DECEMBER, 1953

The journal of the Limb and Brace profession

Orthopedic and Prosthetic Appliance Journal

A Summary of 1953

UCLA Prosthetics School

Assembly Report

published jointly by
Orthopedic Appliance & Limb Mfrs. Association
American Board for Certification

DATES TO REMEMBER — 1954

What • When • Where

FEBRUARY

23	UCLA PROSTHETICS SCHOOL — 9th Section Opens (Concludes April 2, 1954)	*Los Angeles, Calif.*

MARCH

12-13	REGION IV, OALMA CONFERENCE — Held at Duke University Hospital	*Durham, N. C.*

APRIL

5-10	SUCTION SOCKET SCHOOL	*San Francisco, Calif.*
19-24	SUCTION SOCKET SCHOOL	*Minneapolis, Minn.*
30	MOALMA TWO DAY ASSEMBLY OPENS	*New York City Roosevelt Hotel*

MAY

1	MOALMA ASSEMBLY — Closing Day	*New York City*
3-8	SUCTION SOCKET SCHOOL	*New York City*

NEW YORK INVITES YOU

New York City will again play host to the orthotist and prosthetist in 1954 when the Metropolitan Council of OALMA stages its Medical and Technical Assembly.

This annual event is growing in popularity from year to year and attracts considerable attendance from other parts of the country.

The 1954 sessions are scheduled for the Roosevelt Hotel April 30 and May 1st, according to word from John McCann and Herbert Hanger, who are co-chairmen. Assisting them on the Committee are A. A. Margoe, William Spiro and Leo Waller.

Remember the dates — April 30 and May 1. The Committee says you are about due a New York City visit and those are the *two* days for it!

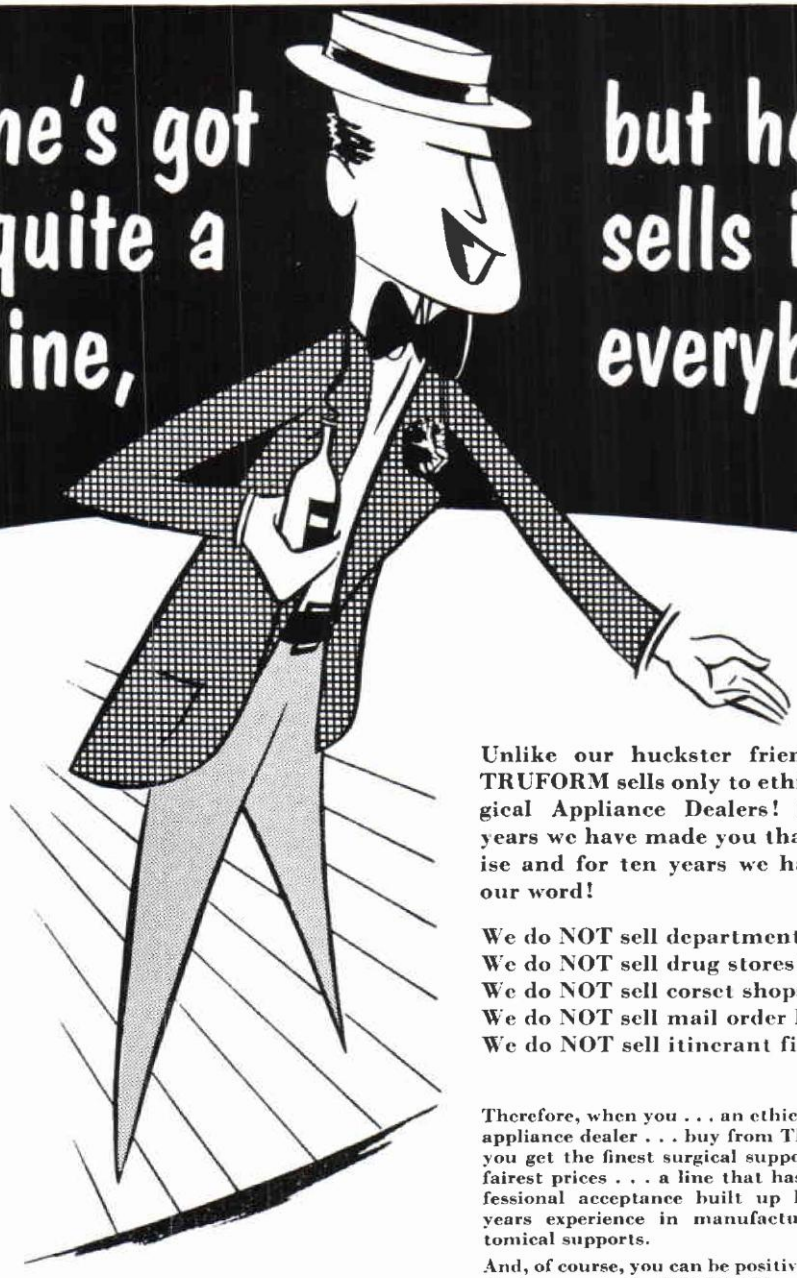
DIXIE SAYS "COME ON!"

You need a Southern trip, says Region IV of OALMA, and the dates are March 12 and 13. The place is Durham, North Carolina. The man to write to is: Bert Titus, Manager, Duke University Hospital Brace Shop, Durham, North Carolina.

This will be the seventh annual conference held by Region IV (last year it was held at Warm Springs, Georgia). Many members of OALMA throughout the East and Middle West plan on combining a visit to it with a Southern vacation. Bert Titus has had them in mind in building a program with men of the highest caliber.

The printed program will carry full details along with advertising from supply firms throughout the country. Norman Rickard of Bremer Brace Mfg. Co. is in charge of this advertising. Write him at 1107 Margaret St., Jacksonville, Fla.

he's got quite a line, but he sells it to everybody.



Unlike our huckster friend here, TRUFORM sells only to ethical Surgical Appliance Dealers! For ten years we have made you that promise and for ten years we have kept our word!

We do NOT sell department stores!
We do NOT sell drug stores!
We do NOT sell corset shops!
We do NOT sell mail order houses!
We do NOT sell itinerant fitters!

Therefore, when you . . . an ethical surgical appliance dealer . . . buy from TRUFORM, you get the finest surgical supports at the fairest prices . . . a line that has had professional acceptance built up by our 50 years experience in manufacturing anatomical supports.

And, of course, you can be positively certain that no one in the TRUFORM organization will ever undermine your business by selling the department store or the drug store or the corset shop down the street.

Let us make this clear:

WE SELL ONLY TO ETHICAL SURGICAL APPLIANCE DEALERS

So, when any anatomical support representative calls on you, ask him, "What type of outlets do you solicit?"

Ethically yours,

TRUFORM ***anatomical supports***

3960 Rosslyn Drive, Cincinnati 9, Ohio

THE ORTHOPEDIC AND PROSTHETIC APPLIANCE JOURNAL

(Founded in 1946 as The Journal of OALMA)

VOLUME 7 DECEMBER, 1953 NUMBER 4

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GLENN E. JACKSON, Executive Director.

LESTER A. SMITH, Editor.

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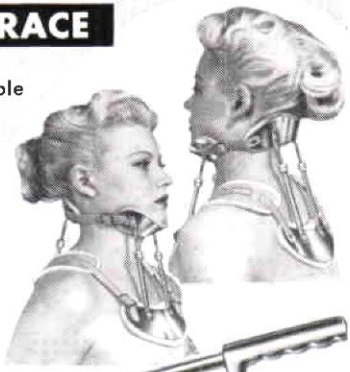
SUBSCRIPTIONS

The Journal is sent to all certified fitters and to members of the Association. A special subscription rate of $4.00 a year is available to (1) Physicians (2) Fitters who are not certified (3) Societies and Government Agencies, and (4) Persons and firms which are not eligible for membership in the Association.

Reprints of articles in this issue will be available at reasonable cost.

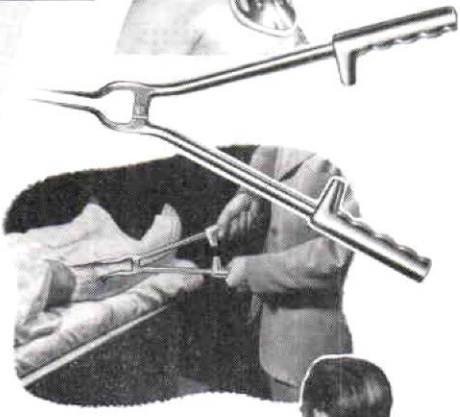
NEW CERVICAL NECK BRACE

Polished aluminum—well padded—four adjustable turnbuckle posts maintain position and traction desired—two lock nuts assure positive locking position. Sizes: small, medium and large.



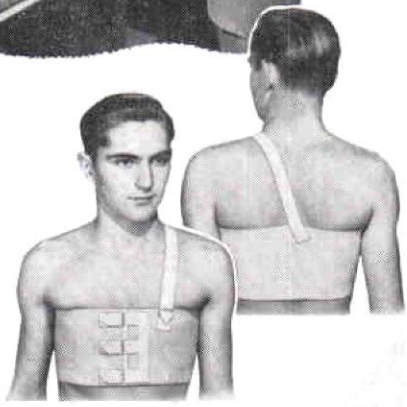
NEW CAST SPREADER

Manufactured from high grade steel forging finished in copper nickel chrome with buffed aluminum handles. Length: 18" overall. Designed for maximum leverage, greatly facilitates cast removal.



NEW RIB BELT

All elastic—6" wide, one soft webbing shoulder strap, 3 adjustable straps with safety buckles for front closing and adjustments. Male type sizes 26" to 48" (chest measure). Female type 26" to 46".



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Director Jackson Plans National Tour OALMA and Certification Plans To Be Discussed

Dates have now been fixed for the field trip which will take Director Glenn Jackson of the Washington Office to the South and West Coast this spring.

The trip has been arranged at the request of national officers to allow opportunity for Regional conferences "within the family" on these important questions: (1)) What are the new plans for the Certification Program?; (2) What are the economic factors of concern to the limb and brace field — and how is this affected by the National Economic Prospect?; (3) What's going on in Rehabilitation — and "how do we fit in the picture"?

Going first to Durham, North Carolina for the important Southeastern Meeting which Bert Titus is arranging at Duke University Hospital, Mr. Jackson then will go to Oklahoma City for the conference of Region VIII.

The week of March 27 finds our traveler in Los Angeles for several meetings including regular conference of Region IX.

In San Francisco, Mr. Jackson will speak at the meeting of Region X and will be one of a group of officers taking part in the Suction Socket School which opens there April 5.

On the way back to Washington, meetings are scheduled at Portland, Oregon, in Minneapolis and in Chicago. The meeting in Minneapolis will immediately preceed the Suction Socket School scheduled for April 19-24. In Chicago, he will take part in conferences leading to the founding of a Chicago Council similar to the Metropolitan OALMA of New York City.

This transcontinental tour follows the precedent of a similar trip taken in 1947 which preceded and largely influenced OALMA's period of greatest growth and the founding of the Certification movement.

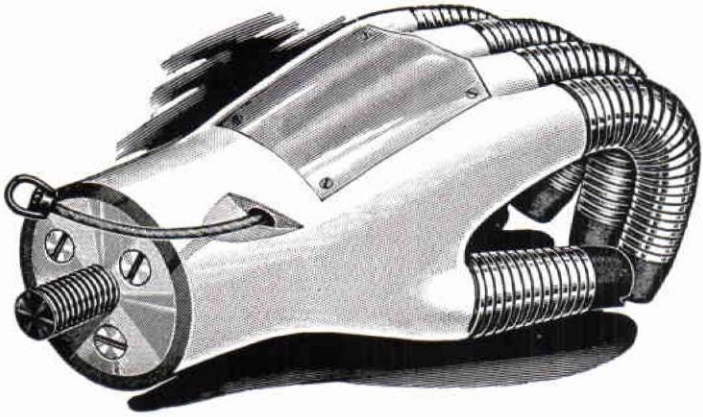
NRA MEETS AT MIAMI BEACH

Howard R. Thranhardt, member of OALMA's Technical Committee, was our official delegate to the Conference of the National Rehabilitation Association at Miami Beach, Florida, October 25 to 29. E. B. Whitten, Executive Director of NRA, personally welcomed Howard as representative of OALMA and the American Board for Certification.

The program stressed the importance of rehabilitation from the standpoint of national welfare. This was highlighted by this comment of Mrs. Oveta Culp Hobby, Secretary of the Department of Health, Education and Welfare in President Eisenhower's cabinet: *The average cost of rehabilitating one person (around $600) is equal to or less than the cost of keeping him on welfare for one year.*

The annual award for outstanding service in Rehabilitation work went to Claude M. Andrews, Director of the Florida Division of Vocational Rehabilitation. This award is a source of pride to Mr. Andrews' many OALMA friends, who have seen the results of his meritorious service during the years.

SEE THE NEW LOCKGRIP HANDS



WITH improved finger lineup, enabling the thumb to grasp between 1st and 2nd fingers.

WITH naturally shaped and molded rubber finger tips.

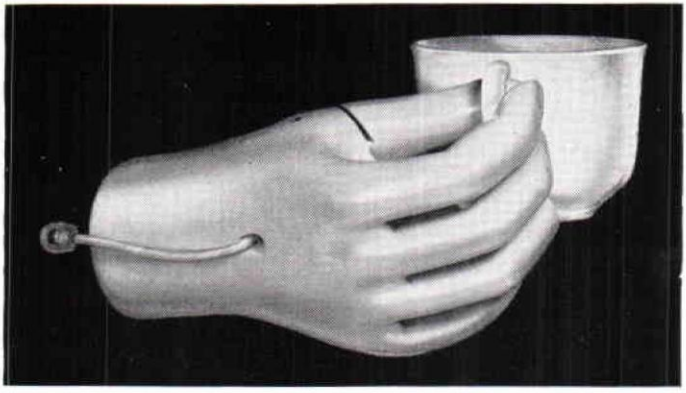
WITH Finer gauged and stronger flat finger spring wire, adding to the jointed fingers flexibility.

