DECEMBER, 1957

# ORTHOPEDIC & PROSTHETIC APPLIANCE The Journal of the Limb and Brace Profession



The Skill of the Orthotist Allows These Children To Take Part in Decorating Their Own Tree. They are only two of the many thousands who have benefited from treatment sponsored by the National Society for Crippled Children and Adults, the Easter Seal Society.

Orthopedic Appliance & Limb Mfrs. Assn. and American Board for Certification

## DATES TO REMEMBER

### 1957-1958

What • When • Where

#### FEBRUARY

1-6 ACADEMY OF ORTHOPAEDIC SURGEONS-MEETING

14-16 OALMA SOUTHEASTERN MEETING (REGION IV)

#### MARCH

8-9 OALMA SOUTHWESTERN MEETING (REGION VIII)

Waldorf-Astoria Hotel, New York, N. Y. Fort Sumter Hotel, Charleston, S. C.

Gonzales Warm Springs Foundation, Gonzales, Texas

#### APRIL

12 OALMA MIDDLE WESTERN MEETING (REGION VII)

#### Fort Des Moines Hotel, Des Moines, Iowa

Biltmore Hotel, New York, N. Y.

Lord Baltimore

Baltimore, Md.

Brussels, Belgium

Hotel

#### MAY

- 2-3 OALMA-New York City Meeting (Region II and MOALMA)
- 24-25 OALMA REGION III MEETING
- 25-26 INTERNATIONAL CONGRESS OF ORTHOPEDIC TECH-NICIANS, TRUSS MAKERS AND PROSTHETISTS (a session of the Brussels Exposition)

#### JUNE

- 1 Applications to take the Certification examinations given this year must be on file in the Washington, D. C. Certification office by this date!
- 16-21 PROSTHETICS RESEARCH BOARD WASHINGTON CONFERENCE AND PANEL SESSIONS

#### AUGUST

24-29 American Congress of Physical Medicine and Rehabilitation—Meeting

### OCTOBER

- 17-18 Certification Examination for Orthotists and Prosthetists
- 24-25 Certification Examination for Orthotists and Prosthetists
- 26-29 OALMA NATIONAL ASSEMBLY

National Academy of Sciences,

Washington, D.C.

Hotel Bellevue-Stratford, Philadelphia, Pa.

St. Louis, Mo. Miami Beach, Fla.

Eden Roc Hotel, Miami Beach, Fla. COUTILS • MOLESKINS • NYLON LACING

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ORTHOPEDIC & PROSTHETIC APPLIANCE JOURNAL

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## **Appliance Journal**

(Title registered U. U. Patent Office)

VOLUME 11	•	DECEMBER, 1957	•	NO. 4

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**Plastics** 



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For use on congenital talipes equinovarus, calcaneovalgus, cerebral palsy (spastic paralysis), congenital subluxation or dislocation of hips, bow legs and knock knees.

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DECEMBER, 1957

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#109 KB DeLuxe Hinge Knee Cap



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Certified

The American Board for Certification announces that the individuals listed below have met the requirements of the Board as to experience and training. Each one successfully passed the comprehensive written, oral and practical tests given at Washington, D. C., September 26, 27, and 28, 1957. Their names will appear in the 1958 Registry of Certified Orthotists and Prosthetists.

#### CERTIFIED AS ORTHOTISTS

HARTWELL P. BREMER, Hawthorne, Florida DARWIN J. BUCK, Lawton, Oklahoma KENNETH O. BURGESS, Memphis, Tennessee EDGAR E. DOERSCHLER, Englewood, Colorado MARION R. DUNN, JR., Warm Springs, Georgia JACK B. FAATZ, Kingsport, Tennessee GEORGE L. FARMER, JR., Asheville, North Carolina JOSEPHINE M. FESSLER, Roseville, Michigan WILSON FOWLER, Greenville, Georgia JOHN J. GLANCY, Providence, Rhode Island ARTHUR W. GUILFORD, JR., Cleveland, Ohio ARTHUR W. GUILFORD, SR., Cleveland, Ohio MARON A. HARPER, Monroe, Louisiana SOL HOUTKIN, New York, N. Y. BERNARD F. JOHNSON, Marquette, Michigan RICHARD H. JOHNSON, Evansville, Indiana RICHARD J. JUBERT, Green Bay, Wisconsin THOMAS M. JUNK, Elizabethtown, Pa. LUDWIG KALB, New York, N. Y. ROBERT F. KILLIAN, Cambridge, Massachusetts JAMES C. LUNA. Memphis, Tennessee JOSEPH C. MARSHALL, Toledo, Ohio WILLIAM J. MURPHY, W. Quincy, Massachusetts THOMAS NORRIS, Sykesville, Maryland GEORGE M. PARSLEY, Charleston, West Virginia VERNON T. PATE, Memphis, Tennessee JOHN G. PIRIE, Cuyahoga Falls, Ohio JAMES C. RUSS, Warm Springs, Georgia JAMES M. SANDERS, Delaware, Ohio HIRAM A. SHARPE, Jacksonville, Florida

KAZY SILEIKIS, Chicago, Illinois
L. EUGENE SNYDER, Elizabethtown, Pennsylvania RALPH A. STORRS, Kankakee, Illinois
WILLIAM V. STUBBS, Chattanooga, Tennessee
JAMES E. SWEIGERT, Elizabethtown, Pennsylvania
EDWARD P. VAN HANSWYK, New York, N. Y.
CHARLES CLIFFORD WILSON, Jackson, Mississippi
THOMAS S. WILSON, Jackson, Mississippi
WESLEY J. WILSON, Jackson, Mississippi
GEORGE I, ZETTS, Washington, D. C.

