air Station and Fort Pickens, site of the oldest village in the United States. Mr. Reid W. Goldsby of Mobile, Alabama, is in charge of arrangements for the fishing trip.

AOPA REGIONAL MEETING VIII MAY 14 AND 15

"Fantabulous!"—that's the word coined to describe Lake Murray Lodge. And Lake Murray Lodge is the scene of AOPA's Regional Meeting VIII next May 14 and 15. F. L. Lake, Regional President, has personally inspected the Lodge and reports it ideal for a Regional Meeting and for recreation too (bring the family, he suggests).

He and Regional Director Dave McGraw promise an excellent Technical Meeting to supplement the delights of fishing and boating. And the rates are a real bargain—ten dollars a day per person for room and three meals.

Where is it and how do you get there? Lake Murray is just south of Ardmore, Oklahoma, halfway between Oklahoma City and Dallas, two miles east of U. S. Highway 77. Easterners may want to fly to Oklahoma City, and then take local transportation.

TRIBUTE TO McDONALD

William M. McDonald, Certified Orthotist, is the subject of a feature article in the National Foundation News for June 1959. The article pays tribute and calls attention to his ability to calm young patients and give them help in these words:

"*First Smile of Hope*—A big man with a snowy fringe of hair, McDonald quickly charms new patients. The tense face of a little girl, watching with frightened attention as McDonald fits her leg braces, relaxes as he talks about other little girls who wear braces just like this one—little girls who can now walk and run again. The first tentative smile of hope appears as the big man helps the youngster take a first awkward step without crutches."

Mr. McDonald is head orthotist at the University of Oklahoma Medical Center in Oklahoma City.

PLANNING POPS MEETING

The Pennsylvania Orthopedic and Prosthetic Society will meet at the Lycoming Hotel in Williamsport, Pennsylvania, April 22, 23, 24. Discussing plans in the picture above are left to right: Louis and Nunzio Pulizzi with Ray L. Blackwell of Williamsport, and E. A. Warnick of Wilkes-Barre, who is President of the Society.

ERIC KLAHR HEADS NEW ENGLAND COUNCIL GROUP VOTES NEW NAME

The New England Regional Council took two important steps at its annual Business Session held February 29, at Cambridge, Massachusetts:

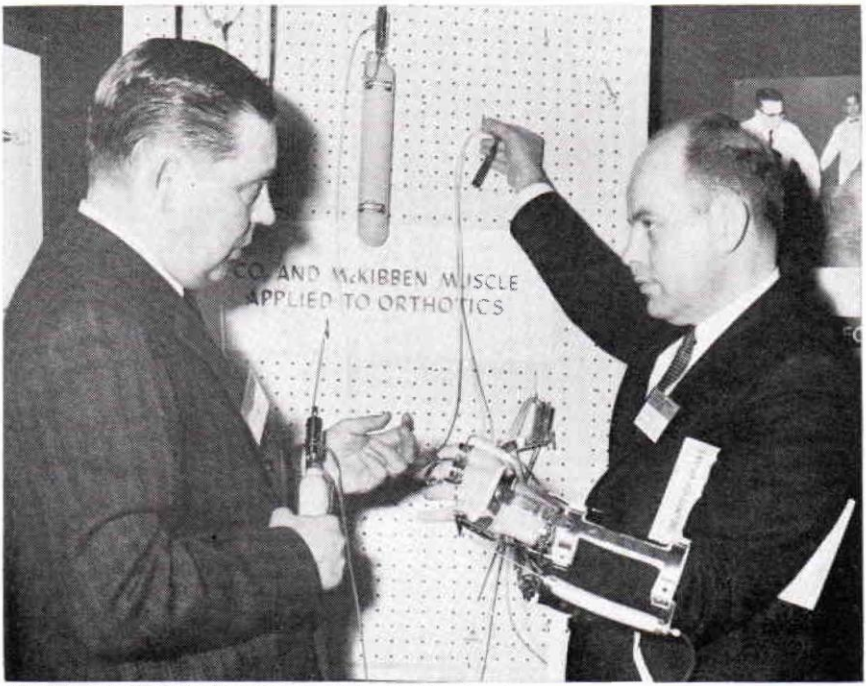
1. Its name was changed to the "New England Society of Orthotists and Prosthetists." This step was taken in part because of the recent change of the name of the national parent organization to "The American Orthotics and Prosthetics Association." The New England Regional Council under its new name would qualify as the official unit of the National Association for the six New England states.