NEW Realistic cosmetic gloves exceedingly lifelike in sizes 7½—8—8½.

A lighter, stronger and the most useful of all mechanical hands, in sizes from 6 to 10, all wrist styles.

ALSO THE LAMINATED WOOD HAND WITH FIBRE CORED FINGERS **PLYLITE**

LOCKING



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To You—from our Presidents

OALMA

Lee J. Fawver

I am extremely grateful for the privilege of serving as your president for a second year. I shall honor the trust you have placed in me by giving my utmost to promote better things for our Association. With your help and cooperation, I am sure we can have a good year.

Many committees will be appointed for the coming year to speed our efforts for better things. To make OALMA function well, we need your help. If you wish to serve on any one committee, please make your wishes known.

Regional meetings for the coming year are now being planned. Don't pass up the opportunity of attending the meeting in your area — it is your opportunity to get some light on our intra-industry problems.

I'm looking forward to our 1954 Assembly at the Chalfonte-Haddon Hall on the boardwalk in Atlantic City, New Jersey with keen anticipation. This year's meeting at the Drake Hotel in Chicago was certainly one of our most successful. Speaking with several persons who were attending their first Assembly, it was gratifying to hear the fine comments they made. Its success should inspire the 1954 Program committee as they plan a program to meet the needs of today and the opportunities of the future.

Lee J. Fawver

AMERICAN BOARD FOR CERTIFICATION

D. A. McKeever

I am grateful for the opportunity to serve another year as your President.

We expect this year to see a strengthening of our movement as the Certification program becomes more important throughout the nation.

Each year we endeavor to increase the scope and the difficulty of our requirements to insure a growing knowledge and stature on the part of the certified orthotist and prosthetist.

Already a special "task force" is reworking our examination procedure. Stricter preliminary requirements are being established as well as an intensified examination itself. Another group has been studying facilities. We hope this year to firm up our requirements and our checking.

We have been enthusiastic over the growing complete reception of the Board's program by the medical profession. Last year's Registry went to 10,000 different people.

If you know of any firm that is not now certified or if you know of any individual who is interested in taking the examination for Certification, urge them to write our National office at once for the necessary papers.

And so as the New Year begins, I speak for your entire Board in saying to you that we look back with pride on much accomplishment this past year and look forward to continued improvement and acceptance.

Dan McKeever

NEW OALMA DIRECTORS TAKE OFFICE

McCann, Muilenburg and Gustavson Elected

From New Jersey, Texas and the State of Washington, come three new members to add strength to OALMA's Board of Directors, as a result of the balloting in September. Each of these new Directors brings to OALMA's governing body a broad experience in limb and brace work and in OALMA's regional activities.

JOHN A. MCCANN of Burlington, New Jersey, succeeds David Stolpe as Director of Region II covering New York and New Jersey. He is the Head of the John J. McCann Company of Burlington, New Jersey, one of the pioneer supply houses for the prosthetic profession in the country. Long active in OALMA, Mr. McCann is also serving as Vice President of the Metropolitan Association of New York City.

A. L. MUILENBURG of Houston, Texas comes to the Board after a highly successful term as Chairman of the Regional Council. He succeeds Mr. D. E. Hedgecock of Dallas. This Region includes Texas, Oklahoma and Western Louisiana (VIII).

C. E. GUSTAVSON of Seattle succeeds O. A. Bergeson of Portland as the representative of Region XI (States of Washington, Oregon, Idaho and Montana). Mr. Gustavson, a partner in the firm of A. Lundberg Co., served an earlier term as this Region's representative so that he is well acquainted with OALMA program.

Eight members of the Board were re-elected for the year 1953-54:

WILLIAM J. FERRIS of Boston — Region I (New England states).

E. A. WARNICK of Wilkes-Barre — Region III (Pennsylvania, Delaware, Maryland, District of Columbia and Virginia).

WILMORE BREMER of Jacksonville —Region IV (North Carolina, South Carolina, Tennessee, Kentucky, Mississippi, Alabama, Georgia and Florida).

PAUL E. LEIMKUEHLER of Cleveland — Region V (West Virginia, Ohio and Michigan).

MCCARTHY HANGER, JR. of St. Louis — Region VI (Eastern Missouri, Illinois, Indiana and Wisconsin).

LUCIUS TRAUTMAN of Minneapolis — Region VII (Minnesota, North Dakota, South Dakota, Wyoming, Western Missouri, Nebraska, Iowa, Kansas and Colorado).

HARVEY G. LANHAM of Los Angeles — Region IX (Southern California and Arizona).

HERBERT J. HART of Oakland — Region X (Northern California, Nevada, and Utah).

"What's New(s)"

• THE INDIANA BRACE SHOP was the subject of a feature article in the *Indianapolis News*, which praised the youthful drive and ambition of its managers, M. E. Miller and T. M. Davidson. Davidson was formerly supervisor of the brace shop at Riley Hospital. Miller had worked with his brother, Lyman J. Miller at McKinney, Texas.

• EDWARD HITCHCOCK of the Boston Artificial Limb Co. is the proud father of a second child, a girl, who has been named Sandra May.

• TRUFORM ANATOMICAL SUPPORTS Catalogue #14 is now off the press, and will be sent upon request to anyone not on the regular mailing list. The new catalogue is also available in Kalamazoo-style punching to fit that type of binder. Requests should be sent to Russell E. Johnson, Truform Anatomical Supports, 3960 Rosslyn Drive, Cincinnati 9, Ohio.

NATIONAL ASSEMBLY MEETS

Limb and Brace Profession in Annual Session

The Drake Hotel in Chicago was the *Orthopedic and Prosthetic Capital* of the Country for five days last September, as management men and skilled technicians worked and studied together and met for the five day session of the 1953 National Assembly.

For the benefit of those who couldn't attend this meeting of the Limb and Brace Profession, your reporter records here these highlights:

A banner year for the Limb and Brace Profession was reported by OALMA President Lee Fawver. In his report to the members at the opening session, he emphasized these services among the many which have brought new strength and a growing membership: 1. The careful planning and "follow-through" of the Washington Office; 2. Effective work of committees and staff in research, education, government and other fields; 3. The benefits of the Group Insurance Program; featuring protection for members and low group rates; 4. Influence of the "Orthopedic and Prosthetic Appliance Journal" as a means of communication among members of the profession; 5. The work of the regional directors and regional councils, giving strength at the "grassroots".

Training Seminars

The National Assembly took on that "university look" its first two days as crowded seminars studied the latest developments in these fields: *Casts and Measurements for Cosmetic Appliances,* C. O. Anderson and Milton Tenenbaum, instructors; *Plastics: History—Terminology—Fabrication,* Carlton E. Fillauer and Dr. Fred Leonard, instructors; *Corrective or Functional Bracing,* W. Frank Harmon and Horace Maddox, instructors; *Training the Upper Extremity Amputee,* Jerry Leavy and Leonard Madison, instructors.

In Memoriam Session

In a beautiful and moving ceremony, the Assembly paid tribute to those members of the limb and brace profession "who had departed this life" since the 1952 meeting. As Director Glenn Jackson called each name on the roll of the deceased, Mrs. Mary Dorsch, representing the membership, placed a rose of remembrance on the altar.

A Forum for Management

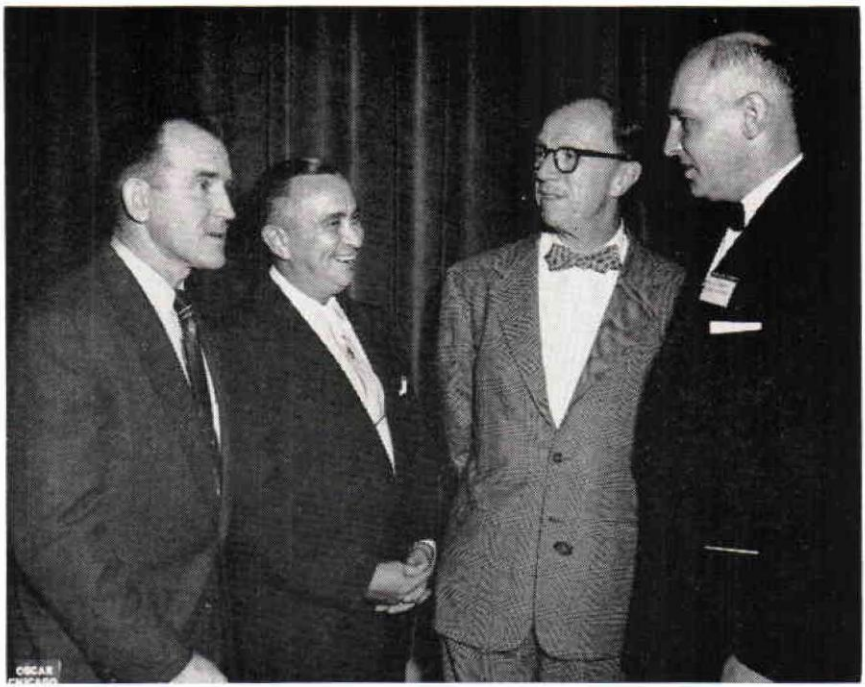
The complex problems of modern day management received a thorough going over in meetings which stressed discussion from the floor. Lucius Trautman as the man with the problems, starred in a "Dr. Anthony" skit. OALMA members showed themselves "quick on the trigger" in pinpointing solutions to the troublesome situations in which Lu found himself.

The professional and public relations of the limb and brace shop were discussed by Joseph Spievak, Dr. Charles O. Bechtol, Lester Smith and Dr. Sidney Fishman.

Technical Services

Clinics and demonstrations on such topics as *Bracing of Low Back Conditions* and *Upper Extremity Prosthetics* pointed up the unique nature of this meeting, so different from the average convention.

Herbert Hart was panel director for the session on Bracing of Low Back Conditions. Joining him in this presentation were: M. J. Benjamin, Erich



OALMA LEADERS GREET COMMISSIONER MASON AT ASSEMBLY BANQUET. Left to right: Wilmore Bremer, M. P. Cestaro, Lowell B. Mason, member of the Federal Trade Commission, and OALMA President Lee J. Fawver.

Hanicke, Theodore W. Smith, and Bert R. Titus. The great advance in the handling of arm amputee cases was featured in a demonstration clinic with Dr. Clinton L. Compere as Chief of the Clinic Team. Howard Thranhardt, Program Chairman for the entire Assembly, was also Chairman of this demonstration. Appearing with him on this program were: General F. S. Strong, Jr., Dr. Miles Anderson, and Dr. Sidney Fishman.

Fawver Ee-elected President

In line with OALMA's tradition, the report on nominations for officers made the opening day, came up for action at the final business session. President Lee J. Fawver was unanimously re-elected. Serving with him during the coming year will be this fine cast of officers also re-elected: First Vice President, McCarthy Hanger, Jr.; Second Vice President, W. Frank Harmon and Secretary-Treasurer, M. P. Cestaro.

Looking Ahead

Glenn Jackson, Executive Director of OALMA, in his annual report, described, "The Way Things Look From the National Office". Pointing out objectives for the future he stressed five points:

1. *Better Trained Personnel* — We have made progress in refresher courses for experienced fitters but we do not yet have a dependable source of adequately trained replacements.

2. *Improved Appliances and Fitting Techniques* — Of even greater importance than the new appliance is the improvement of skill of the orthotist and prosthetist who is so important a part of the rehabilitation team.

3. *Stronger Facilities* — Adequately financed with an appropriate place of business.

4. *Government-Industry Relations* —OALMA has been elevated to a

place of respect and confidence in its dealings with the government, but the relative roles of government and our members in serving the veteran and the handicapped are still in a stage of development.

5. *Our arrival on the Professional Stage* — We need to continue our great strides in better good will, reputation, standing among agencies and with the medical profession and the public.

Assembly Banquet

The satisfaction and genuine pleasure of a highly successful Assembly reached its peak at the Banquet and at the President's Reception for new members and guests, which preceded it Wednesday evening. The featured speaker, the Hon. Lowell B. Mason of the Federal Trade Commission, had his audience with him from his first words as he outlined our opportunities and our responsibilities under the American System. Life Membership Awards were presented to Past Presidents Joseph Spievak and Clyde Anger in a joint ceremony recalling their long years of fellowship in OALMA. An engrossed Past President's Citation was awarded Lucius Trautman for his service as OALMA's Head in 1951 and 1952.

The Verdict

When adjournment came Thursday, there was a feeling of general satisfaction over the program Howard Thanhardt had worked out and a unanimous vote for a reunion in Atlantic City next September when the 1954 National Assembly convenes.

Certification Leaders Plan For Future

Assembly Meeting Celebrates Five Years of Growth

Five years of growth were celebrated at the annual meeting of the American Board for Certification held in Chicago last September at the National Assembly. In that period, the new Certification Movement has seen the number of certified prosthetists and orthotists pass the 1,000 mark. Its symbol has become the recognized mark of Merit for orthopedic and prosthetic facilities.

However, the delegates in attendance, under the leadership of President D. A. McKeever, were primarily interested in developing Certification. When they spoke of past achievments, it was as the *foundation* on which to build an even stronger movement.

General Paul R. Hawley, Director of the American College of Surgeons, set the pace for this long-range view in his luncheon address on "We have our Certification Vehicle — let's keep it rolling". He drew many parallels between the hard-won battle for higher standards in hospitals and the first stages of Certification.

In the annual business meeting that followed the luncheon, two new members were elected to the Board, Karl W. Buschenfeldt of Stoughton, Massachusetts, and Dr. Robert Mazet of Los Angeles. These filled the vacancy caused by the death of the late Walter R. Sievers and the retirement from the Board of Dr. Charles O. Bechtol. A special award for distinguished service was presented Dr. Bechtol who is continuing in the Certification movement as a member of the Committee on Facilities.