#### CERTIFIED AS PROSTHETISTS

HERBERT BREWER, St. John's, NFLD GERALD T. BUTT, Montreal, Canada WALTER H. CALESON, Spokane, Washington HUNG TONG CHUN, Pusan, Korea ALLEN J. CLARK, Charleston, South Carolina ANTHONY R. COCCO, Philadelphia, Pennsylvania CAMILLE CORRIVEAU, Montreal, Canada KENNETH A. DINKINS, Shreveport, Louisiana BERNHARD ERNST, Newark, New Jersey HELMUTH W. FLIESS, Chicago, Illinois GUNTER H. GEHL, Chicago, Illinois RAYMOND E. GUSTIN, Green Bay, Wisconsin WARREN F. IMWOLD, Baltimore, Maryland MARION F. KESSLER, Hyde Park, Massachusetts HERBERT E. KRAMER, Little Neck, New York SEYMOUR M. LIPTON, Brooklyn, New York VANCE C. MEADOWS, Marne, Michigan JOSEPH M. MORAN, Far Rockaway, New York JUNIOR ODOM, Nashville, Tennessee RALPH W. POLLEY, Cincinnati, Ohio ARMAND L. ROY, Burlington, Vermont WILLIAM SAMPSON, Astoria, New York HENRY E. SCHEYTT, Homer, Michigan HERBERT W. SCHULZE, Chicago, Illinois FLOYD D. SIMMONS, Memphis, Tennessee RALPH R. SNELL, Nashville, Tennessee LEONARD A. SVETZ, Dravosburg, Pennsylvania ALLEN G. TALLEY, JR., Raleigh, North Carolina LEWIS C. TANKERSLEY, Columbia, South Carolina GENE E. WATTERS, Harrisburg, Pennsylvania



## OALMA HONORS EISENHOWER ADMINISTRATION Limb and Brace Session Pick McCann and Dr. Hoover



PRESENTATION TO THE EISENHOWER ADMINISTRATION—OALMA presented a Citation to the Eisenhower Administration at the National Assembly, in recognition of the Administration's Rehabilitation Program. Shown left to right are: Past President McCarthy Hanger, Jr., Vice President Karl Buschenfeldt, President-elect John McCann; the Honorable Edward Foss Wilson, Assistant Secretary of Health, Education and Welfare, who holds the Citation, and Past President Hennessy, who presented it.

The 1957 Assembly, which proved to be the largest gathering in history of the limb and brace profession in the United States, adjourned in Washington October 2, with this record of accomplishment:

1. Experienced and dedicated leadership has been chosen for the year ahead. John A. McCann of Burlington, New Jersey, with over thirty years of experience, is the new President of OALMA. Dr. Roy M. Hoover of Roanoke, Virginia, heads up the Certification Program. Karl Buschenfeldt, noted orthotist of Stoughton, Massachusetts, and Paul Leimkuehler, prosthetist of Cleveland, Ohio, as Vice Presidents will be second in command to John McCann. McCarthy Hanger, Jr., of St. Louis, developer of the Apprentice Training Program, serves as Vice President of the Certification Board. M. P. Cestaro of Washington is continued as Treasurer of both organizations in recognition of guiding both groups on a sound financial basis.

2. Professional and technical programs of high calibre had been presented. Many of the papers first disclosed to the Assembly audience will be printed in 1958 in various issues of "The Journal of Bone and Joint Surgery" and the "Orthopedic and Prosthetic Appliance Journal."

3. Technical and supply exhibits, always a major feature of the Assembly, reached a new high in excellence. This will be reflected in improved service to the handicapped in the years ahead.

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"Seasoned Leadership": Left to right, Vice Presidents Karl E. Buschenfeldt and Paul E. Leimkuehler with Treasurer M. P. Cestaro.

4. Tribute was paid to the Eisenhower Administration for its leadership in rehabilitation. This was in the form of an illuminated scroll reading as follows:

"The Orthopedic Appliance and Limb Manufacturers Association

herein cites

The Administration of Dwight D. Eisenhower

President of the United States of America

For its recognition in word and deed of rehabilitation as a major force in the progress and welfare of the Nation.

The Administration has given rehabilitation a broader meaning and more effective reality. The members of this Association perhaps more than any other group know what this has meant in the lives of the handicapped. It has inspired and encouraged as they serve their fellow citizens.

Given at Washington this second day of October, 1957.

/s/ CHARLES A. HENNESSY

President

/s/ JOHN A. MCCANN

Vice President /s/ KARL BUSCHENFELDT

Vice President

/s/ M. P. CESTARO Secretary-Treasurer"

/s/ GLENN E. JACKSON

Executive Director

5. Cordial greetings were sent colleagues in Germany. (See page 17 of this issue of the Journal.)

6. Attention was focused on the problems to be solved before the continued growth of the limb and brace profession can be assured. These include careful attention to unfair trade practices, to the implications of harmful competition from nonprofit organizations and government, and to the impact of research on service to the handicapped.

#### McCann Takes Office

In assuming office as President of OALMA, John A. McCann of Burlington, New Jersey, declared: "Humbly and with a deep sense of responsibility do I accept this great honor of being elected president of OALMA. I pledge you my best efforts, so that one year from now I will not have violated your confidence in me."

ORTHOPEDIC & PROSTHETIC APPLIANCE JOURNAL



National Distributors: OTTO BOCK Distributing Agency, P. O. Box 1557, Salt Lake City 10, Utah



ASSEMBLY REUNIONS—At the right, Mr. and Mrs. Herman Kraus of Boston with H. H. Maddox of the Warm Springs Foundation. At the left, Herbert Hart of Oakland with Treasurer M. P. Cestaro and Insurance counsellor A. J. Davis.

#### The Year Ahead

President McCann moved quickly to see that new services were developed for members. One of these is a new monthly bulletin to carry news of activities in the limb and brace field. This is the OALMA Almanac, a printed news bulletin, the first issue of which appeared in November 1957. A feature of this issue is the questionnaire on wages paid the limb and brace field. Results of the questionnaire will be announced in the January 1958 issue of the Almanac.

The new *Almanac* is to be published in the months in which the "Orthopedic and Prosthetic Appliance Journal" does not appear. Thus the limb and brace profession will have a voice every month of the year.

An audio-visual library carrying out a suggestion of new member Howard Reinherz of Kenosha, Wisconsin, was made an actuality. This is to consist of a series of slides showing processes in the limb and brace field. The first slides have already been received through the courtesy of Dr. Robert Mazet and Roddy Churpurdia, C.O., of Los Angeles. These will be available for loan to any member of OALMA. Other brace and limb establishments are invited to contribute slides showing their own products and work processes, to OALMA headquarters.