2. The New England Society elected officers for the ensuing year, picking Eric Klahr, longtime associate of Karl Buschenfeldt, to be President. Herman Kraus of Boston, head of the Herman E. Kraus Company, was elected Vice President. H. Stuart Barker of the Liberty Mutual Rehabilitation Center is the new Secretary, and Joseph Martino, Treasurer (Mr. Martino is currently serving also as Regional Director for the New England States of the American Orthotics and Pristhetics Association). Howard Mooney of the Boston Artificial Limb Company was re-elected Public Relations Officer for the Society.

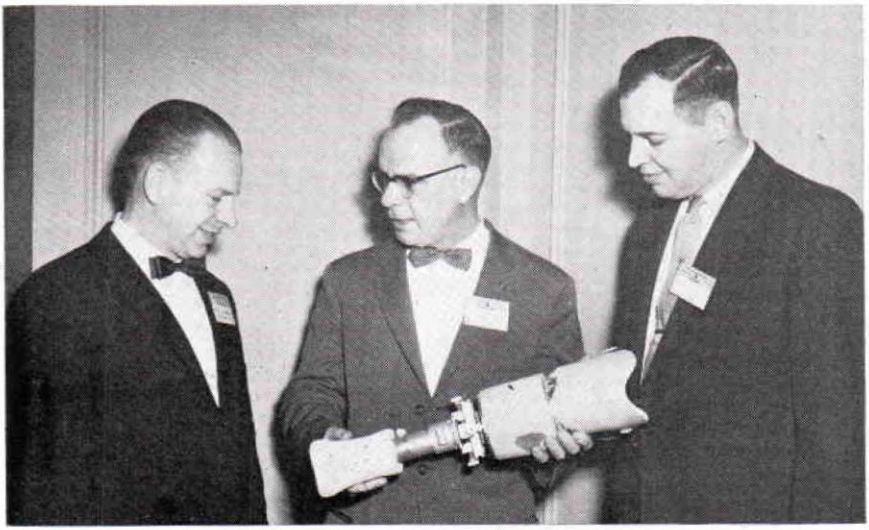
Certification and AOPA at the 1960 Meeting of the Academy of Orthopaedic Surgeons

Certification Board President Howard Thranhardt with Dr. W. W. Lowell of Atlanta, Georgia at the Certification Exhibit.

AT THE CERTIFICATION BOOTH IN CHICAGO—Left to right: George H. Lambert, Sr., Dr. Alfred B. Swanson of Grand Rapids and President Paul Leimkuehler. (Dr. Swanson, it will be remembered, was on the program of our National Assembly at Dallas last October).



AT THE CERTIFICATION BOOTH—Richard Bidwell of Milwaukee, explains the use of the artificial muscle to Dr. Basilius Varicznij of Springfield. In upper background of the picture may be seen a panel of photographs taken for the Academy Exhibit by Howard Mooney of Boston, Massachusetts.



AOPA Officers at the meeting—Left to right: AOPA President Paul Leimkuehler, Assembly Program Chairman Ted Smith and First Vice President Ralph Storrs. Mr. Smith is holding the new B/K Adjustable Leg, which served as one of the "props" at the Certification Display.

MILWAUKEE FIRM CELEBRATES FIFTY YEARS

"Ready for the Second Half Century"—The staff of the Orthopedic Appliance Company of Milwaukee, which recently celebrated its first fifty years. Left to right: Mrs. Mary Karsten; L. F. "Luddy" Karsten, President of the Company; Dr. Neil Patterson, Secretary; and Mrs. Jean Probst.

The Orthopedic Appliance Co., Inc. of 123 East Wells St., Milwaukee, celebrated its Fiftieth Anniversary this past year and is concentrating on plans for a bigger and better second fifty years.

The firm was founded in 1909 through a congenial partnership of an English craftsman and a German technician. Samuel Leeming, the Englishman, was a native of Manchester, England, where he had mastered the art of knitting. A. J. Visel, the German orthopedic technician, was born in Munich, Germany, and completed his apprenticeship in orthopedic appliances before coming to this country.

The two partners opened their establishment on North Water Street in Milwaukee in 1909, as soon as Mr. Leeming's knitting machine had arrived from England.