Mr. Buschenfeldt, owner of Buschenfeldt Orthopedic Appliances of Boston and Stoughton, received his early education and training in Germany. Since 1928 he has been a prominent figure in the brace field in New England and for a quarter of a century

was head of the Othopedic Facilities at the Massachusetts General Hospital. Last year he was elected a member of the Advisory Council to the Certification Board,

Dr. Mazet, whose name was placed in nomination by the Academy of Orthopaedic Surgeons, is a graduate of Brown University and Columbia University. He received his orthopedic training at the Ruptured and Crippled Hospital, New York City, and served five and a half years in the Navy, leaving the service with the rank of Captain. At present he is Chief of the Orthopedic Service at the U. S. Veterans Hospital, Los Angeles and Clinical Professor of Surgery at the University of California. He is a Fellow of the American College of Surgeons.

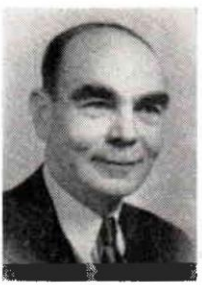
Members of the National Advisory Council, took an active part in the meeting. In a formal roll-call, President McKeever introduced those members present and commented on the value to the Board of their experience and training.

Chester C. Haddan, consultant to the Board, and Executive Director Glenn Jackson, met with the members of the Council for a discussion of the steps ahead in the growth of Certification. Emphasis centered on what the Council member could do in his district to assist the Board.

McKeever Re-elected

The Board re-elected D. A. McKeever of Atlanta as president and Dr. Clinton L. Compere of Chicago as Vice-President. In accepting another term of office, Mr. McKeever thanked the fellow members for their past support, and paid tribute to the late Walter R. Sievers for his service as secretary-treasurer. M. P. Cestaro of Washington, D. C. was appointed Acting Treasurer for 1954. Mr. Cestaro had functioned during the past year as Assistant Treasurer whenever Mr. Sievers was not available.

The Directors of the Board devoted many hours to issues arising from the unprecedented growth of the Certification Movement. They were assisted in their deliberations by Hammond Chaffetz, of Kirkland, Fleming, Ellis, Miller, counsel to the Board.



NEW BOARD MEMBERS: Karl W. Buschenfeldt and Dr. Robert Mazet.

To strengthen its administrative setup, the Board established four committees:

(1) *Committee on Facilities.* All applications for certifying facilities will be referred to this committee. Thus the facility applying for certification will have its report of equipment, personnel and service reviewed by a committee of experts before final action is taken. Personnel: Karl Buschenfeldt, Chairman, Boston; Dr. Charles O. Bechtol, Oakland; David E. Stolpe, New York.

(2) *Committee on Eligibility of Fitters.* This Committee will set up procedures for passing upon eligibility of fitter applicants. It will take as much time as needed, to check references, statements of education and experience; and facts as to integrity and character. Personnel: M. J. Benjamin, Chairman, Los Angeles; Dr. T. Campbell Thompson, New York; Chester C. Haddan, Denver.

(3) *Examinations Committee.* It will extend the scope of the test questions. The object will be to obtain an adequate picture of the person's knowledge and experience; to determine whether he is truly a qualified person or one who has done last min-

CERTIFICATION BOARD IN SESSION. Left to right: Seated: Chester C. Haddan, Consultant; Clinton L. Compere, M.D., Vice-president; President D. A. McKeever and Director Jackson. Standing: Acting Treasurer M. P. Cestaro; Assistant Director Lester Smith; Charles O. Bechtol, M.D.; Lucius Trautman, M. J. Benjamin; T. Campbell Thompson, M.D., president-elect of the Academy of Orthopaedic Surgeons, and Hammond Chaffetz, of counsel to the Board.

ute "cramming". Personnel: Lucius Trautman, Chairman, Minneapolis; Dr. Robert Mazet, Los Angeles; M. J. Benjamin, Los Angeles; Dr. Rufus Alldredge, New Orleans.

(4) *Judiciary Committee.* This Committee will review complaints against facilities and fitters received from patients, agencies, physicians and the general public (issues between other facilities would normally be a matter for handling by the appropriate officers of OALMA). Personnel: Dr. Clinton Compere, Chairman, Chicago; Chester C. Haddan, Denver; Dr. Atha Thomas, Denver; David E. Stolpe, New York.

New Policy on Examination

Henceforth, instead of announcing an examination and inviting applications, the Board will encourage technicians who are preparing for Certification, to file applications *whenever* they have achieved the required experience and have done the necessary studying. This will allow Committees and officers of the Board to complete the complicated investigating procedures without haste. When a sufficient class of approved applicants is ready, they will be notified *where* and *when* to assemble for the written and oral tests.

Budget Adopted

In raising the requirements for Certification, the Board recognized that this would necessarily reduce the number of applications from fitters and consequently the funds used to support and publicize the Certification Program. A budget for the year 1954 was presented and unanimously adopted providing for an increase in the annual fee of fitters from $6.00 to $10.00. The general opinion was reflected in the comment of a Council member "even $10.00 is a pretty small amount to pay for the most important thing that has happened to us in our profession".

A Summary of Important Activities in Prosthetics During 1953

By WILLIAM M. BERNSTOCK

Acting Chief, Prosthetics Education Section, Prosthetic and Sensory Aids Service
Department of Medicine and Surgery, Veterans Administration

A. Research and Development

1. *Newly Available Devices and Techniques:*

(a) The A/K artificial leg with rubber ankle joint, plastic shank, and knee permitting smoother walking and variation of cadence, accepted by the Advisory Committee on Artificial Limbs. (b) The techniques of biceps cineplastic surgery and cineplasty prosthesis fabrication and fitting accepted, to be undertaken only by especially qualified personnel. (c) Outside Locking Elbow Hinge. (d) Variable Ratio Step-Up Hinge. (e) Standard Coloring for Prosthetic Components for the Caucasian shade. (f) Transit Elbow Hinges. (g) Modifications of the Alignment Duplication Jig and the Adjustable Knee for above-knee and below-knee prostheses.

2. *Device and Techniques in varying stages of research and development:*

(a) APRL Below-Knee Wrist Rotation Unit. (b) Standard Coloring for Prosthetics Components — for Negroid shade. (c) APRL No. 9 Hand. (d) Acrylate — Nitrile Glove. (e) Elbow, with separation of controls, improved leverage, and artificial tendons. (f) Electric Elbow Lock. (g) Forearm Terminal Device. (h) Fittings and Hardware — APRL Control System for Biceps Cineplasty for Below-Knee Amputees. (i) Reflex Hand and Hook. (j) University of California A/K leg with polycentric knee linkage and hydraulic control of swing phase friction. (k) Stewart Hydraulic Leg. (l) Henschke-Mauch Hydraulic Leg. (m) University of California Ankle incorporating a spherical bearing which supports vertical load and allows transverse rotation to be independent of the load on the ankle. (n) Below-Knee Soft Socket. (o) Below-Knee Suction Socket. (p) Development of a pressure gauge by staffs of Franklin Institute, New York University, and Prosthetic Testing and Development Laboratory, to measure pressure between a below-knee stump and socket. (q) Armamentarium boards of latest upper extremity devices and components for use by all VA Orthopedic and Prosthetic Appliance Clinic Teams. (r) APRL Hand Sizing Project.

3. *Other Research and Development Activities:*

(a) OALMA New Devices Project — described in Orthopedic and Prosthetic Appliance Journal, June 1953, page 5. (b) Revised transition procedures in the Artificial Limb Program. (c) Initiation of a lower extremity prosthetics clinical study by University of California at Berkeley, with cooperation of Western Orthopedic and Prosthetic Institute, Navy Artificial Limb Shop at Oak Knoll, California, artificial limb shops in Bay Area, Veterans Administration

* Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or the policy of the Veterans Administration.

Regional Office in San Francisco, and California Bureau of Vocational Rehabilitation. (d) Testing of commercially available knee units and leg set-ups by staff of Prosthetic Testing and Development Laboratory. (e) Continued activities by Prosthetic Testing and Development Laboratory to attain the most durable and functional brace design, capable of standardization, and to determine and improve the most economical and efficient methods of brace fabrication. (f) Investigation of stump sock durability and physical properties of textiles conducted by Prosthetic Testing and Development Laboratory. (g) Child amputee prosthetics program involving Michigan Crippled Children's Commission, NYU, APRL, UCLA, and the Marion Davies Clinic. (h) Improvements to socket duplicator by Prosthetic Testing and Development Laboratory to provide facility for duplicating below-knee sockets in addition to above-knee sockets. (i) Final report by University of Denver on below-knee joints with the recommendation that principles developed be incorporated in existing programs in the below-knee field. (j) Near-completion of energy studies at University of California at Berkeley with a forthcoming final report showing the relation of the energy problem to the mechanical design features and functional characteristics of prostheses. (k) Undertaking of a follow-up program by the staff of NYU Prosthetic Devices Study, as a part of its field test program to evaluate the effectiveness of new upper extremity devices and techniques.

B. Information and Education

1. *Training:*

(a) Suction Socket Course conducted by OALMA and VA during week of March 2, 1953. (b) Suction Socket Course conducted at UCLA by the Prosthetic Devices Research Project, University of California, Berkeley, with cooperation of local industry, during week of August 24, 1953. (c) Advanced Training Course for VA Orthopedic Shop Supervisors held in New York from January 12, 1953 to February 13, 1953. (d) Completion of six sections of the Upper Extremity Courses at UCLA. (e) College-level extension courses at UCLA for local industry, enlarging upon courses previously held at a local technical high school. (f) Regional OALMA educational programs.

2. *Certification:*

(a) Procedures for certifying suction socket limbfitters revised and strengthened — see "The OALMA Almanac", July 30, 1953. (b) Steady growth in number of individuals certified.

3. *Films:*

(a) "Upper Extremity Prosthetics" reviewed and accepted by the American College of Surgeons; shown routinely at each section of UCLA's courses; seen by a number of OALMA Regional Groups, rehabilitation agencies, hospitals, as well as by VA personnel. (b) Work begun on script for a second film on research and development aspects of upper extremity prosthetics. (c) Continued showings of "Suction Socket Artificial Limb" and other specialized prosthetic films.

4. *Selected Reports and Books:*

(a) *Manual of Upper Extremity Prosthetics prepared* by UCLA, widely distributed by OALMA. (b) *Orthopedic Appliances Atlas — Volume I* distributed to all VA stations and to other interested people and agencies, and widely purchased by surgeons, orthotists, etc. (available from OALMA). (c) *Human Limbs and Their Substitutes*, prepared under the supervision of ACAL, scheduled to be published in January, 1954; galley proofs reviewed. (d) Final Report on "A Program for the Improvement of

the Below-Knee Prosthesis with Emphasis on Problems of the Joint", submitted by Denver Research Institute of University of Denver. (e) *Construction Manual for the U. S. Naval Soft Socket for Below-Knee Artificial Limbs*, published by U. S. Naval Hospital, Oakland, California. (f) *The Functional and Psychological Suitability of an Experimental Hydraulic Prosthesis for Above-the-Knee-Amputees*, by the staff of the NYU Prosthetic Devices Study to cover tests of Stewart-Vickers leg. (g) Revision of the Brochure on Above-Knee Suction Socket Prosthesis by OALMA and University of California at Berkeley; publication expected in January, 1954. (h) *Studies of Eleven Below-Knee Amputees Fitted with Soft Socket Prostheses* — Special Report 1-4 prepared by Prosthetic Testing and Development Laboratory.

5. Exhibits, demonstrations, National Assembly of OALMA and American Board for Certification, and Regional OALMA meetings.

5. Prosthetics Reference Exhibit at Veterans Administration Regional Office in New York; distribution of prosthetic literature to many interested people and agencies.

Wearers of Leg Braces Voice Approval

General satisfaction with the design and function of their leg braces was voiced in answers to a questionnaire survey sent to 1200 males.

The questionnaire was developed by Dr. Lawrence Frederic Abt of VA's Prosthetic and Sensory Aids Service. State directors of the U. S. Office of Vocational Rehabilitation distributed the questionnaire forms to male leg brace wearers between the ages of 20 and 60.

The principal findings were:

1. The majority have a highly favorable reaction to their present braces.
2. Most of those answering stated that their leg braces were comfortable.
3. There is a considerable preference expressed for lighter, and at the same time equally strong, braces.
4. Leg braces cause constant and considerable damage to clothing, but this is not regarded by wearers as serious.
5. Breakage of the brace is common but is expected.
6. Braces show wear, but the average wearer is prepared for dealing with this problem.
7. Noises caused by braces are common but not usually embarrassing or bothersome.
8. Questionnaire respondents report that leg braces have been extremely helpful in minimizing their disabilities.

Commenting on the survey, Dr. Abt declared that "Very few of the respondents consider that their braces are poor or very poor, and in this fact can lie a great deal of satisfaction for all those concerned with the design and fitting of leg braces."

Copies of the complete report on the questionnaire may be borrowed from the Headquarters Library of OALMA and the American Board for Certification.

• PAUL E. LEIMKUHLER gave a lecture and demonstration on U/E prosthetics before the North Eastern Ohio Physical Therapy Assn. at their recent meeting in Cleveland, Ohio.

• THE S. H. CAMP COMPANY of Jackson, Mich. has introduced a new pelvic binder for men and women. This features a new "contour cut" for better fitting and comfort.

Functional Varus Due to Tibial Torsion

By ALFONS R. GLAUBITZ

Elizabethton, Pa., Member of the National Advisory Council to the American Board for Certification

When Charles E. Irwin, M.D., presented his paper on the iliotibial band, he paid special attention to the varus position of the foot and its gait when fitted with a long leg brace, when a tight iliotibial band was present. Doctor Irwin identified this gait, one of "Functional Varus."

Alfons R. Glaubitz

Previous to this, corrections applied to overcome functional varus were: outside heel and sole wedges; outflared heels and soles and the application of an outside "T" strap; or the shoe was placed in a larger degree of toe-out on the stirrup.

Functional varus may have many causes including severe trauma, but the majority of functional varus is found in polio and, in cases where an external rotation of the foot is considered normal.