#### **Operation Future**

OALMA headquarters is mindful of the future as well as of the needs of the immediate present. To plan for a better future of the limb and brace profession, an unusual conference will be held early in the new year. This is a meeting of the past presidents and the current officers and executive staff of OALMA. Given the name of "Operation Future," the group will meet January 9-12, in Augusta, Georgia, trying to find answers to questions such as these:

"Where are we headed?" To what extent will we become a profession? What is Research going to play in the total picture? And what about personnel for the future—how should it be trained—how recruited? What kind of education is needed?

#### **Committees Named**

To advance the interests of the limb and brace profession, John A. Mc-Cann, President of OALMA, has named five committees to carry out details of OALMA's program for the year ahead. These include:

1. Membership Committee; Paul E. Leimkuehler, Chairman, and the eleven Regional Directors. Function: To promote and maintain membership in OALMA.

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Transverse and lateral ANKLE MOTION For the AMPUTEE ...

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- 1. Flexible Angle Joint
- 2. Stop Nut

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- 3. Nylon Strap
- 4. Pinch Fitting
- 5. Rubber Damper
- 6. Foam Latex Rubber Sole
- 7. Hardwood Base

TRANSVERSE ROTATION prevents skin abrasion caused by twisting the stump in the socket.

BLOCK RUBBER MOUNTS provide noiseless, gliding motion with no lubrication necessary. FULL SOFT RUBBER SOLES

reduces sock wear to a minimum.

ENTIRE ANKLE IS CONSTRUCTED to decrease shock, give cushioned weight bearing, which is important to wearer's comfort and activity.



FIDELITY BLDG., DAYTON, OHIO

At THE GERMAN CHANCERY—Dr. Albert Ernecke, commercial counsellor of the German Embassy in Washington holds the message of greetings from OALMA to our German colleagues. OALMA President Hennessy is at the left, and Certification Board President Carlton Fillauer at the right.



2. Brace Dictionary Committee: Karl Buschenfeldt, Richard G. Bidwell, Carlton Fillauer, M. J. Benjamin, and Frank Harmon. Scope: To compile material for and plan the Brace Dictionary.

3. Journal Committee: C. O. Anderson, L. B. Barghausen, John J. Bray, William E. Brownfield, Erich Hanicke, Richard M. Locke, Joseph H. Martino, Alvin L. Muilenberg, Basil Peters, Ralph Storrs, Leo Waller. Scope: To work with the editor in soliciting articles and advertisements for publication in the Journal, and to recommend editorial and publication policies.

4. *Program Committee*: Ralph Storrs, Chairman, with additional members to be selected. Scope: To work with the headquarters staff in planning the program for the 1958 Assembly at Miami Beach.

5. *Exhibits Committee:* Ted W. Smith of Kansas City, Chairman, and additional members to be selected. Scope: To work with headquarters staff in setting up arrangements for technical, supply and educational exhibits at the National Assembly.

#### OALMA GREETINGS TO GERMAN COLLEAGUES

A reception at the Chancery of the German Embassy in Washington was one of the notable ceremonies held during the National Assembly in Washington. OALMA President and Mrs. Hennessy and Certification Board President Fillauer led a group of over 100 OALMA members to the Chancery the evening of September 30, where they were received by Dr. Albert Ernecke, Commercial Counsellor of the Embassy and his colleagues.

President Hennessy presented a Scroll of Greetings to the German Orthopedic and Artificial Limb Field from OALMA. Dr. Ernecke accepted the Scroll on behalf of the German group. He expressed the pleasure of the German Government at the close relationship between OALMA members and their colleagues in Germany, and reported that the Scroll of Greetings would be duly transmitted through official channels for delivery in Germany.

The text of the Citation follows:

#### "GREETINGS TO THE BUNDESINNUNGSVERBAND FUR DAS ORTHOPADIE-, CHIRURGIEMECHANIKER- UND BANDAGISTEN-HANDWERK IM BUNDESGEBIET UND WESTBERLIN:

The Orthopedic Appliance and Limb Manufacturers Association, at its Fortieth Anniversary meeting in Washington, D. C., extends greetings to the members of our profession in the Federal Republic of Germany.

The bonds of fellowship and cooperation between members of the limb and brace profession in our two countries have strengthened through the years. Many of our members received their basic training in Germany. They have made a notable record in the United States of America. Representatives of OALMA have been welcome guests at the annual meetings of the German Association.





## \*VARI-GAIT V100 (Illus.)

The Quality knee providing Knee Stability at low cost

## **\*VARI-GAIT V200**

Friction knee with swing phase

## **\*VARI-GAIT V300**

Economy Friction Knee

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\*Fits any shoe

\*Different settings

\*All sizes - 6" to 30"

\*Attractively finished in color





THE TWO FIRST LADIES AND THE GERMAN COUNSELLOR—Mrs. Jean Hennessy, wife of the OALMA President, is shown at the left, with Albert Ernecke and Mrs. Lloyd Brown, President of the OALMA Ladies Auxiliary, 1956-1957.

Recalling gratefully this growing cooperation for the welfare of the handicapped, we extend fraternal greetings in this message, which is being transmitted through the courtesy of the Embassy of the Federal Republic of Germany, this 30th day of September, 1957."

At the conclusion of the ceremony refreshments were served. Members of OALMA and the staff of the German Embassy reminisced about favorite cities in the Old World, and their impressions of America until the turn of the clock made it necessary to return to the Statler Hotel for the evening sessions of the Assembly.

## **Prosthetics Exhibit**

The display on Prosthetics arranged by the Prosthetics Research Board was one of the principal features of the National Assembly. This was only the second showing of the exhibit; the first was at London in July 1957 for the International Congress for the Welfare of Cripples. Physicians and Prosthetists who did not have an opportunity to see the exhibit are reminded that it will be included in the Meeting of the Academy of Orthopaedic Surgeons at the Waldorf-Astoria Hotel, New York City, February 1 to 6, 1958.