The company prospered and in 1924 moved to 147 Oneida Street. This street name has now been changed to 123 East Wells Street. The following year Mrs. Mary Karsten, who had learned her trade as an expert corsetiere in Kiel, Germany, joined the company. She later become Vice President upon the retirement of Mr. Leeming.

Mrs. Karsten became President of the company in 1948 when Adolph Visel retired. Her son, L. F. Karsten, who had joined the company two years previously, was made Vice President.

Mr. Karsten has been with the company since then. He is a graduate of the Upper Extremity UCLA Program and the Lower Extremity course at New York University, and is a Certified Prosthetist. His mother, Mrs. Karsten, took time out in 1958 for an eight months' visit to Europe, but is again with the company. Mr. Karsten is a veteran of World War II.

The corporation now has a staff of eight persons, with Ludwig Karsten serving as President and Treasurer, Mrs. Mary Karsten, Certified Orthotist and Dr. Neil Patterson, Secretary of the Corporation.

G. L. PERLEY NAMED MGR. OF CUSTOM BRACE AND APPLIANCE COMPANY

Geoffrey L. Perley, C.O., has been named the manager of the Custom Brace & Appliance Company of Washington, D. C. This Certified facility, located at 1113 19th St., N.W., is owned by K. B. Nelson of Pittsburgh.

Mr. Perley, though only 27 years old, began his career in orthotics at the age of 13. This was in the Capitol Orthopedic Shop in Washington, D. C., owned at that time by his mother and John Zetts. He can truthfully claim then that he has been working in orthotics most of his adult life. Mr. Perley took the examination in 1952 and was certified as a result. He was formerly in the Brace Department of the Kabot-Kaiser Foundation in San Francisco, California. Mrs. Perley is serving as receptionist in the facility.

THE TREATMENT OF FRACTURES

By LORENZ BOEHLER, M.D.
Director of the Accident Hospital of Vienna

Volume III translated from the Thirteenth German Edition by Alfred Wallner, M.D. and Otto Russe, M.D. Published at New York and London by Grune and Stratton, 1958. $21.00.

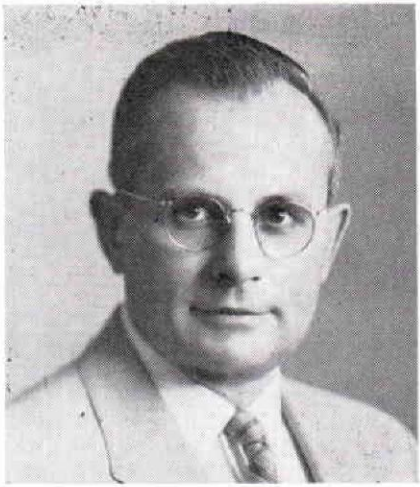
Reviewed by Altons Glaubitz, C.O. & P., Elizabethtown, Pennsylvania.

Volume III of "THE TREATMENT OF FRACTURES" by Lorenz Boehler can be considered a most detailed reference text for the Orthopedic Surgeon for fractures from the knee down including the foot. It is an excellent review of normal anatomy, and it is given concisely. The author tells generally just what is striven for to obtain a good result. With each entity the general period of immobilization followed by a description of appropriate after-care is given. This is of considerable import with regard to when walking is permitted, and when weight-bearing in any amount or total weight-bearing is desirable.

A very particular and interesting feature is the detailed check list given for each entity regarding the necessary steps to be taken to achieve a satisfactory result.

An excellent review is given of flat, clubfoot and clawfoot regarding the distorted anatomy, and the proper terminology to use. This volume is very well illustrated (1699 illustrations) including a copious number of photographs and x-rays. The text gives one of the most comprehensive presentations of treatment of fractures from the knee down, to be found anywhere. While it is strictly a reference for the Orthopedic Surgeon in his fracture work, the advanced Orthotist may benefit from the text in understanding what the Orthopedic Surgeon is striving for.

PERSONALS



FREDERIC J. KOTTKE, M.D.

Frederic J. Kottke is president of the American Congress of Physical Medicine and Rehabilitation for 1959-60. H is serving also as a member of the Executive Committee for the Third International Congress of Physical Medicine, which meets at the Mayflower Hotel, Washington, D. C., August 21-26, of this year.

ZETTS JOINS R & G STAFF

George Zetts, C.O., formerly manager of the Custom Brace and Appliance Co. of Washington, is now on the staff of R & G Orthopedic Appliances, a certified facility headed by Charles Ross, C.P. & O., in Washington, D. C.