The object of this paper is to familiarize the Orthotist with the problem confronting him and how to properly brace a tibial rotated foot. Several elements are present to recognize the deformity. The patient's gait is one of functional varus, e.g., he will walk on the outer border of the shoe and his gait is unstable; second, the leg is internally rotated in the brace and the patella is no longer in the center of the brace. In the posterior view the medial condyle of the limb is posterior to that of the medial knee brace joint.

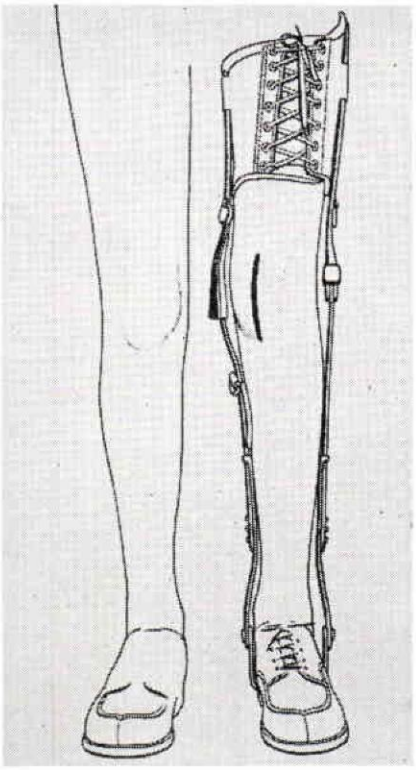


Fig. 1. Showing internal rotation of a leg in the brace. Notice that the knee cap of the leg is not in the center of the brace.

In the usual attachment of the shoe or other foot appliance, a certain degree of "toe-out" on the brace is always considered proper. The saggital axis of the ankle joint in the tibio-talar articulation has its limitation in internal and external rotation. It is the limitation of the internal rotation of the ankle joint which causes the internal rotation of the leg in the brace and forcing the foot into varus.

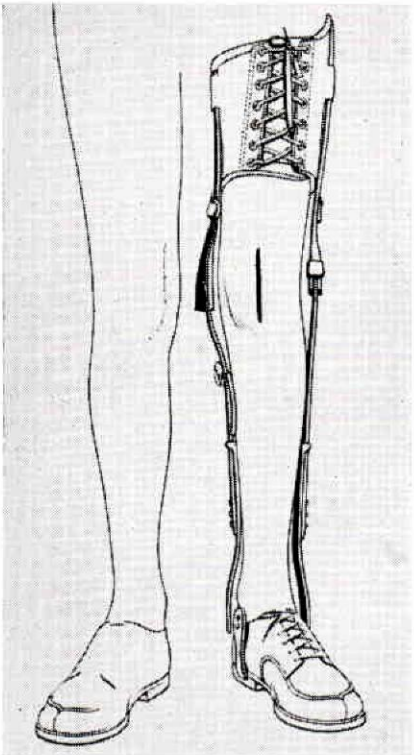


Fig. 2. After the lateral bar of the brace is twisted externally in its length, the leg will follow, and the knee cap will then be in the center of the brace. Take notice that the innner bar of the brace is now posterior to the stirrup ankle joint.

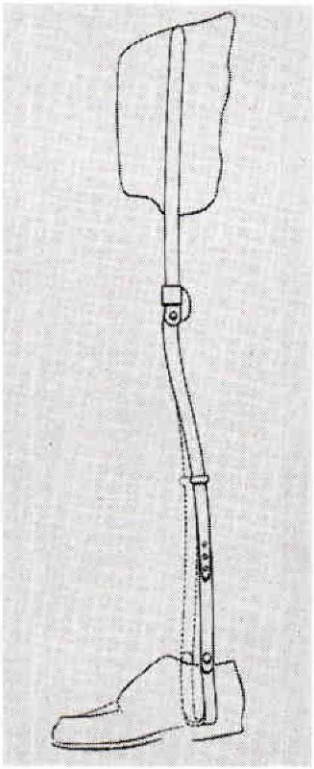


Fig. 3. Showing the anterior bend of the inner bar of the brace to meet the forword located stirrup ankle joint.

Method of Bracing

The brace is completed in the usual manner for the fitting with the usual toe-out position of the shoe in the brace. The inner below-the-knee brace bar is not attached to the stirrup and it is also advisable not to fasten the calf band to the inner bar.

The patient may either stand erect or be in a reclining position when the brace is applied. The Orthotist will then apply his bending irons to the lateral side of the brace above the ankle joint and twist the foot out until the patella is in the center of the brace and the medial condyle of the limb coincides with the medial knee joint center of the brace.

The medial side of the stirrup will now be far in front of the below-the-knee brace bar. To meet the stirrup in its forward position, the inner bar is hammered or bent in its entire length anteriorly to meet the stirrup ankle joint.

Because of the longer distance which now exists between the knee and ankle joint, the inner bar will become a trifle longer. A previous drilling of screw holes to the inner bar is therefore not advisable. The calf band is then fitted to its new position. Substituting for a longer one is not necessary and not advisable.

Once the right amount of external rotation of the shoe on the brace is given, functional varus will have

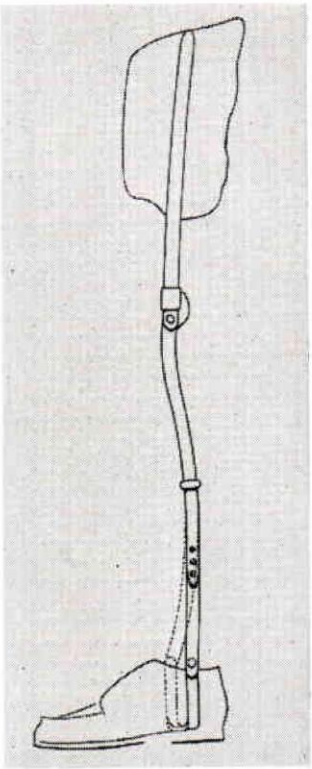


Fig. 4. To illustrate better the need of the new position of the inner brace bar, the anterior bend of lower end of the inner bar is exaggerated.

ceased to exist. The addition of a pelvic band to the long leg brace has no ill effect on the newly acquired position of the foot, as the changes made on the brace are below the frontal plane of the knee axis.

References

Irwin, C. E. J.—The Iliotibial Band—J. Bone & Joint Surg., 34A: 141-146, January 1949.

Outland, Tom—Personal Communication.

Reprints of articles are available. Inquire of OALMA, 336 Washington Bldg., Washington 5, D. C.

Alfons Glaubitz completed his apprenticeship and trade school course in Germany, receiving his Master's Degree in Bracemaking in 1925 from the German Orthopedic Trade Commission. After working for some time with an appliance company in Brooklyn, New York, he opened his own establishment at Elizabethtown, Pennsylvania. In 1939 he founded and still directs another brace shop at the crippled children's hospital in Elizabethtown. He is the author of several articles on appliances which have appeared in magazines and books. Mr. Glaubitz is a member of the National Advisory Council to the Certification Board representing Eastern Pennsylvania.

"What's (New)s"

• THE WORLD CONGRESS of the International Society for the Welfare of Cripples will be held at The Hague in the Netherlands, from Sept. 13 to 17, 1954. This is the sixth of these conferences for professional workers and others interested in services for the physically handicapped. Persons interested in attending may obtain additional information from OALMA Headquarters, 336 Washington Bldg., Washington 5, D. C.

• FOUR SUCTION SOCKET SCHOOLS will be conducted this year by OALMA in association with the Prosthetic and Sensory Aids Service, VA. The dates are given in the table "Dates to Remember" which appears on the inside front cover of this issue.

• WALTER GOODWIN is the new chief engineer of Sierra Engineering Co. Both Goodwin and Robert Kindred, his assistant, have had long experience in the design and building of prosthetic devices, such as the two-load hook, the flat cable extensor and outside locking elbow hinges.

"My Husband Went To The UCLA School"

(EDITOR'S NOTE: Since many of our readers are going to or have graduated from the UCLA Prosthetics course, we thought you would like to hear a report from "the home front" and we asked Mrs. Paul Leimkuehler for this article.)

Just three more days and Paul will be home from California. For the past six weeks, my husband, Paul, has been attending the University of California in Los Angeles taking the course on Upper Extremity Prosthetic Appliances sponsored by the Veterans Administration and the Advisory Committee on Artificial Limbs. This is the sixth school they have had, and I understand there are to be three more.

I thought maybe some of the wives might be interested in knowing a little more about it, from a woman's viewpoint, if you or your husband are planning to attend. I had considered going with Paul for part of the time, but gave up the idea, because of the family here at home and also my presence was needed at the office.

There are twelve students in the class, and they have been there for the full six weeks. Seventeen physical therapists came for the last three weeks, and thirteen doctors arrived for the last week. The twelve students are all staying in the same apartment hotel, The Barbizon Wilshire, which is only a few blocks from the college. The rates are reasonable. Paul says he has a very lovely room, with a refrigerator, maid service, in fact, all hotel facilities for $22.00 a week.

Two of the wives of students who live on the Coast, were there for the first week, and then left for home. The rest of the time, no wives were there. All the students own their own business; and needless to say, they have a lot in common and never tire of talking together.

Before Paul left, his biggest concern was how he would keep in touch with his business. He certainly has proved he was able to do it by the use of an Edison Voicewriter, which he purchased before he left. His Secretary air mails all the important correspondence to him every day; and he in turn dictates the answers on his Voicewriter and air mails the disc back to her. She then transcribes the letters and mails them out. In fact, instead of writing letters to me and the children, we receive a disc every day which we play on the record player. The children really enjoy it.

Work at the shop is continuing as usual. Two days a week, I go down to sign checks, make out the payroll, etc., and I have really enjoyed this contact with the business. It has made me realize some of the problems that Paul is confronted with constantly.

Paul agrees that it is a long time to be away from home and his business, but he says that he has learned a lot, and it has been well worth while. All the other students have felt the same way. Paul has completed six arms to date, each a different type.

On their spare time, they have really seen a lot of Los Angeles and the surrounding points of interest, and have visited and been entertained by most of the affiliated shops in that area.

My congratulations to Paul and to all the other fellows who have completed the course!

A Report on the Prosthetics Training Center At the University of California, Los Angeles

Dr. Miles H. Anderson, Educational Director

The instructional program at the University of California Prosthetics Training Center has now completed its first year under the joint sponsorship of the Department of Engineering and School of Medicine on the Los Angeles campus. Six classes have been graduated, a seventh is in attendance, and three more are planned. It seems an appropriate time to review this program that has brought a substantial number of prosthetists, therapists and physicians from all parts of the country to Los Angeles to learn about the newest research developments in upper-extremities prosthetics.

Because of intensive engineering research in the field of upper-extremities prosthetics carried on over a period of seven years at the University of California and several other institutions, functional artificial arms embodying proven advantages in efficiency and usefulness were available for use by arm amputees to achieve a more complete state of rehabilitation than had ever been possible before. However, as with many research developments in other areas, it is often much easier to work out an improved product or service than it is to get the improved product or service accepted and applied in the field. Progress in making improved prosthetic service based on research findings available to all arm amputees was slow.

The research program in prosthetics was sponsored by the Advisory Committee on Artificial Limbs of the National Research Council and the Veterans Administration. A number of publications and bulletins were released describing the newer devices and methods in artificial arm fabrication and fitting. Institutes were held, and presentations made at symposia and scientific assemblies of various organizations interested in the field of prosthetics. Few of these measures were very successful in changing the habit patterns of those responsible for prescribing, fabricating and fitting artificial arms. It soon became apparent that if the greatest possible benefit was to be derived, the research findings must be put into practice throughout the country on a scale impossible of achievement through the traditional media of publications and brief demonstrations and presentations. The new techniques of arm fabrication and fitting involved too many items of technical knowledge and skill to be transmitted in any other way than through an organized educational program, It was decided to set up and administer an educational program on a national scale, bringing students from all parts of the country to the school and training them in the fabrication and fitting of artificial arms embodying all the newest findings of engineering research and development.

The University of California at Los Angeles was selected to conduct this educational program. Most of the upper-extremities research knowledge was concentrated there, and equally important, the university administration was willing to undertake the job.

It was decided to undertake at the same time a nation-wide research program to determine the effectiveness of the new upper extremity prosthetic developments in rehabilitating arm amputees, and to discover possible new avenues for additional research.

This task was accepted by the Prosthetics Devices Study of the New York University School of Engineering. Because of the fact that the students trained at the University of California would work closely with New York University field men in the research program, it was imperative that the two universities plan and operate the total program of education and research in close cooperation with one another. The job of synchronizing the prosthetics activities of two universities three thousand miles apart fell to Dr. Sidney Fishman, Project Director of the Prosthetic Devices Study at New York University, and Dr. Miles H. Anderson, Educational Director of the Prosthetics Training Center at the University of California.

The major objective of the program was to train a minimum of one local industry prosthetist, and a therapist and physician for the Veterans Administration Regional Office prosthetic clinics in each of thirty cities throughout the country. In this way, it was anticipated that the prosthetic service for veterans who were arm amputees would be substantially improved, a very important point, inasmuch as one of the chief reasons for the Veterans Administration's lending support to the prosthetic research program was to make better prostheses available to veterans. A second objective was to train as many therapists and physicians from hospitals and rehabilitation institutions as could be induced to enroll in order that through them better prosthetic service might be made available to non-veteran arm amputees. Both the Veterans Administration and the civilian clinics would be served by the same groups of local industry prosthetists.

The reason for including physicians and therapists was that experience had already proven that the most efficient way to provide better prosthetic service to amputees was to establish a prosthetic clinic where the amputee could receive the benefits of joint consultation in which the physician, therapist and prosthetist pool their specialized skills and knowledge to provide him a complete prosthetic service. *The physician* is responsible for all aspects of the medical welfare of the amputee, including the services of the therapist and prosthetist, for all of which he prepares a written prescription. *The therapist* has the important function of administering remedial exercises and training the amputee in the use of his prosthesis. *The prosthetist* has the equally important task of fabricating and fitting the prosthesis prescribed. The physician, therapist and prosthetist constitute the minimum personnel for a functional prosthetic clinic team, so it was clear that an educational program to develop such prosthetic clinic teams would have to provide courses in which *all three* members of the teams would receive instruction in the prescription, fabrication and fitting, and amputee training techniques necessary to take the fullest advantage of all the prosthetic research developments.