(For other stories on the Assembly, see pages 118-123)

#### CERTIFICATION PICKS DR. HOOVER AT ASSEMBLY SESSION



THE CERTIFICATION EXAMINATIONS—This picture shows some of the 83 candidates who spent eight hours taking the comprehensive written examinations which are part of the Certification procedure. Examinations were given in the historic Congressional Room of the Statler Hotel in Washington as a part of the National Assembly. Oral interviews and examination of appliances submitted by the candidates were a part of the examination procedure.

Turning for the second time to the medical profession, the American Board for Certification elected Dr. Roy M. Hoover, orthopedic surgeon of Roanoke, Virginia, as its president for 1957-58, succeeding Carlton E. Fillauer, Chattanooga. (Dr. Robert Mazet of Los Angeles is the other physician to hold this post.) The first message of President Hoover is printed elsewhere in this issue of the *Journal*.

Other officers of the Board are: McCarthy Hanger, Jr., of St. Louis, Vice President, and M. P. Cestaro, Washington, D. C., Secretary-Treasurer.

The election of officers was held on Tuesday, October 1st, as a part of the National Assembly in Washington.

Earlier in the week a class of ninety candidates took the Certification Examinations which this year were spread over the three days of September 26-27-28.

The written examination for Prosthetists included the following: Orientation, Otis Employment Test, Lower Extremity Prosthetics, Upper Extremity Prosthetics, The Guilford-Zimmerman Temperament Survey, Basic Principles of Anatomy, Lower Extremity Anatomy and Locomotion, Tools and Materials.

The written examination given orthotist candidates omitted the tests in prosthetics, but added sections on General Principles of Orthotics and on Tools and Materials.

The names of the successful candidates are given on pages 12 and 13 of this issue of the *Journal*. They will also appear in the 1958 Registry of Certified Orthotists and Prosthetists, which will appear early in the spring of 1958.



FOURSOME AT THE ASSEMBLY—Left to right: Dr. Roy M. Hoover and Dr. Edward C. Holscher of the Certification Board shown with Karl Buschenfeldt, Vice President of OALMA, and Dr. Russell Fuldner of New Haven.

#### DATES FOR THE '58 EXAMINATIONS

The Certification Examinations in 1958 will be held in St. Louis, Missouri, on or about October 18, and in Miami Beach, Florida, October 24 and 25, immediately before the Assembly opens. Yet another examination will be scheduled for Los Angeles, if sufficient approved applications are received.

June 1, 1958 is the deadline for all applications for any of these examinations. These should be sent to the Executive Director, American Board for Certification, 411 Associations Building, Washington, D. C. Copies of the necessary forms and other information will be sent upon application if requested.

The examination procedures are to be revised so that the Board may be assured that the physician signing the application has personal knowledge of the applicant and of his competence.

The Board will no longer certify prosthetists who are "making upper extremity appliances only" as specialists; however, the Board directed that the Examination Committee should review this question and report back to the Board for possible revision of this rule.

#### **REGISTRY FOR 1958**

The new Registry of Certified Facilities will be published soon after January 1, 1958. The facilities which are in arrears on payment of fees will be dropped from this Registry.

#### CERTIFEES TO HAVE BOARD REPRESENTATION

The eleven hundred certified prosthetists and orthotists will have a part in the selection of Board members, under a new plan. Early in 1958, they will choose a seventy-man Advisory Council. This Council in turn will nominate a prosthetist or orthotist for a three-year term on the Certification Board.

Three Board members will be elected in 1958. Present members whose terms expire then include Edward W. Snygg, McCarthy Hanger, Jr. and Dr. Roy M. Hoover. Their successors under the new plan, will be chosen from nominations submitted by the Academy of Orthopaedic Surgeons, the OALMA Directors, and the newly-elected Advisory Council.



Vernon L. Nickel, M.D., and Charles Hennessy, C.,O.&P., both of Los Angeles, are new members of the American Board for Certification

#### DR. NICKEL AND HENNESSY JOIN THE BOARD

To fill the vacancy caused by the retirement of Dr. Edward C. Holscher of St. Louis and Carlton Fillauer of Chattanooga, Tennessee, the annual meeting of the Board chose Dr. Vernon Nickel of Rancho Los Amigos, Hondo, California, and Charles A. Hennessy of Los Angeles. Dr. Nickel was nominated by the Executive Committee of the Academy of Orthopaedic Surgeons. Mr. Hennessy was nominated by the Board of Directors of OALMA.

#### BALANCE OF B/K AMPUTEES: ABSTRACT

From "Journal of the Association for Physical and Mental Rehabilitation"; published bi-monthly by the Association for Physical and Mental Rehabilitation, 1472 Broadway, New York 36, N. Y.; Subscription per year --\$5.00.

The September-October issue contains a study of the balance of belowknee amputees by means of the Beam-Walking Tests, page 152. This study is by Marshall A. Graham, formerly with the Prosthetics Device Study of New York University. The article describes the results obtained by nine belowknee amputees who were given this test. Each amputee with both hands on his hips walked each of four beams by placing the heel of the forward foot against the toe of the planted foot. The beams were ten feet long with the walking surface four and a half inches from the floor. Each amputee walked, first with the conventional wood socket, then with a fabricated rubber-lined plastic covered socket, made in accordance with the specifications published by the United States Naval Hospital Amputation Center, Oakland, Calif. The author concludes that "results indicate improvement in dynamic balance as a result of use of the soft socket. It is probable that this improvement was the result of improved closer socket fit as well as the soft lining, resulting in the relief of undue pressures on such areas of the stump as the sub-patella ligament, the tibial tubercle and the distal anterior tibia. With the relief of such pressures, the amputee was able to apply full weight as rapidly as necessary, thus providing a steadiness that was not possible on the conventional socket."

#### VA TO STUDY KNEE COMPONENTS

The Veterans Administration has long recognized the need for careful analysis and evaluation of commercially available prosthetic components, so as to enrich the knowledge of professional prosthetists and program researchers alike, and to provide physicians with functional details helpful in formulating prosthetic prescriptions. Responsibility for this analysis and evaluation has now been assigned to the VA Prosthetics Center, New York City.