KOLMAN MOVES TO WHITTIER

John L. Kolman, C.O. & P., is moving his company to Whittier, California as of March 1. The company now known as the M. H. Nanney Artificial Limb Company of Los Angeles, will be known as Kolman Prosthetics, and will be located at 210 West Penn St. in Whittier. The telephone number is Oxford 4-4354. Members are asked to change their Membership Rosters accordingly. Congratulations, John, and best wishes for your success in the new address.

PROSTHETIST RETIRES

Christian Schwerin, veteran prosthetist of Pittsburgh, Pennsylvania, has retired after forty years of service with J. E. Hanger, Inc. of Pittsburgh. In the picture above he is being congratulated by Herman P. Barghausen, C.P., head of the company. In the background will be noted a framed photograph of the late Louis H. Barghausen.

Mr. Schwerin, now 71 years of age, joined the Hanger organization in 1919 as a bracemaker. His real desire and interest, however, was in artificial limbs and, to quote Mr. Barghausen, "he applied himself and became an excellent prosthetist. He has a world of patience and is sincerely dedicated. Probably his greatest successes were in making the Symes and Knee-bearing Prostheses."

Mr. Barghausen adds that although retired, Mr. Schwerin is a frequent and welcome visitor to the facility.

Do We Have Your Correct Address? Help us to get your mail to you promptly. Report all changes of address to: AOPA, 919 18th St., N.W., Washington 6, D. C.

To the Ladies:
FROM AOPA's AUXILIARY

Mrs. Margaret Peters
President

Mrs. Gertrude Buschenfeldt
Vice President

Mrs. Pearl Leavy
Second Vice President

Mrs. Margaret Brownfield
Secretary

Mrs. Lorraine Scheck
Treasurer

Dear Reader:

It is only March and I am already getting excited and planning for our Convention in New York. I hope you are too.

Although we now live in Philadelphia, we are native New Yorkers and after all these years, whenever we visit New York, I am still thrilled and caught up in the magic that is New York's alone. I see something new on every visit. All one has to do is stand on any street in downtown Manhattan and the parade of people and characters passing by is a show in itself. Have you heard stories about New York that you thought were exaggerated? Believe every word. Only in New York could it happen!

Not everyone likes New York but I can assure you that everyone is fascinated and impressed. The versatility of the City has an appeal to everyone. Unfortunately, there will not be enough time to see everything (there never is), so my suggestion would be for each one of you to make a list of things you want to see and do. List them according to their importance to you—then you can start at the top and work your way down the list.

I would appreciate it if each one of you would send me a copy of your list, then maybe we will be able to evolve a plan. My address is: 1127 S. Broad St., Philadelphia 47, Pennsylvania.

A post-assembly trip to Bermuda is in the planning stage and since all this is taking place in early September, many of us can plan on making this a late, bang-up vacation trip—one that we have always promised ourselves but somehow have always put off.

Let me hear from you.

Sincerely,
MARGARET PETERS, President
1127 S. Broad St., Philadelphia 47, Pa.

THE YOUNG LADIES ON OUR COVER

We are indebted to Dr. John A. Powers of Charlotte for this note about the young ladies on the cover:

Neva Thompson and Deborah Ferrell were four years old Wednesday, September 23, 1959. The pictures were made on their mutual birthday party. These girls were born on the same day and are good friends. Their mothers were good friends even before their birth.

The little girls were sent to the Rehabilitation Hospital in Charlotte, North Carolina and evaluated there by the Prosthetic Clinic Team. Dr. John Powers, orthopedic surgeon of Charlotte, is Clinic Chief; John and Milton Hinnant are the Certified Prosthetists and the W. T. Hinnant Co. manufactured these prostheses.

The blonde is Deborah Ferrell. She had a below elbow prosthesis with flexible hinges and a No. 10X Wafer hook.

The brunette is Neva Thompson. She has a short BE and at the present time is fitted with a below elbow prosthesis with polycentric joints and a 10X Wafer hook.

These girls have been seen frequently by the Prosthetic Clinic and also at the Hinnant facility since the time of fitting of their prosthesis, and seem to have made good progress. They both use their prostheses every day.

TWO NOTEWORTHY GERMAN BOOKS

Comments by Carlton Fillauer and Hans Lehneis

"Kyphosis in the Adolescent"

By: Dr. Eduard Guntz. Printed in German at Stuttgart by the Hippokrates Publishing House, 1957. (Review by Carlton Fillauer and Hans Lehneis.) 148 pages, 98 pictures, and 237 illustrations.