After analyzing the skills and knowledge in the application of prosthetic research developments for each member of the clinic team and arranging it into courses of study, it was apparent that the minimum length of time practical for these courses was six weeks for the prosthetists, three weeks for the therapists and one week for the physicians. The reason the prosthetist course requires more time is the large number of technical skills to be developed and scientifiic knowledge to be absorbed.

The Dean of the University of California Department of Engineering, Los Angeles, turned over approximately 45,000 square feet of building space to house the educational program. In September, 1952, the work of remodeling and equipping this building was started. It was completed in time for the enrollment of the first

OALMA AND CERTIFICATION OFFICIALS VISIT THE CENTER. Left to right: Anthony Filippis of Detroit; Dr. Miles Anderson; M. J. Benjamin, member of the Certification Board; OALMA President Lee J. Fawver; Anton Leins of New York; Frank Brown, Chairman of the Industry Advisory Committee for the Center; Glenn E. Jackson, Executive Director, OALMA

class January 12, 1953. Everything in the way of laboratory equipment, audio-visual instructional equipment and materials needed to conduct an efficient instructional program was purchased for use in the *Prosthetics Training Center*, the name of the new school.

Because of the extreme importance of developing the prosthetic clinic team concept, it was decided that the six weeks classes would be allocated to various geographical regions so that all the students from a given region would attend at the same time. In this way the members of the prosthetic clinic teams would be in the school together, which would make it poossible to do a much better job of training them in clinic operation than would be the case if they all attended different classes. Preliminary surveys indicated that the ten six-weeks classes would be enough to cover all the regions, as follows: *Section 1:* New York, Newark, Boston, January 12 to February 20, 1953; *Section 2:* Dallas, San Antonio, New Orleans, March 2 to April 10, 1953; *Section 3:* Philadelphia, Pittsburgh, Washington, D. C., April 20 to May 29, 1953; *Section 4:* Detroit, Cleveland, Buffalo, Grand Rapids, Battle Creek, Columbus, Richmond, June 8 to July 17, 1953; *Section 5:* St. Louis, Kansas City, Oklahoma City, August 31 to October 9, 1953; *Section 6:* Seattle, Portland, San Francisco, October 14 to November 24, 1953; *Section 7:* St. Paul, Minneapolis, Des Moines, Denver, Salt Lake City, January 4 to February 12, 1954; *Section 8:* Louisville, Nashville, Atlanta, Memphis, Omaha, Milwaukee, Little Rock, February 23 to April 2, 1954; *Section 9:* Los Angeles, San Diego, Phoenix, El Paso, Albuquerque, April 12 to May 21, 1954; *Section 10:* Open to all regions, May 31 to July 9, 1954.

Because of the complexity of the combination education and field research program and the need for understanding on the part of all groups, Dr. Sidney Fishman of New York University and Dr. Miles H. Anderson of the University of California held meetings in each of the major cities in a region several weeks prior

to the start of the class for that region, for the purpose of explaining the program and making the necessary administrative arrangements.

The first class was started January 12, 1953, on which date these nine prosthetists from New York and Boston enrolled and started work at the Prosthetics Training Center:

FROM BOSTON: William J. "Red" Ferris, J. E. Hanger, Inc., William Hitchcock of the Boston Artificial Limb Co., and Theodore G. Williams of Anthony and Williams Company; FROM NEW YORK CITY: Herbert B. Hanger of the J. E. Hanger Co., Inc., Charles Goldstine, Institute for Crippled and Disabled, William Pavelchek, VA Regional Office, William Tosberg of the Institute for Physical Medicine and Rehabilitation, and Walter Goodman of New York University; FROM ORANGE, N. J.: Sanford Kessler.

The instruction for the prosthetists was divided into four units: below-elbow, above-elbow, shoulder disarticulation and cineplasty. The day's work was started with a lecture on a technical subject related to the problem to be encountered in the laboratory that day. For example, if the class was to work in the plastic laboratory learning how to mix and apply resins to make a plastic laminated socket for a prosthesis, the lecture that morning would cover the chemistry of plastics. In presenting this technical material it was planned to make full advantage of motion picture, slides, charts, pamphlets, samples, models and other teaching aids to make the instruction as interesting and easy to understand as possible.

By establishing a close relationship between the lecture and laboratory instruction the student was able to perform the necessary manipulations in fabricating and fitting a plastic socket, and he also had a thorough understanding of *why* he did things a certain way and *what* was happening in the chemicals and materials with which he was working. This combination of manipulative and technical instruction develops a technician who is not merely capable of performing tasks requiring skill and knowledge, but who can also think through problems and overcome difficulties that require the ability to be a "trouble shooter." The prosthetist who has mastered basic principles can apply them to solve most prosthetic problems he may face in his day by day practice. One of the foremost objectives of the teaching staff at the Prosthetics Training Center is to drive home these basic principles.

In the study of the below-elbow amputee and the various prostheses designed to meet his needs, the students were required to make a minimum of two cuch prostheses, each of a different type. These prostheses were made and fitted on amputees provided by the Center. The first seven days of the course were spent mastering the below-elbow prosthesis, at which time an examination was given to check on how well the prosthetists had mastered the technical knowledge presented. Their mastery of the manipulative skills learned in the laboratory was checked by evaluating the prostheses they made and fitted.

When work on the below-elbow amputees' problems was completed, the students started their study of the above-elbow amputee and the prostheses designed to meet his needs. The next six days were spent in fabricating and fitting above-elbow amputees and mastering the technical knowledge related to above-elbow prosthesis problems. The above-elbow unit was closed with an examination on the material covered in the same manner as with the below-elbow unit.

The next eight days were spent in learning the intricacies of fabricating and fitting prostheses for shoulder disarticulation amputees. On completion of this unit, the work on cineplasty cases was started, and continued to the latter part of the sixth week, when the prosthetists joined with the therapists and physicians to practice clinic

Basil Peters, prosthetist from Philadelphia, starts fabrication of a prosthesis for Jeffrey Woollen, age 4½ years.

team operation. The prosthetist course was closed with a final examination covering the entire six weeks of instruction, after which diplomas were presented to the students successfully completing the course, by Dean L. M. K. Boelter of the University of California Department of Engineering.

On Monday, February 2, 1953 ten physical and occupational therapists enrolled in the three-weeks course for their group. This was the beginning of the fourth week of the prosthetists' six-weeks course, so the two groups were in attendance together for three weeks. During this time many opportunities were provided for the prosthetists and therapists to cooperate on prosthetic checkout and other activities designed to develop a mutual respect and understanding for one another's work and problems. In the therapists' course much emphasis was placed on learning how to train amputees in the use of their prostheses. This was accomplished by having the therapists learn to train the amputee that had been fitted by the prosthetists.

The following therapists enrolled in the first class: FROM BOSTON: Eunice Katz, Bay State Medical Rehabilitation; Elinor Sherman, VA Regional Office; Sarah Bassett, Boston Dispensary; BROOKLYN: Owen Tester, VA Hospital; NEW YORK CITY: Thelma Wellerson, Institute for Crippled and Disabled; Paul Clark, Institute - Physical Medicine & Rehabilitation; Lillian Danshefsky, VA Regional Office; HARTFORD, CONN.: Suzanne Griselle, Hartford Country Rehabilitation Workshop; ORANGE, N. J.: Charlotte Ritter, Kessler Institute.

On Monday, February 16, nine physicians and surgeons enrolled for the one-week course in upper-extremities prosthetics designed to assist them in gaining an understanding of the possibilities and limitations of the new engineering research knowledge in the field and some of the techniques of prescribing and checking this new equipment for all types of upper-extremities amputees.

The following students were enrolled: BOSTON: Edward Harding and Eugene Record, VA Regional Office; Arthur A. Thibodeau, New England Center Hospital; Arthur L. Watkins, Bay State Rehabilitation Clinic; BROOKLYN: Andrew Schildhaus, VA Hospital; NEW YORK CITY: Edward E. Gordon, Institute for Crippled & Disabled; Jerome Lawrence, VA Regional Ofifce; Allen S. Russek, New York University; Irving Tepperberg, VA Regional Office.

The six-weeks course came to a climax on the last day, when the prosthetists, therapists and physicians from each institution set up their prosthetic clinics and practiced clinic operation with new amputees brought in for the purpose. Following the practice sessions a general discussion was held of the prescriptions prepared by the teams, and the members of the first class at the Prosthetics Training Center returned to New York and Boston to put into practice the lessons learned during their stay at the school.

One of the most difficult problems encountered in the first school was that of obtaining the services of enough amputees to provide adequate experience for all groups. The assistance of the Industry Advisory Committee made up of representatives of the prosthetics industry in the Los Angeles area was invaluable in solving this problem.

The members of this committee are: Frank P. Brown, George R. E. Milligan Company, Charles A. Hennessy, Peerless Artificial Limb Company; A. A. Tilton, Alpha Orthopedic Appliance Company; J. J. Vollmer, Allied Orthopedics; Robert Bush, Bush Prosthetic Services.

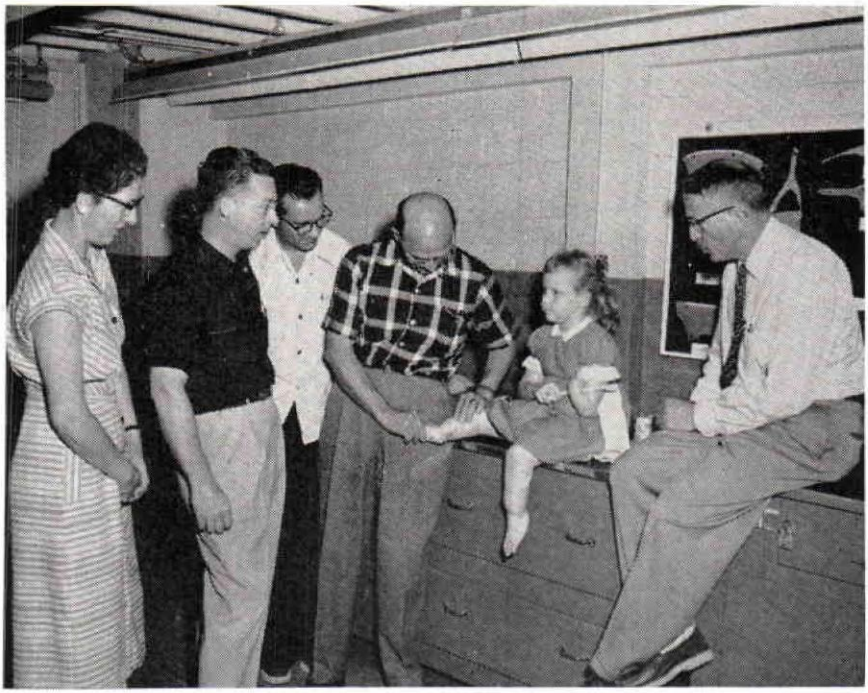
Following completion of the first class, a conference was held in Washington, D. C., of representatives of the various agencies interested in the program who had visited the school, and suggestions for strengthening the courses of study were discussed. As a result of this meeting a number of improvements were made that substantially increased the efficiency of the program.

When the first school was completed one week of preparation was allowed for the staff of the Prosthetics Training Center to get ready for the second class, which started March 2. Eight prosthetists, ten therapists and eleven physicians were enrolled in this class, most of them coming from Dallas, San Antonio, New Orleans and Newark. The members of this group who received their diplomas at the graduation on April 10 were:

PROSTHETISTS: Chicago—Michael M. Amrich, The Rehabilitation Center; Dallas: Ed Latimer, Hedgecock Artificial Limb Co.; Fort Sam Houston: Sgt. William T. Andrews and Sgt. Coy W. Tolbert, Brooke General Hospital; Houston: Alvin Muilenburg, Muilenburg Artificial Limb Co.; Newark: Daniel Ahearn, Arthur Beitman Co; New Orleans: George Berryman, Hanger, Inc.; Toronto, Canada: Geoffrey Hall, Department of Veterans Affairs.

THERAPISTS: Fort Sam Houston — Capt. Mary T. Berteling and Capt. Jessie L. Miller, Brooke General Hospital; Chicago: Louis Cotovsky, University of Illinois; San Antonio: Eugenia J. Cox, VA; Los Angeles: Valerie Hunt, Dept. of Physical Education, U.C.L.A.; New York City: Hector W. Kay, New York University; New Orleans: Thelma Long, VA Hospital; Newark: Morris Peckerman, VA Regional Office; Houston: Joan Sheppard, Methodist Hospital; Grand Rapids, Mich.: John Steensma, Michigan Crippled Children Commission.

PHYSICIANS: Dallas— Felix L. Butte, VA; Thomas E. Cook, VA; Newark: Roy Ciccone, VA; Ralph G. Rohner, VA; New Orleans: Frank DiPaula, VA Hospital; Daniel C. Riordan, VA; San Antonio: M. H. Morris, VA; R.



The clinic team sent by the Michigan Crippled Children's Commission prepares a prescription for prosthetic services for Patty Britton, 6½ years of age. Left to right: Mildred Lineberger, physical therapist; Dr. George Aitken; John Dubinshak, prosthetist from Grand Rapids; Dr. Charles Frantz; Patty Britton; Dr. Milo Brooks, pediatrician with the Marion Davies Clinic.

J. Rose, VA; Col. Charles Shields, Brooke General Hospital; Col. Milton S. Thompson, Brooke General Hospital; Houston: Oscar O. Selke, Methodist Hospital.