As the first phase of this project, the VA Prosthetics Center, with the assistance of New York University, will conduct a comprehensive evaluation of commercial prosthetic knee components for above-knee amputees. Engineers, prosthetists, and medical evaluation personnel are now preparing a two-phase study consisting of (1) an analytic phase in which the commercial knees will be examined and tested on a laboratory basis, without amputee fittings, and (2) a phase involving fittings to amputees both in the New York University Prosthetics Shop and in the Limb and Brace Section of the VA Prosthetics Center.

All manufacturers, distributors, wholesalers, and retailers who have prosthetic knee units on the market are asked to communicate with the Chief, VA Prosthetics Center, 252 Seventh Avenue (third floor), New York 1, New York. The study is intended to include all commercially available artificial knees, and it is hoped that all vendors of knee units will cooperate by the submission of their devices.

#### Laboratory Testing

Personnel from the two cooperating organizations will evaluate the design and construction of commercially available knee units by determining (1) the functional characteristics of the mechanism, (2) the adequacy of materials used in the mechanism, and (3) ranges of motion and magnitudes of frictional resistance. Testing for structural adequacy will be performed, if indicated. Engineers and prosthetists will, using these data as well as visual examinations, specify function and delineate apparent advantages and/or limitations of the devices.

At the conclusion of this phase a report will be published, presenting the data obtained for all of the devices surveyed, as well as the findings of the prosthetists and engineers. Illustrations will be used to show the design and function of each component evaluated.

#### Amputee Testing

Fittings of the commercial knees will be done in both the New York University Limbshop and in the Limb and Brace Section of the Veterans Administration Prosthetics Center. The New York University fittings will involve a carefully selected group of amputees, with emphasis directed at analysis of gait, using special laboratory equipment such as force plates and the interrupted light camera. The Limb and Brace Section will also fit amputees (probably a larger number) with primary emphasis being given to fabrication, fitting and alignment problems, as well as to durability of the knees. Both research groups will, of course, be interested in reactions of the amputee test wearers.

The proposed studies should produce objective and subjective data regarding each of the knees submitted for test. Results of the amputee tests will also be published, probably as addenda to the report of the earlier investigations.

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#### Are We Becoming Professional: The Role of

#### **Certification:**

as to----

I. Competitors and Colleagues—Charles A. Hennessy, C.O.&P., Los Angeles

II. Rehabilitation Agencies-W. Frank Harmon, C.O., Atlanta, Ga.

III. The Physician-John Buckley, C.O., Providence, Rhode Island

IV. The Patient-Ivan Dillee, C.P., New York, N.Y.

V. The Challenge-E. C. Holscher, M.D., St. Louis, Mo.

This discussion was a feature of the annual meeting of the American Board for Certification held in Washington, D. C., September 30, 1957.

#### 1. COMPETITORS AND/ OR COLLEAGUES

#### Remarks by

#### CHARLES A. HENNESSY, C.O. & P., Los Angeles

What is it that makes a person either a competitor or a colleague in a profession that is dedicated to helping handicapped persons stand on their own two feet?

An undesirable competitor is a person who places his prices so low that he has to produce inferior work in order to keep his doors open.

Equally undesirable is the person that cuts a price of his product just to fill in to keep his employees busy.

An inexperienced man who opens a new establishment has to cut prices to exist—and he has trouble in adjusting his fees to survive.

A person who does not attend any of the Regional meetings or the National Assemblies or take advantage of any of the schools in order to improve himself and contribute to the welfare of others is also undesirable.

A person who quotes a price over the phone without seeing the patient is in this grouping.

Much the same thing can be said about the practice of bidding on a contract without ever considering time spent seeing and examining your client or the doctor's patient.

Let us also include in that group a person who does not share his ideas or himself with others.

Now what makes up the person who is a true colleague or member of your profession:

- 1. A man who acts and thinks professionally.
- 2. The man who aids the clinic team, and participates in it as a member of a team, for the benefit of the patient.
- 3. One who belongs to his Association and contributes to its program for the benefit of the other members as well as himself.
- 4. One who has attended Seminars, Schools and continues to study by carrying on a research program, to better himself and others in the field of Orthotics and Prosthetics.
- 5. A person who is dedicated to give and perform the best service available for his patient, may in turn expect to submit a proper fee for his services.

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#### II. REHABILITATION AGENCIES AND CERTIFICATION Remarks by FRANK W. HARMON, C.O., Atlanta

Most of us will recall the unsavory reputation enjoyed by some members of the industry, ten to fifteen years ago. At that time, there was a mutual feeling of suspicion and distrust among industry members and the agencies with whom we are associated. In many instances, we were looked upon as 'ambulance chasers' and frequently thought of as vultures awaiting every opportunity to pounce upon a dainty morsel.

Our more thoughtful members realized the necessity for a house-cleaning, and we decided to do it ourselves, before we were forced into it by way of government regulations.

Ten years ago, therefore, the American Board for Certification was born, and today, we are beginning to realize the fruits of our own efforts.

I have recently visited the offices of our Rehabilitation Agencies and talked with directors and counselors in order to get first hand their viewpoints on this subject. They were all acquainted with our program and highly interested in what we are doing and back of us 100%. The State of Georgia was one of the first—if not the first—to require that all purchases of Orthotic or Prosthetic appliances would be made only through certified facilities, staffed with Certified Orthotists and Prosthetists. They must have had faith in us, or such a step would never have been taken. It is up to us to justify that confidence and to maintain a professional attitude that we may continue to elevate the standards toward which we are all striving.

You will recall the opening of this convention and the keynote address by Glen Sanberg and remember the tremendous satisfaction that was derived from the efforts of his family when they built their cottage with their own hands. We, too, are experiencing a similar feeling of elation; for, we, too, are building a reputation, but, never let us forget that a reputation is what others thinks we are, but character is what we actually are.

#### III. THE PHYSICIAN AND OUR PROFESSION Remarks by JOHN BUCKLEY, C.O., Providence, R. I.

Are we becoming professional and does the physician look upon us as a member of a professional ancillary service?

To this question, we should have to answer, "Yes, he does in most instances." We have qualified this answer because there are still many physicians who are not well acquainted with our program even though it has been an active and strong movement for some years now.