In Volume 11 of "The Spine in Research and Practical Application" edited by Prof-Dr. Junghanns, the author describes the Kyphosis, (abnormal posterior convex bend in the spine), which occurs in the adolescent, although it is not recognized until maturity. Many backaches are caused by changes in the spine which have already existed during childhood. The author is of the opinion that early recognition is the only possibility in preventing further deformity. Preventive measures have to be taken to avoid this. Many congenital deformities of the spine are recognized as Kyphosis, and caused by either underdevelopment of the vertebrae, or the abnormal fusion of several vertebrae. Kyphosis caused by bone illnesses show that the skeleton is statically weaker than a normally developed bone.

Besides the Kyphosis caused by defects of the ligaments, the author describes Kyphosis caused by inefficient muscle powers which can be accompanied by infection—injury, etc. The author also explains changes in the spine during puberty. In a separate chapter, the author questions whether daily living influences the development of Kyphosis, besides illness. He then describes the symptoms of the adolescent Kyphosis which causes considerable change, and which gets progressively worse with age. Kyphosis is a posture change, and is followed, in almost every case, by a deformity of the skeleton. Therefore, a cure by means of therapy is impossible. A treatment in this manner is only indicated to prevent development of further deformity of Kyphosis. Generally, the patient goes to the doctor only after back pains in his older years. Therefore, the author distinguishes first, preventive measures; secondly, the treatment of the developing deformity; and, thirdly, the treatment of the developed Kyphosis.

In a separate part, the author describes certain aspects to be considered in fitting the patient with a brace, or corset, so that the proper appliance will be used.

> 'Each patient needs a special design which necessitates a close cooperation between the orthopedist and the orthotist to fit the right appliance. The Orthopedic Craft is not a simple craft—it is an art, which, as therapy, has to consider the static relationship.'

This book is not only of significance to the doctor, but also to the Orthopedic Craft. The clear, and understandable pen of the author informs the reader and answers questions which are brought up in the text, and make it easier for the orthotist to use his technical knowledge in each case.

The Spine in Research and Practical Application

By Dr. Freimut Biederman

Published as Lecture Volume No. 11, edited by Dr. Herbert Junghanns. (With an English Brochure by Hippokrates Publishing House, Stuttgart.)

The multiple questions in the field of illnesses and treatment of the spine are being discussed in "medical world literature," etc., in the journals of the many different specialized fields. A periodic review and summary of the world literature in this field is the purpose of these lecture volumes. They should be welcomed by the prac-

titioner, the researcher, and the Orthopedic Craft. They are an important addition for scientific examination of individual cases, and permit the reader the correct orientation, which, in time, will be more complete. They also give a thorough review of all related international literature.

There are two new features designed for modern methods, as the Decimal Classification, which allows the subscriber of the lecture volumes to file the journals according to the material discussed. The second feature is a summary of the authors which can also be used for filing—according to the author's name. These lecture volumes will certainly be welcomed by everybody who works with the spine, either in research or practical application, because of their conciseness in meaning.

REHABILITATION IN INDUSTRY
Edited by Donald A. Covalt, M.D.

Published by Grune & Stratton, New York and London, 1958. 154 pgs., illus. $6.00

This book deals primarily with the rehabilitation of workers. It emphasizes the need for early referral of injured workmen for rehabilitation and for a greater concern on the part of physicians to see that every patient who requires rehabilitation receives it. It consists of eleven chapters by various authors, most of whom are very well known to readers of the *Journal* and to members of The American Orthotics and Prosthetics Association. Dr. Covalt, the editor, contributes a chapter on "Management of Patients with Spinal Cord Injuries."

Other chapters of special interest include one on "Amputations" by Dr. Allen S. Russek, one on "Soft Tissue Injuries" by Dr. Samuel S. Sverdlik, and one on "The Vocational Placement of Disabled Workers" by Dr. Martin E. McCavitt.

CONSTRUCTION OF THE PLASTIC SYMES APPLIANCE

Published August 1959, at Toronto, Ontario by the Prosthetics Services Centre, Dept. of Veterans Affairs, Dominion of Canada, as "Technical Bulletin No. 32." Sixteen mimeographed pages, including drawings.

Reviewed by A. Bennett Wilson, Jr., AOPA Headquarters Staff.