By the end of the second class the instructional staff had matured into a group of competent teachers who were able to plan and teach effective lessons on a variety of topics and under varied conditions. The preparation of written lesson plans for each instructional presentation was nearing completion, and the task of preparing "laboratory workbooks" for the use of the students was getting under way. A number of instructional aids were under development, such as sound motion pictures, in color, on the function of the normal hand and arm, amputee training procedures and the cineplasty surgical procedure. Several hundred Kodachrome slides were prepared to illustrate the step by step procedure followed in fabricating several types of harnesses. Display boards showing all the different kinds of prostheses were made and put up. Many photographs were taken to illustrate special prosthetic problems. A tape recorder was used by the teachers to record their lectures so they could play them back and see where they could make improvements in their work. Clever "worksheets" were devised as teaching aids to help students take notes. Improved objective type tests were prepared and used to evaluate the efficiency of instruction given. All of the instructors were becoming infected with the enthusiasm and satisfaction all good teachers experience when they know they are earning the respect of their students and are doing a good job for them. The mem-

bers of the instructional staff are:

Charles O. Bechtol, M.D., Instructor, Physicians and Surgeons; H. Jampol, M.A., R.P.T., Instructor, Therapists; L. Carlyle, B.AeE., Instructor, Technical Subjects; Harry E. Campbell, C.P., Instructor, Prosthetics; Woodrow Yamaka, C.P., Instructor, Prosthetics.

A valued member of the staff, Robert Taylor, Prosthetist Instructor, became ill and passed away on July 3, 1953. This was a serious loss, as Bob Taylor had developed into a very enthusiastic and effective teacher, and his work in the plastics laboratory is sorely missed.

The third class, which enrolled April 20 and graduated May 29, included:

PROSTHETISTS: Pittsburgh—Karl Barghausen, J. E. Hanger Co.; Washington, D. C.: R. A. Beales, J. E. Hanger Co.,; Sgt. George Gauvry, Walter Reed Army Medical Center; Los Angeles: Ambrose J. Bienville, George R. E. Milligan Co.; Kozo Nishifue, Alpha Orthopedic Co.; Philadelphia: Max Narod, U. S. Naval Hospital; Basil Peters, B. Peters Co.; CPO Donald D. Strand, U. S. Naval Hospital; C. W. Wright, J. E. Hanger Co.

THERAPISTS: Santa Monica—Jean Ayres, Kabat-Kaiser Institute; Washington, D. C.: Charles T. Bufalino, VA; Capt. Florence Murley, Walter Reed Hospital; Lt. Mary J. Schwob, Walter Reed Hospital; Pittsburgh: Edith Cole, VA; Richard C. McDougall; Philadelphia: Melvin G. Jaspan, VA; Lt. Maurine Meckes, U. S. Naval Hospital.

PHYSICIANS: Philadelphia—John H. Ealy, VA; William J. Erdman, University of Pennsylvania Hospital; Constantine G. Paski, VA; Henry Royster, University of Pennsylvania Hospital; Pittsburgh: Murray B. Ferderber; Frederick Koenig; Washington, D. C.: Everett J. Gordon, VA; Matthew Mendelsohn, VA; Lt. Col. Joseph W. Thomas, Walter Reed Army Hospital; Capt. George S. Woodward, Walter Reed Army Hospital.

With the third class the trend toward increased interest in the program on the part of civilian rehabilitation centers became apparent. From that time on civilian rehabilitation centers sending clinic teams to the school substantially outnumbered the Veterans Administration clinics. In addition, the physicians and surgeons enrolling in the program outnumbered the therapists and the therapists outnumbered the prosthetists, which was exactly the reverse of what had been anticipated when the school was started. One of the most interesting phenomena observed in the operation of this program has been the enthusiasm with which physicians and therapists have entered into the study of upper extremities amputees and the research developments in prostheses for their use.

The fourth class enrolled June 8 and was graduated July 17. This class was a large one with a total of nine prosthetists, sixteen therapists and seventeen physicians and surgeons in attendance. The students were:

PROSTHETISTS: Battle Creek—Earl Argetsinger, Percy Jones Hospital; Detroit: Harold A. Caton, E. H. Rowley Co.; Anthony Filippis, Wright and Filippis; Richmond: John G. Cranford, J. E. Hanger Co.; Grand Rapids: John Dubinshak, E. H. Rowley Co.; New York City: Anton Leins, VA; Columbus: Leonard Madison, Madison Artificial Arms; Springfield: Paul D. McCullough, Medical Center for Federal Prisoners; Buffalo: Joseph E. Traub, Chronic Disease Research Institute.

THERAPISTS: Hines, Ill.—Carolyn Coghlan, VA Hospital; Buffalo: Gertrude Dray, Chronic Disease Research Institute; John Nostrant, VA; Detroit; Dorothy I. Elliott, Rehabilitation Institute; Donald K. McKenzie, Rehabilitation Institute Metropolitan Detroit; Von Ceil Van Lierop, Henry Ford Hospital; John P. Wall, Detroit Memorial Hospital; Ann Arbor: Beverly Jean Granger, University of Michigan; Grand Rapids: Mildred Lineberger, Michigan Crippled Children Commission; Dearborn: Dorothy Magee, VA Hospital; New York City: Theodore Marton, New York University; Cleveland: Sara K. Martz, VA; Battle Creek: Capt. Harriet Meyer, Percy Jones Army Hospital; Capt. Winnifred E. Soady, Percy Jones Army Hospital; Columbus: Victor Ramirez; Fisherville, Va.: Arthur E. Sundquist, Woodrow Wilson Rehabilitation Center.

PHYSICIANS: Battle Creek—Major Ernest F. Adams, Percy Jones Army Hospital; Lt. Col. John D. Ashby, Percy Jones Army Hospital; Grand Rapids: George T. Aitken, Michigan Crippled Children Commission; Charles D. Frantz, Michigan Crippled Children Commission; Los Angeles: Milo B. Brooks; Columbus: John Q. Brown; Lansing: Carleton Dean, Michigan Crippled Children Commission; Detroit: James R. Glessner, Henry Ford Hospital; Arthur J. Klippen, VA; Max K. Newman, Detroit Memorial Hospital; John M. Pendy, VA; Fisherville, Va.: Roy M. Hoover, Woodrow Wilson Rehabilitation Center; Houston: Louis A. Leavitt, VA Hospital; Buffalo: Henry V. Morelewicz, Chronic Disease Research Institute; Hines, Ill.: Louis B. Newman, VA Hospital; Ann Arbor: Sylvester J. O'Connor, Univ. of Michigan; Cleveland: Russell P. Rizzo, VA.

The task of training this large group, which included eleven prosthetic clinic teams, depleted the energies of the staff of the Prosthetics Training Center sufficiently to enable them to welcome the vacation period which was broken only by a five-day conference in New York City with the staffs of New York University and the Army Prosthetics Research Laboratory.

The week of August 24th the Prosthetics Training Center offered a five day Suction Socket School in cooperation with the staff of the Engineering Artificial Limb Research Project of the University of California, Department of Engineering, Berkeley, and the Society of Orthotists and Prosthetists, Los Angeles industry group. Twelve prosthetists enrolled in this course and were given suction socket certificates as well as certificates from the University of California. Industry representatives Charles Hennessy, Edward Snygg, Frank Brown and Harvey Lanham served as instructors under the guidance of Charles Radcliffe and Jim McKennon of the University of California, Berkeley. A four-hundred foot film was made of the activities at this suction socket school. The following students took the course:

Robert Angelich, Western Wholesale Parts Co.; Jaspar Bohannon, M. H. Nanney Co.; John J. Bray, Lanham Orthopedic Appliances; Harry E. Campbell, Prosthetics Training Center; Lloyd B. Everett, Long Beach Artificial Limb Co.; W. H. Hoskinson, Carl Woodall Co.; William M. Jones, Long Beach Artificial Limb Co.; Ferdinand J. Karg, Peerless Artificial Limb Co.; Fred C. Lucas, Adroit Artificial Limb Co.; Charles D. Neal, Adroit, Artificial Limb Co.; William Peralata, Peerless Artificial Limb Co.; A. J. Scruggs, Lanham Orthopedic Appliances.

Immediately on completion of the suction socket school, the students for the fifth class of upper-extremities prosthetics arrived and enrolled. Because of a series of unfortunate incidents several students had to cancel their enrollments at the last minute, making this the smallest class yet enrolled.

PROSTHETISTS in the fifth class were: Ivan A. Dillee, W. E. Isle Co., Kansas City; F. L. Lake, J. E. Hanger, Oklahoma City; Laurence Porten, Union Artificial Limb Co., Pittsburgh; Robert F. Reich, J. E. Hanger Co., St. Louis; and James D. Truesdell, Kingsley Manufacturing Co., Arcadia.

THERAPISTS in the fifth school were: FROM KANSAS CITY: Phyllis E. Harmon and Jeanne Shafer of the Rehabilitation Institute; FROM LOS ANGELES: Emily J. Gerber of the Marion Davies Clinic; New York: Gavin Carter of New York University; Oklahoma City: Audrey V. Chambless of the Commission for Crippled Children and Imogene Palmer of the VA Hospital; Okmulgee: Harlan E. George of the A. M. College Rehabilitation Center; Philadelphia: Pauline Parsons of the VA Regional Office; St. Louis: Evelyn Walter of the VA Regional Office.

PHYSICIANS, fifth school: Detroit: C. Robert Dean, Rehabilitation Institute; Kansas City: Robert H. Fitzgerald and Richard H. Kiene, VA Regional Office; Oklahoma City: Ella Mary George, VA Hospital, and William L. Waldrop, Oklahoma Commission for Crippled Children; Okmulgee: John W. Deyton, A.&M. College Rehabilitation Center; St. Louis: Henry G. Farris, VA Regional Office and Daniel E. O'Reilly, St. Louis University.

Graduation ceremonies for the fifth class were held October 8.

The following week, the following prosthetists enrolled for the SIXTH SCHOOL: from Cleveland, Ohio, Paul. E. Leimkuehler, Leimkuehler Limb Company; Los Angeles, Charles E. Hennessy, Peerless Artificial Limb Co.; El Salvador, Marcelino Mendez-Cortez; Guatemala, Guillermo Martinez-Herrejon of the Aparatos Ortopedicos; Oakland, Matthew G. Laurence, Laurence's Orthopedic Appliance Co.; Portland, Oregon, O. A. Bergeson, Oregon Artificial Limb Co., and Earl W. Odell of the Coast Orthopedic Co.; San Francisco, C. O. Anderson of the Prosthetic Services of San Francisco, and Edward W. Snygg of the R. E. Huck Co.; Seattle, Russell T. Brain of the A. Lundberg Co.; Tacoma, Len Ceder, Tacoma Brace and Limb Co.; Vallejo, George S. Gage of the Robin-Aids Manufacturing Co.; Walla Walla, Robert V. Horne of Horne Orthopedic Appliance Co.

This was the largest class of prosthetists ever enrolled at the Prosthetic Training Center, and filled it to its capacity of twelve students.

The presence of Senors Martinez and Mendez-Cortez from Central America added a very lively note to the operations of this class. Neither spoke much English and it quickly became apparent that without an interpreter to explain to them in Span-

ish what was being said and done they would make little progress. Chuck Hennessy, owner of Peerless Artificial Limb Company of Los Angeles, and president of the Los Angeles limb manufacturers association, was prevailed upon to take the course and serve as interpreter. Chuck speaks Spanish very fluently, and during the six weeks course he was invaluable as an interpreter.

The following therapists enrolled in the Sixth School:

From Cleveland, Janet L. White, University Hospital; Kansas City, Ila Jane Amrhein, VA Hospital; New York, Warren Springer, New York University; Oakland, Doris Tom, VA Hospital; Portland, Oregon, Helen M. Koster of the State Industrial Accident Commission, and Phyllis D. Wilcken, VA Hospital; San Francisco, Lt. Bernadine Choren, Letterman Army Hospital, Margaret V. Magee of the VA Regional Office, Jeannine F. Dennis and Maxine F. Schuldt of the May T. Morrison Center for Rehabilitation, and Margery L. Wagner of the University of California Medical Center; St. Louis, Wallace Strittmatter of St. Louis University; Seattle, Patsy Jean Brittain of the Dept. of Labor and Industries, Bernard F. Knapik, VA Regional Office, John F. Oliver, Providence Hospital, and Kenneth V. Settle of the State Industrial Accident Commission; Walla Walla, Eugene F. Northrop.

These fourteen physicians enrolled in the Sixth School:

From Cleveland, W. H. McGaw, University Hospital; Oakland, Francis J. Carr; Portland, Arthur C. Jones of the Rehabilitation Center, and these three from the VA Regional Office: Garland Arvin, C. E. Gantenbein and F. A. Short; from San Francisco, Neil P. McCloy, VA Regional Office, and these two from the May T. Morrison Center for Rehabilitation: S. Malvern Dorinson and Edward R. Schottstaedt; Walla Walla, C. Don Platner; Tokyo, Japan, Shuji Tono, Ministry of Health and Welfare; from Seattle, Bernard V. McConville, and two from the VA Regional Office: Ernest M. Burgess and Alfred H. MacLaren.

The sixth class graduated November 23, and since the seventh class was not scheduled to start until January 4, 1954, the staff of the Prosthetics Training Center was busily occupied making new prostheses for display boards, writing and revising instruction sheets, lesson plans and tests, taking pictures for use as illustrations, replenishing supplies, and doing other tasks that must be done before another class starts. Prosthetist Instructor Harry Campbell made a two weeks field trip to Texas and Louisiana where he spent several days with each of the prosthetists who had graduated from the Second Class, helping them in their own shops with special problems and giving on-the-job instruction.

The enrollment of the sixth class apparently marked the end of classes with less than maximum enrollment. Applications to attend the school exceeded the number that could be enrolled, and the seventh class was quickly filled to capacity. Many who had failed to enroll when the class for their region was held applied for later classes. It became clear that the effects of the educational program at the Prosthetics Training Center were beginning to be felt throughout the country and the program was being recognized and accepted more and more by the prosthetists, therapists and physicians.