Our Board and national office has done a fine job exhibiting at meetings and sending lists of certified facilities and individuals to the agencies and doctors. However, we cannot and should not expect the Board to do all the missionary work.

Let us consider for a moment who the uninformed physician is. He lives in any section of our country. He is a capable and conscientious man, often with a large practice which takes most of his time. He most often practices his specialty in a small city quite far removed from a large medical center. He has no easy access to a certified facility and therefore often falls prey to the unqualified individual who dispenses braces along with aspirin, alka-seltzer and shaving lotions.

As unbelievable as this may seem to many of you, I am describing an actual incident which took place this past spring.

I have mentioned this situation only so we won't delude ourselves into thinking that all of our physicians are as well acquainted with us as are men like Dr. Holscher, Dr. Wise, and others who are meeting here with us now.

Each of us must remember that the cloak of professionalism can only be earned by hard, sincere, and honest efforts. No sum of money, no amount of wishful thinking and no desire, however passionate, will allow us to wear it. It must be earned.

And to each of us who wishes to wear this cloak with pride, I would say that he must become a missionary to carry the gospel of Certification out into the highways and the byways to the physician whom he serves or may come to serve.

I should like to propose a guide to you for your day to day conduct in the form of an acrostic on the word Certification.

> C---Cooperation E---Ethical R---Resourceful T---Thorough I---Interested F---Fair I---Informative C---Creative A---Assuring T---Thoughtful I---Interpretive O---Observant N---Neutral

I feel sure that if we all try to follow this guide in our daily relations with the physician and his patient we will be able to answer the question "Are we becoming professional in the eyes of the physician?" with an emphatic YES!

#### IV. THE PATIENT AND CERTIFICATION Remarks by IVAN DILLEE, C.P., New York

The question of whether or not we, as practicing prosthetists and orthotists, are becoming professional in our relationships with patients is one which we can honestly answer with an emphatic affirmative. The mere fact that we use the word *patients* is itself an indication of a developing professional attitude. It has not been too long ago, only a couple of years in fact, since I was advised by persons whose judgment I trusted implicitly to avoid using the word. "Client, amputee, handicapped person, even customer," were acceptable but the word "patient" was reserved exclusively for the use of the medical profession.

I think there is no question in any of our minds that the certification movement and the American Board for Certification have been and remain potent factors in the process of professionalizing the Orthopedic and Prosthetic industry. Defining the role they have played and possible goals for their future is not, however, a simple matter. This much we know—the relationships we have with patients are of only two general types. There is, first of all, the patient, prosthetist and orthotist relationship which is essentially a personal one between two individuals. Second, the patientfacility relationship which is less personal but not less important because of this.

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Historically, the role of the American Board for Certification in connection with these relationships has been steadfastly on the side of professionalism. The measure of their success as regards facilities is the professional atmosphere which prevails within these establishments and they have been successful. The certified facility *must* exhibit professional atmosphere and the patient who steps inside the door needing a brace, no longer wonders if he has inadvertently walked into a blacksmith shop. Likewise the patient who enters a certified facility looking for prosthetic service need no longer wonder whether he is in an institution dispensing such service or perhaps in a carpenter shop.

Similarly as regards the certified prosthetist and orthotist, the measure of success is the quality of service rendered to patients and the professional nature of his relationship with his patients. Here again, there is no doubt we are achieving success. There are certain things we know about the certified man. First we know that he is a skillful man. We can be very sure that before he is granted his certificate he has demonstrated to the American Board for Certification that he is possessed of an adequate degree of skill. We are sure that he is a knowledgeable man, that he possesses the necessary information to function on a professional level in the profession of his choice and the vocabulary to discuss his service with other professional persons involved. We know that he is a presentable man because he has been required to present himself to the gentlemen of the American Board for Certification and prove his right to be certified. But tell me, if you can, do we know that he is a "professional man." Certainly, skill, knowledge, and presence are essential to professionalism but they are not the essentials of professionalism and in every case the professional man goes far beyond essentials. So must we move forward no wto exceed these essentials if we would achieve our goal. Professional recognition cannot be a cause: it can only be a result-of the professional service to needy humanity.

#### V. THE CHALLENGE Remarks by EDWARD CHAS. HOLSCHER, M.D., St. Louis Vice President of the American Board for Certification

I was asked to summarize the matter in the four reports and to express myself as to the challenge which Certification presents in our practice and behavior.

These reports, so splendidly given, speak for themselves. The reports dealt with matters of interrelationships (team play)—humans solving their problems by conferences and close understanding. In substance these reports indicated that we have been professional in our practice and behavior.

Are we content with our present attainments, however?

Do the reported results reflect the noblest efforts of which we are capable? I believe the answer is obvious.

Do not the objectives of the Board, formulated from the visions and ideals of the founders, challenge us to go further in our professional relationships?

It would seem of interest to spend a few moments reviewing the meanings of the words profession and professional. We may think of them as applied to the so-called learned professions: Theology, Law and Medicine. Or, one

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may think of them in relation to the "professional" who walks one side of the street and doggedly refuses to cross even though the competition becomes very hot. Webster's Dictionary definitions are: "profession n. Broadly one's principal calling, vocation or employment." "professional, adj. Characteristic of or conforming to the technical or ethical standards of a profession or an occupation regarded as such."

Professionalism in this assembled group did not begin with Certification -it goes further back than that. During the early 1930's when I was a fledgling, playing doctor in medical school, I can remember hearing discussions in your field of endeavor, about possibilities of forming guilds, as outlets for the nobler motives, in an effort to better serve mankind. I was privileged a little later to first know our own Mr. Karl Buschenfeldt as head of his fine brace shop at the Massachusetts General Hospital. I know that there are many others among you, whose names could be mentioned, who also brought to the Board a long record of achievement and exemplary practice. Still later, during World War II, I had the opportunity of hearing some of the early expressions of the dedicated men of the founding group, relative to formation of a Board. Skipping along, the Board as you know came into being August, 1948. Many here have witnessed the impressive substantial growth of the Board since, resulting from the professional experience and thinking of many minds put together and then translated into action.