For many years surgeons in Canada have felt that the Syme Amputation, when properly performed, resulted in a stump more useful than those at higher levels. With the introduction of plastic laminates, engineers at the Prosthetic Services Centre, Department of Veterans Affairs, Toronto, began an experimental program in the development of a prosthesis for the Syme amputation that would overcome the disadvantages of the old type—bulkiness, discomfort, and frequent breakdown.

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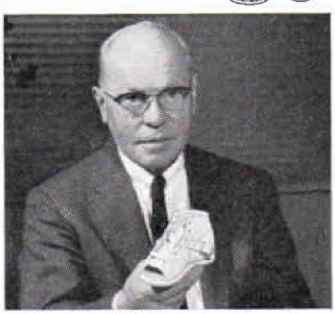

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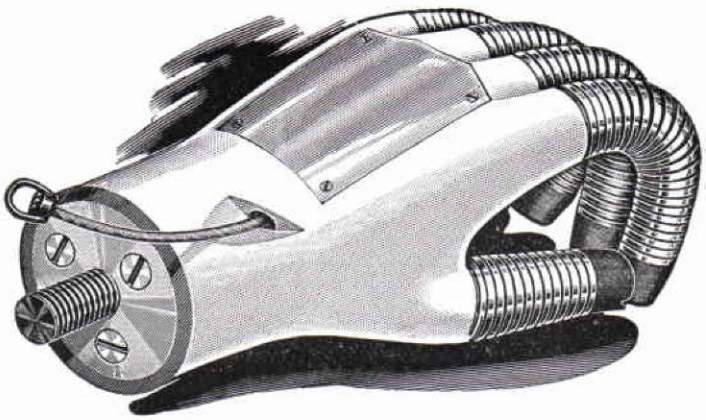

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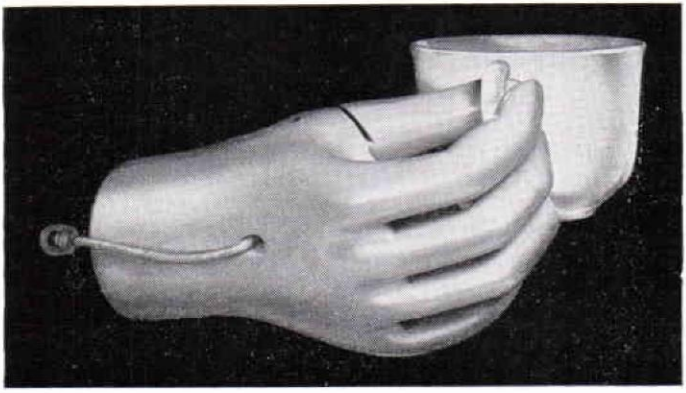

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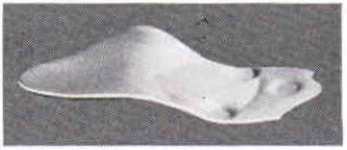

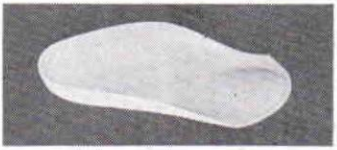

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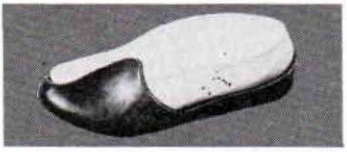

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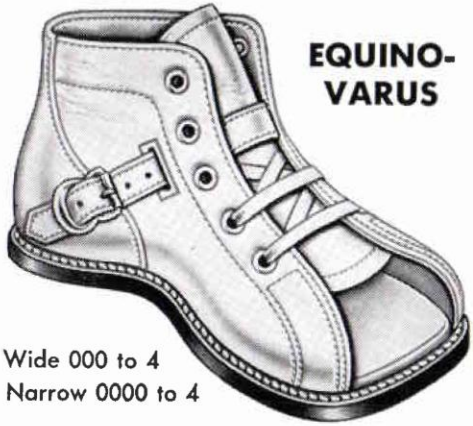

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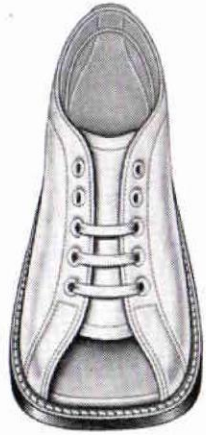

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