Prosthetists enrolled in the Seventh Class were:

From Buffalo, John Orzulak; from Chicago, Alvin S. Carlstrom of the American Artificial Limb Co.; Des Moines, W. Y. Stevenson of the Winkley Artificial Limb Co.; Denver, Lawrence Jones of Gaines Orthopedic Appliance Co. and Bruce A. Scott of Scott Surgical Co.; Minneapolis, George T. Botko of the George H. Botko Company; Robert Gruman of the Winkley Artificial Limb Co., Chester Nelson of Minneapolis Artificial Limb Co., Henry J. Niessen, Northwest Artificial limb and Brace Co.; San Francisco, Herman Hittenberger of the C. H. Hittenberger Co. and Sgt. Ray Hall of Letterman Army Hospital; Salt Lake City, Alvin Norell of Fit-Well Artificial Limb Co.

To summarize the work of the staff of the Prosthetics Training Center to date in terms of numbers trained, a statistical review of enrollments of each group is given in Table No. 1.

During the first six classes a total of 119 amputees was used for instructional purposes. Amputee types were as follows: 106 conventional cases and 13 cineplasty (below-elbow, biceps). The conventional included 51

TABLE NO. 1

Section	Number of students in attendance: Prosthetists	Therapists	Physicians and Surgeons	Total	Number of Clinic Teams attending: VA	Other	Total
1. New York, Boston	9	10	9	28	3	4	7
2. Dallas, San Antonio, Houston, New Orleans, Newark	8	10	11	29	4	2	6
3. Pitstburgh, Philadelphia, Washington	9	8	10	27	3	4	7
4. Buffalo, Detroit, Cleveland, Columbus	9	16	17	42	2	9	11
5. St. Louis, Kansas City, Oklahoma City	5	8	8	21	3	3	6
6. Seattle, Portland, Tacoma, Walla Walla, San Francisco, Oakland	13	17	14	44	4	6	10
TOTALS	53	69	69	191	19	28	47

below-elbow, 39 above-elbow, and 16 shoulder disarticulation.

While the educational program is the chief activity of the staff, research is still a very important part of the job. For example, a research program to learn more about the problem of prostheses for children is being carried on in cooperation with the *Marion Davies Clinic* of the University of California. The pediatrics department of the Medical School operates this clinic as part of the Medical School program, and approximately four children are being brought into each six weeks school at the Prosthetics Training Center to have prostheses made. The Marion Davies Clinic staff is doing the medical and psychological data-gathering, while the staff at the Prosthetics Training Center is accumulating prosthetic data on these children. It is hoped that information will be obtained that will, *first*, enable a clinic team to better determine the best age for fitting a child with a prosthesis; *second*, determine the social and psychological effects of fitting children with prostheses; *third*, point to effective techniques for training children in the use of prostheses; and *fourth*, indicate what prosthetic components in smaller sizes are needed to properly fit children. In carrying out this research program, the Los Angeles Shrine Crippled Children Hospital and the Children's Hospital are cooperating with the University of California.

Continuous research is being carried on to discover and perfect better methods of fabricating and fitting upper extremity prostheses. A research project to solve the very costly problem of stump shrinkage is being carried on through study of amputees used in the school. There are more research problems on which work could be profitably carried on than there are staff members to work on them.

Conclusions

Twelve months of experience with the Prosthetics Training Center educational program has brought out a number of facts that have many implications for the future of prosthetic service in this country.

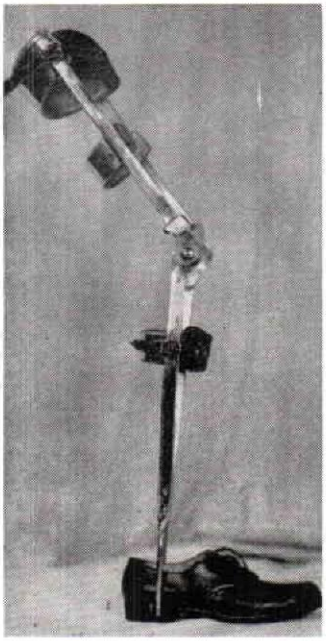
First, an educational program can be successfully organized and operated to serve three separate professional groups at the same time, training them to work together as teams for the purpose of achieving a worthwhile goal, in this case better rehabilitation of upper extremities amputees. No one member of the team could do the entire job alone. The approach to building team work among diverse professional groups used successfully at the Prosthetics Training Center is being observed with interest by other professional groups. There are great potentialities for similar programs in other fields. The design engineer, the contractor and the craftsman in many industries could improve production efficiency through such an approach. A move is under way in Los Angeles to start a program of this type to improve the techniques for caring for premature babies by training the hospital administration staff, the pediatricians and the nurses to work as teams. There are many other areas in which this method could be very valuable.

Second, fifty-three prosthetists have taken the six-weeks course and returned to their places of business to put into application what they learned. *Preliminary reports show conclusively that the investment they have made in training is paying off in a substantial way*. One graduate reported that it had cost him $2,000 to attend the six-weeks course at the University of California, but that within three months after returning he had fabricated and fitted such a large volume of artificial arms that he paid off the $2,000 investment and had made an additional $1,500. This is not an isolated example, but is fairly typical of the experience of a number of other graduates. The facts available at this time indicate that from the business point of view the six weeks training course at the University of California is a sound investment.

Third, a more complete professionalization of the field of prosthetics service may best be achieved through an educational program on the university level. The technical knowledge and skills that the professional prosthetist of the future must master are clearly too advanced to be properly taught in any other environment. Furthermore, therapists and physicians are trained in universities. If the prosthetists are to have status as prosthetic clinic team members with these professional groups they should be trained accordingly.

Fourth, the results of engineering research in a field like prosthetics needs not languish for twenty years before being put into use in the field to help people live better lives. The impact of this new prosthetic research knowledge being put into active use throughout the country by graduates of the Prosthetics Training Center is going to be felt for years to come in terms of greatly improved prosthetic service for amputees. It could not have been done in the short span of two years by any other means than an intensive, well-organized educational program. Research knowledge that remains locked up within the laboratories of the universities will be of little benefit to humanity. The obvious conclusion is to tie research and education together so that plans for a research program will include planning for putting the results into operation through training.

In conclusion, the members of the Prosthetics Training Center wish to extend their thanks to the members of the orthopedic and prosthetics industry throughout the country for the wonderful cooperation they have given in the operation of the prosthetics educational program at the University of California. Without the hard work done by Mr. Glenn E. Jackson, Mr. Lee J. Fawver and the other leaders in the Orthopedic Appliance and Limb Manufacturers Association and the American Board for Certification, the program could never have achieved the success that it has.



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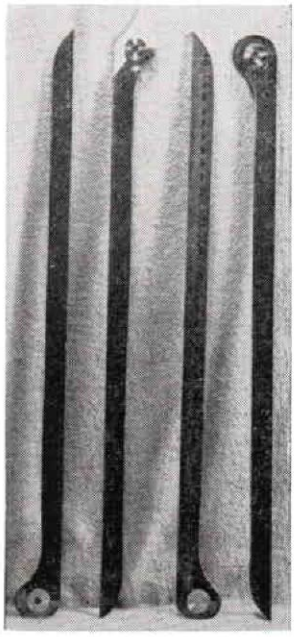

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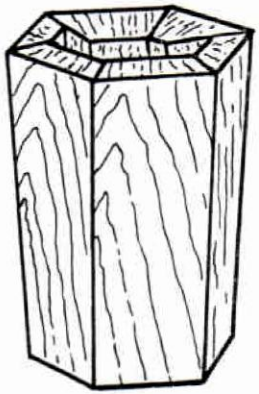

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PARTIAL HAND PROSTHESIS

By GEORGE B. ROBINSON

Certified Prosthetist, Robin-Aids Mfg. Co., Vallejo, Calif.

There are as many different types of partial hand prosthesis, as there are digits or sites of amputation of the hand. In many cases it is necessary for the prosthetist to design a special partial hand prosthesis for the amputee, since the individual amputee requires an appliance to fit his social life as well as his occupation.

With the discovery of plastics and new materials, which are neat in appearance, easily worked and which will withstand water, solvents and other corrosive elements; the task of manufacturing a partial hand prosthesis has been greatly simplified. Figures "A" and "B" illustrate this type of appliance.

Materials selected for the fabrication of a partial hand prosthesis must be carefully considered, as one is faced with the problem of sanitation; that is, a material that may be washed or scrubbed with soap and water, without damaging the appliance. Plastics and stainless steel best meet this problem. Leather may be utilized when it is coated with a nylon material.

The Prosthetist is confronted with numerous problems when he is called upon to fabricate a partial hand prosthesis. The main problems are function, versus cosmetic appearance. If possible, it is an ideal situation when both of these elements are achieved in the fabrication of the partial hand prosthesis.

Restoration of the digits must be considered in relation to their importance to the hand. It is felt that the thumb is first, in order; next, the index finger and on down the line to the little finger.

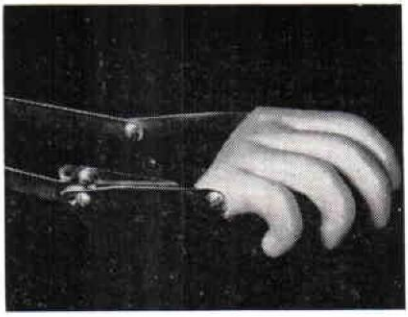

Fig. A. Partial hand prosthesis showing fingers and mechanism, source of control: wrist flexion. Materials: soft plastic, stainless steel and aluminum finger core.

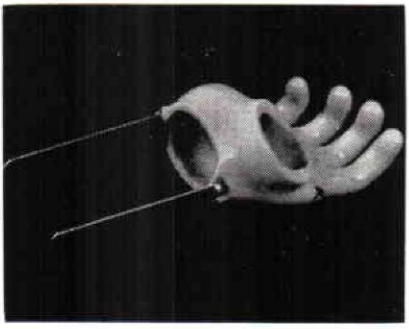

Fig. B. Partial hand prosthesis (same as Fig. A with the addition of a plastic socket to fit stump). Partially complete, other than cosmetic or leather glove, forearm cuff, socket to be trimmed and adjustments as necessary.

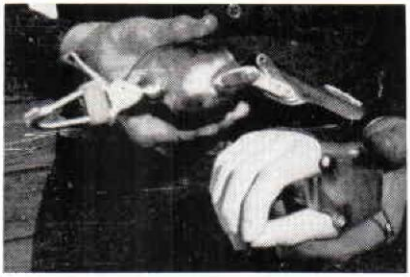

Fig. C. Interchangeable hand or hook partial hand appliance. Source of control: wrist flexion. Material: stainless steel.

Fig. D. Same partial hand appliance with hand attached.

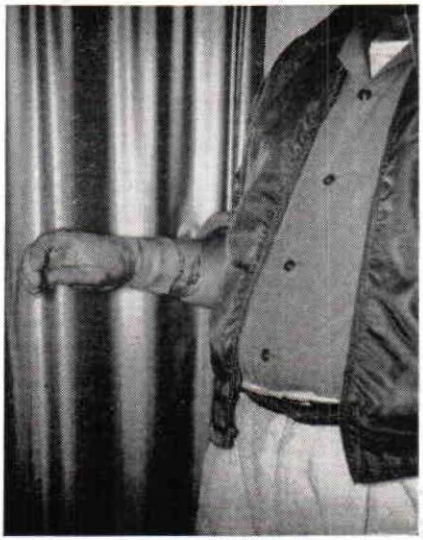

Fig. E. At right: Same appliance shown on patient with cosmetic glove.

Restoration of the thumb may be accomplished in numerous ways, for example: a steel post, cosmetic post, two-position mechanical thumb (such as the A.P.R.L. Hand Thumb) or a cable-controlled thumb, with one joint.

Since the hand is a delicate organ and its mechanisms small and complex, the same factors apply to the prosthesis for the partial hand; therefore, it is essential that this type of prosthesis be precision built. Since the human hand has very little padding on the dorsal surface and is, for the most part bone, a great deal of consideration must be given to the comfort of the wearer.

Four basic types or styles of partial hand prosthesis are the functional, the non-functional, the cosmetic and the non-cosmetic. The ideal function would be a combination of these, but this is seldom possible because of the desires of the patient. The determining factors in choosing an appliance are: the site of the amputation, the amputee's personality, social life and occupation. The prosthetist, with the assistance of the amputee and the physician, must decide upon the most beneficial type.

There are two major sources of power to motivate the appliance — wrist and shoulder control.

The shoulder may be harnessed with a double shoulder loop to provide power for motivation. This is accomplishing by means of a cable running from the shoulder to the appliance, encased in a housing. When wrist flexion is utilized, the harness is not required.

Figures A and E show several types of partial hand prostheses. Figures A and B are available in kits.

"What's New(s)"

• JAMES CAMPBELL, partner of Bryant and Campbell Artificial Limb Company, was honored by the Disabled American Veterans when he received the Salute of the Month Award for November, 1953. The monthly Awards by the DAV are part of a national program to point out to the American people the need for protecting the nation's rehabilitation program for disabled veterans.

Nashville Meeting Studies U-E Prosthetics

Jerry Leavy, Field Representative of the Dorrance-Hosmer Companies, gave a demonstration and report of upper extremity prosthetics at a Nashville meeting the evening of November 6. The audience of forty included orthopedic surgeons, physical therapists and representatives of the staff at Vanderbilt University Hospital and the Veterans Administration Regional Office and Hospital.

Jerry Leavy

Rehabilitation officials and officers of the crippled children's group were also in attendance.

All details of the meeting, which was held in the conference room of the VA Hospital, were arranged by R. D. Snell of the Snell Artifiicial Limb Co. and John E. Dillard of the J. E. Hanger Co. The many different types of arms and appliances were demonstrated and displayed. The lecture stressed the value of training the amputee and demonstrated the technique of dressing, eating and other familiar activities. The importance of proper harnessing and the taking of correct measurements were demonstrated and discussed.

Messrs. Snell and Dillard had planned for a half hour of discussion at the end of the demonstration. However, the interested audience would not go home and continued the discussion for nearly two hours. Comments during the meeting and later emphasized the need for clinic teams to afford the best service to amputees. There is a strong likelihood of two or more such organizations being formed in the Southeast in the near future. The meeting undoubtedly stimulated interest in the U.C.L.A. training courses.