And here, speaking of action, I would like to deviate a moment—as a retiring officer and director of the Board, I wish to pay a small personal tribute to Messrs. Glenn Jackson and Les Smith and their staff, for their untiring application and devotion in this work. They are truly dedicated people. I know we all sincerely hope it will be a long time before they receive beautiful walking papers like this (indicating the Certificate of Appreciation to retiring Directors.) In the meantime they can only gather little tid-bits of recognition along the way.

All Board-certified, and those who follow, are the stewards of Certification. In carrying this movement further, the ground may be rocky and difficult as it undoubtedly must have been to those who participated in the earlier years.

Certification is still fairly new. Slow change and steady progress can be expected. The medical profession specialty board Certification began less than twenty-five years ago and the course has not been without difficulty. These boards are slowly undergoing transition, while fairly well fulfilling their respective missions.

The objectives of the Board of this assembled group and also those of the medical boards, challenge us individually as well as collectively, to carry out our coordinated mission (as a team) to heal or help the sick and disabled. The key to such accomplishment is the individual's participation, self-discipline and dedication to humanitarian service.

The thought I wish to leave is that if each one concerned will continue to improve his professional practice and conduct according to the objectives clearly defined in the By-Laws of the Board, the stature of Certification will progressively increase.

Will we accept the challenge? Tomorrow will tell!

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# A New Plastic Soft Socket For Below Knee Prosthesis By WALDEMAR SCHOENE, C.P. & O.

#### Bardach-Schoene Company, Chicago

For many years some of the most troublesome problems encountered by the prosthetist have arisen from the lack of a satisfactory material for soft sockets in below knee prostheses. About ten years ago, stimulated by difficulties in fitting and maintaining a client with a body weight of about 220 pounds, we began an intensive investigation of available materials, finally developing a soft but resilient plastic sheet which we believe far superior to any of the other materials currently available for fabrication of soft sockets. In many respects, we believe, it offers the definitive answer to this annoying problem.

Experience with 850 cases, both veteran and civilian, over the last six years has been highly gratifying. This new soft socket (*Flexolimb*, Bardach-Schoene Co., Inc., Chicago) is made of a plasticized polyvinyl chloride acetate faced with a smooth fabric. It is now being produced under contract to the U. S. Government and, under certain conditions, is available to the profession generally.

Every competent prosthetist is familiar with the theoretical criteria for a satisfactory below knee soft socket. The material should be soft enough to cushion sensitive stumps comfortably, but it should also be tough and flexible, and resist shrinking, warping, or other distortion. In addition to retaining its strength and resilience with aging, it should offer the maximum possible resistance to moisture, grease, acids, or alkalis.

When measured by these standards, soft sockets conventionally used in the past have manifested certain inadequacies with which both the prosthetist and the below knee amputee—in fact, all members of the rehabilitation team—have become acutely aware. These inadequacies probably have presented the crucial difficulty in fitting and servicing below knee clientele. Among the materials tried have been sponge and foam rubber faced with soft horsehide; sheet rubber with leather covering; rubber alone; vulcanized rubber latex; fibrous materials such as felt with binders or surface coatings.

Although initial results might be good with sponge or foam rubber, the cushioning effect is quickly lost because of the tendency of these substances to pack and distort. Sheet rubber, on the other hand, retains its shape but its cushioning effect is negligible; moreover, perspiration enters the leather facing to hasten deterioration and present insoluable problems of cleaning. Vulcanized rubber latex hardens when molded to form and becomes progressively harder with use. Felt soon packs down, losing its cushioning capacity and becoming displaced. Rubber placed directly against the skin not only deteriorates from body acids, but retains bodily moisture and heat, and, because of its non-skid properties, causes skin irritation and abrasions.

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Waldemar Schoene, a native of Germany received his training in artificial limbs and braces there, and came to the United States in 1926. Through the years since then, he has been active in the making and fitting of braces and appliances for both upper and lower extremities. Mr. Schoene established his own business in September, 1935 and is now president of the Company. He is a Certified Orthotist and Prosthetist, and attended the Course in Upper Extremity Appliances at the University of California, and the New York University Course in Above-Knee Prosthetics.



In patients with prominent bony structure the drawbacks presented by these materials become increasingly apparent. The heavy patient referred to at the beginning of this report, whose weight rested on a stump which extended only 3 inches below the tibial plateau, experienced a succession of difficulties such as stump sores, swelling, and acute discomfort due to the pressure of his weight. Several fittings were required and refitting of three or four stump sockets.

In the course of our quest for a better material, it was suggested that we investigate a plastic used as a lining and shock-absorber for dental plates where sensitive gums were a complication. This plastic material held forth promise, but it was only 1/16 inch thick and 3 square inches in area—obviously not even remotely adapted to the purpose we had in mind. Needed was a sheet of sufficient thickness and surface area to cover and cushion a stump socket properly, and no such material was available. It appeared that our only recourse was to make it ourselves.

Acquiring the raw materials—resin and plasticizer—did not present a problem. However, the plastisol had to be fused and molded under heat and pressure into sheets of desired size and thickness. Here we encountered difficulty because no such presses were available. After consultation with engineers, we had the necessary capital equipment constructed: a hydraulic press with electrically heated pressure plates thermostatically controlled.

Since the plastic itself has non-skid properties similar to rubber, its abrasive action on the skin would be similar. To avoid this, the plastic is faced with a smooth fabric bonded to the plastic sheet under heat and pressure. In this way it becomes an integral part of the material, offering a smooth surface over which the skin slides easily and comfortably. This surfacing material is waterproof, and its consequent ability to resist perspiration not only prevents deterioration but gives obvious hygienic advantages as well. There are no chemical irritants which might induce topical dermatitis.
In order to facilitate adjustments for shrinkage of the stump and possible loss or gain in weight by the amputee, the sheets are produced in thicknesses varying from 1/8 inch to 7/16 inch.

Satisfactory results with this new soft socket presuppose proper use. In making this material available to the profession, therefore, we feel justified in imposing the condition that any prosthetic establishment desiring it must be adequately instructed in its application. Briefly, this involves recessing the socket after its preliminary fitting, adapting the plastic socket to the recessed portion, bonding it with strong adhesive, and setting, preferably with radiant (infrared) heat. The heat also serves to soften the plastic so that it can be molded accurately to the contour of the socket. Properly applied, it will maintain an even degree of softness throughout its thickness without packing, shifting or loss of elasticity.