Mr. Leavy has been called on for a number of such meetings that have been held throughout the country. The enthusiasm has always been high. In Nashville, the expression was made that such a meeting should become an annual affair.

W. C. Gorthy Director of Institute for Disabled

Willis C. Gorthy has been named Director of the Institute for the Crippled and Disabled, the nation's oldest and largest rehabilitation center. Mr. Gorthy, who has been Associate Director of the Institute since he joined it in 1949, succeeds the late Col. John N. Smith, Jr., who was Director of the Institute since 1933. Mr. Gorthy has been concerned with the rehabilitation of the handicapped since 1946 when he joined the Veterans Administration as Director of all coordination and planning for activities of the government agency in New York State and Puerto Rico. Immediately prior to joining the Institute he was the assistant manager of the VA New York Regional Office.

TO THE LADIES:

from OALMA's Woman's Auxiliary

I want to thank the members who have elected me president of your Auxiliary for this coming year. I appreciate the honor and the confidence you have placed in me, and I will fill the office to the best of my ability.

I am sure the women who attended the Assembly enjoyed every minute of it To those of you who were unable to attend, I would like to bring you up to date on the various happenings at the Chicago meeting.

The Assembly was attended by 49 women, 12 of whom were attending the Assembly for the first time. We inaugurated a big sister idea, to acquaint the new members with everyone, and it proved most successful. We certainly hope the new members were sufficiently impressed with us and our organization to come back every year.

The program our past president, Betty Hanicke, had worked out was a very excellent one, highlighted by the play "Seven Year Itch" starring Eddie Bracken. We all enjoyed it immensely.

The Auxiliary held a short meeting on Monday morning, after the President's Breakfast, to get the women together and give them their program for the duration of the Assembly.

Our business meeting was held on Wednesday morning. At this meeting, it was voted to revise the By-Laws. The rest of the officers elected were: Ruth Finlay, 1st V. P.; Florence Kraft, 2nd V. P.; Francis Aunger, Secretary; and Helen Kloene, Treasurer. The birthday card committee is Bernice Riggle and Virginia Hedges.

Our organization is one that functions mainly during the Assembly. However, we will have a page in each publication of the *Journal*. I will be most happy to hear from any of you during the year with any information or suggestions for this page or for our next Assembly. Speaking of the next Assembly, plans are already under way. It will be held in Atlantic City at the Chalfonte-Haddon Hall. As 1954 is the One Hundredth Anniversary of Atlantic City, there will be a lot of special features that should be of interest to all of us.

Sincerely yours,

Kay Keimkuehler

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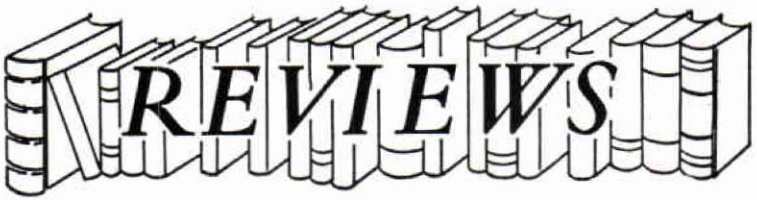


THE PRINCIPLES AND PRACTICES OF REHABILITATION

By Henry H. Kessler, M.D., Ph.D. In Collaboration With Other Authors. Lea & Febiger, Philadelphia, 1950.

Reviewed by Gordon G. Florin, RPT, Minneapolis Artificial Limb Co.

Here is a book that should be a "must" on the reading schedule for all prosthetists and orthotists. It is of particular interest to those in the limb and brace industry in that it provides an overall picture of the intricate pattern for the total rehabilitation of a disabled or handicapped individual, and it definitely gives a clear cut illustration of the important role that prosthetists and orthotists play in the rehabilitation of the patient.

In the first paragraph there is given a definition of rehabilitation that should be read and understood thoroughly as it voices the theme that is prominent throughout the book: "Rehabilitation is the restoration of the handicapped to the fullest physical, mental, social, vocational and economic usefulness of which he is capable."

The book is divided into two sections: Part I—Principles, and Part II—Practices. Support and emphasis is gained from 132 illustrations and photographs.

Part I is comprised of twelve chapters that deal primarily with the principles of Rehabilitation. Of particular interest to the limb and brace man are the chapters entitled: Physical Restoration, Rehabilitation With Plastic Surgery, Rehabilitation With Plastic Surgical Prosthesis, Physical Therapy in Rehabilitation, Physical Conditioning, The Principle of Occupational Therapy in Rehabilitation of the Physically Handicapped, Physical Rehabilitation of the Industrial Injured, and the chapters that pertain to the guidance, training and placement of the patient.

Part II deals with the practice of rehabilitation and handles more specific procedures and types of disability. Of particular interest are those chapters entitled: Rehabilitation of the Amputee and Rehabilitation of Poliomyelitis. In the chapter on amputees the pre- and post-prosthetic considerations are presented. The needs of the amputee, proper selection of appliance and proper fitting are discussed. Although the chapter on Poliomyelitis deals primarily with the treatment it should be of interest to the brace maker in that it lays the ground for the understanding of the brace prescription.

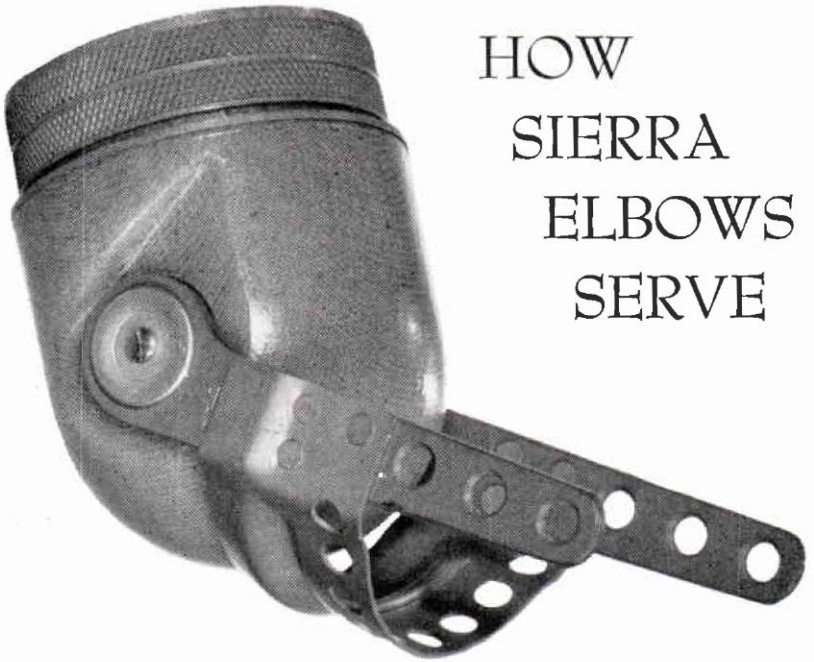
LIVING WITH A DISABILITY

By Howard A. Rusk, M.D. and Eugene J. Taylor. Garden City, N. Y., Blakiston Co., 1953.

Reviewed by Erich Hanicke, President, P. W. Hanicke Manufacturing Company, Kansas City, Mo.

"Living With A Disability" concerns itself with ideas and gadgets to aid the physically handicapped at home, at work and at play. The nearly 300 illustrations of the mechanical aids will meet almost any situation confronting the handicapped individual so he can clothe and feed himself, to get about his home as well as his place of occupation.

The authors emphasize that this book is intended to make available the knowledge of exciting inventions and discoveries which will help disabled persons to find something from which they can derive greater independence, efficiency, happiness and comfort. The authors further point out that each handicapped person



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should evaluate the various devices and use only those that will aid him the most.

As an example—an entire section of this book is devoted to the handicapped housewife. It gives illustrations of various devices and ideas for making the kitchen more efficient. It carries the housewife through her duties in preparing food, the laundry and in general housework. Persons who are not handicapped could easily benefit from many of the ideas given.

All of the gadgets and devices illustrated have not only been designed but have been actually tested and tried by patients. It is the first book of its kind for handicapped individuals that gives detailed instructions on the art of living with a permanent or temporary disability in our modern everyday life.

THE RADIOLOGY OF BONES AND JOINTS

By James E. Brailsford, M.D., Ph.D., F.R.C.P., F.I.C.S. (Hon.), Hunterian Professor, Royal College of Surgeons, England.

Reviewed by David E. Stolpe, Consultant to the American Board for Certification.

Primarily this highly technical work is not intended for either the orthotist or the prosthetist, but is written for specialists in the treatment of diseases of bones, and as a reference book for radiologists. Those in the brace and limb industry who are inclined toward study and research, however, will be interested in the general information which this work imparts.

The author has arranged this book in two sections, and has dealt in great detail with the subject of the skeleton, devoting entire chapters to its various parts.

Beginning with the skeleton at birth, Dr. Brailsford describes various abnormalities, birth injuries, etc.; and in subsequent chapters elaborates on traumas, fractures, diseases of the bones, and other conditions to which the skeletal structure is subject, showing how these are revealed and ascertained through the medium of radiology.

The first section is entitled "Regional Radiography" and contains twenty-two chapters. The following headings will give some idea of the thorough study which the author has made of "Tumors and Other Diseases of Bones": "The Hand and Wrist," "The Carpus," "Radius and Ulna," "Elbow Joint Area," "The Shoulder." Similarly, the lower extremity is fully discussed and illustrated in six chapters, after which he devotes entire chapters to "The Pelvis," "The Spine," "Lesions of the Spine," and so on.

The second section deals with "Abnormalities and Pathology of Bones and Joints."

This 828 page volume, with 725 illustrations, is now in its fifth edition, completely revised, well indexed, and is obtainable at The Williams and Wilkins Company in Baltimore, Md., priced at $19.00.

In Memoriam

E. C. MOORE died September 30, 1953 at Toronto, Canada. He began his career with J. E. Hanger in Baltimore, Maryland in 1912, and served successively as manager in New York, Philadelphia, Boston, and as vice president of the Canadian company at Toronto. Mr. Moore was stationed in Europe in 1917 at Lyons and Paris, France, and again at San Sebastian, Spain, from 1937 to 1939.

MRS. CARRIE WEBENDORFER died August 4, 1953 of a heart attack at St. Petersburg, Florida. She was connected with various limb firms in the early 1930's, among them George Dorsch, William Francis and the C. H. Davies Company. She had resided in St. Petersburg for the past five years.

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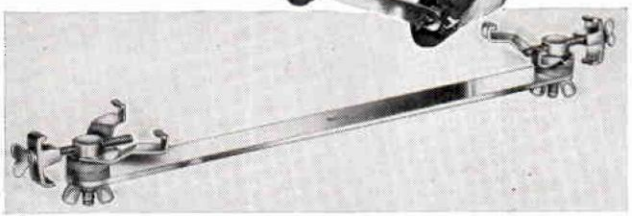

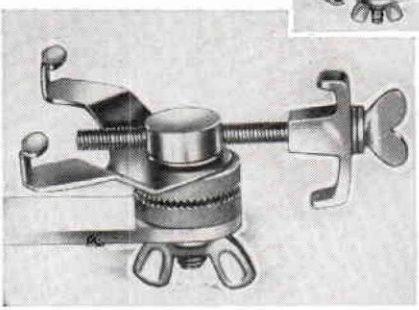

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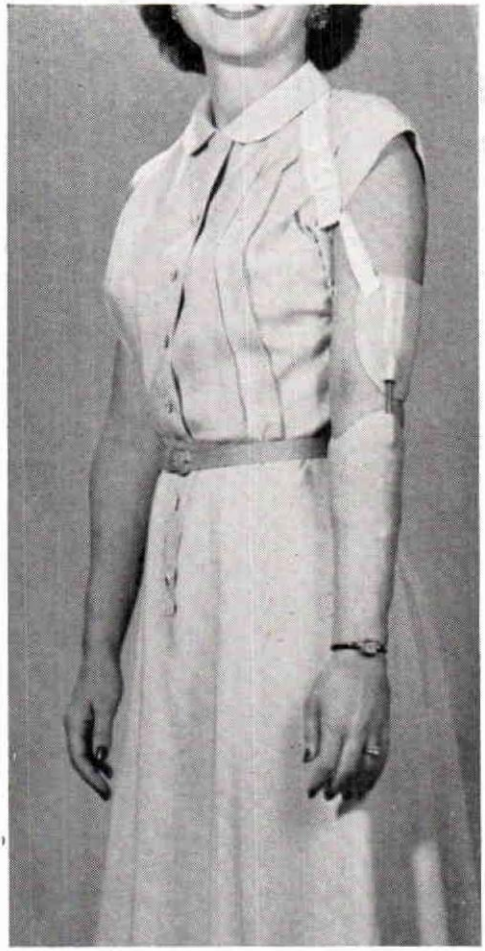

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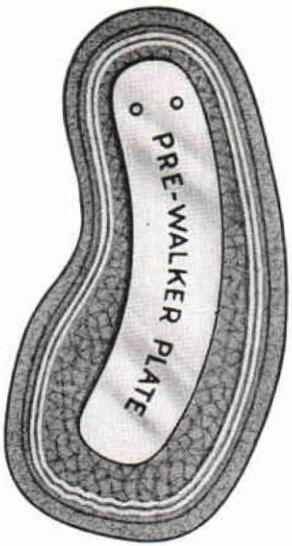

LEFT
Sole removed to show flat steel plate extending from heel to toe

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Our Code of Fair Trade Practices

Below is a digest of the rules governing fair trade practices as promulgated by the Federal Trade Commission, April 1946 and adopted by the American Board for Certification in August 1948.

It is an unfair trade practice:

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

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

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

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

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

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

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

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

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

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

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

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

(13) To wilfully entice away employees of competitors.

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

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

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

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

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

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

Further, the industry desires to be an active and cooperative factor in all progressive developments of improved techniques that will contribute to the welfare and comfort of all who wear its products.