In the Spring of 1951, the first two soft socket wearers were introduced at the Chicago Veterans Administration Clinic. One of these was the client mentioned at the beginning of this paper. After he was fitted with a soft socket of this type, all unusual difficulties ceased. Reports of other clients using the plastic soft sockets are enthusiastic. One man who previously had to make frequent calls at our facility for relining and readjustment of his socket was finally fitted with the Flexolimb type before he made an extended trip to South America. On his return, he said that despite the heat and humidity characteristic of that climate, he experienced no difficulty with his prosthesis.

In our experience in fitting below knee suction sockets, we have found that in the selected cases where such sockets are possible, the use of this material facilitates the essential critical fitting. Galdik\* enumerates some of the usual difficulties encountered by amputees who have worn below knee suction sockets: edema, insufficient suction, pressure points, ingrown hairs, water blisters, and contact dermatitis.

The problems of edema, suction, and pressure points hinge on fitting—a process which would appear to be simplified by use of a plastic which can be easily molded under radiant heat and which is available in a range of thicknesses. More important still, the critical fit necessary for adequate suction without stump damage can be maintained better with the plastic soft socket than with any other currently available.

As for stump irritation, we have not encountered this annoying phenomenon in any of our own cases. In fact, our own happy general experience with the plastic soft socket would indicate that use of Flexolimb has been a major factor not only in simplifying troublesome problems of fitting, but also in maintaining a satisfied, complaint-free clientele.

\* Galdik, John, Below-Knee Suction Socket, Orthopedic and Prosthetic Appliance Journal, Dec. 1955, 43-46.

NOTE: The Bardach-Schoene Co. of Chicago has received a number of inquiries about the soft cushion plastic socket for below-knee legs. Prosthetic facilities wishingto use this socket may send a prosthetist to Bardach-Schoene for a course in fitting the socket to the prosthesis. The course covers approximately 16 hours and an instruction fee is charged. This course is necessary to obtain best results and for the protection of the patient. Bardach-Schoene has had over ten years' experience in the development of this plastic soft socket.

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## **Materials for Orthopedic Appliances**

By JULIUS BIRO, C.O.

Anthony Medical Supply and Ambulance Service, West Hempstead, N. Y.

The purpose of orthopedic appliances and artificial limbs is to enable those people unfortunate enough to be crippled or disabled in some manner to live and pursue life as normally and as comfortably as possible. In order to accomplish this seemingly impossible feat, a disabled person must seek out the aid of a team of professionals, namely, the doctor, the orthotist and/or prosthetist and the therapist. This team then works for the ultimate in comfort and usefulness for the patient.

A small but very important aspect of obtaining the ultimate in comfort and usefulness for the patient is in the hands of the orthotist-prosthetist, not only in constructing a properly fitted appliance or limb, but in the selection of the best applicable materials for each particular appliance.

In recent years, tremendous strides have been made in improving materials with which to construct appliances, for instance, advances in alloying techniques in metal manufacture make possible the production of cast irons which are a far cry from the low-strength brittle castings of twenty-five years ago.

Plastics have come into their own, in the manufacture of artificial appliances. Plastics can now be molded, cast machined, laminated and formed in many other ways. Plastics are available in more than a dozen general types, each type having been developed to meet definite needs and possessing both specific advantages and specific limitations.

The only material that has not been changed to any great extent is leather. The reason for this is the fact that, although there have been many types of substitute materials used, not one has been valuable for orthopedic use.

There have been changes in the manufacture of leather, not to improve the final product, but to modernize the production. From the time the raw hides are unloaded until they are shipped out again in the form of finished leather, they are handled and processed by mechanized equipment which sets new standards of efficiency for the age-old craft of leather making.

Production begins with inspection and trimming. Inspection is a vitally important operation at this point, for the hides are bought and paid for before they are seen and it is up to the raw hide inspectors to determine whether the quality is up to the specifications.

In the trimming room, the heads, bellies and tails are trimmed off. These trimmings drop onto a conveyor and are taken up into a storage bin located above the level of the shipping platform. When the bin is full, the trimmings are sold as glue stock. In the trimming room the hides are cut in two, slit down the backbone to form sides, for easier handling during the balance of processing. A number, stamped on each half as the hide is split, identifies the packing house from which the hide comes. An electric hoist raises the sides to a platform running along the top level of a line of washing drums, so that they can be dumped into the drums without lifting. This preliminary wash operation removes salt and foreign matter, and replaces moisture lost by evaporation during transportation and storage. At the end of the wash cycle, the drums are emptied from



Julius Biro, C. O.

Julius Biro, a veteran of World War II, was employed in the limb shop of the Naval Hospital in Philadelphia, after serving in the Aleutians with the "Seabees." Until he joined the staff of the Anthony Medical Supply Co., in 1957, he was in charge of the Orthopedic Department Leather Shop at the Institute for the Crippled and Disabled, and before that was in charge of the Amsterdam Brace Shop in the Hospital for Joint Diseases.

the bottom position, the contents being dropped to trucks which take them to the finishing machines. Here spiral-bladed knives remove the surplus flesh. This waste material is pumped to a storage bin and is subsequently sold for commercial gelatins and glue.

The hair is loosened by soaking the hides in lime vats, a period of from three to five days usually being required to loosen the hair sufficiently to insure its ready removal on the unhairing machine. The hair from the unhairing machines is a valuable by-product. It is pumped to a machine, where it is washed, dried, fluffed up and baled. It is sold for use in making of rug pads, typewriter cushions, insulation materials, and other products. Another inspection follows unhairing, after which the hides are trucked to the tanning drums. The pretanning operations of bating and pickling are done in these drums as well as the actual tanning. Pickling, which follows the bating operation, involves a treatment with sulphuric acid and salt. This serves to bring the hide into proper condition for tanning.

The chrome tanning liquors are cooked in kettles that open at the floor of the tank house, and the completed liquors are stored in quantity on the floor below. After the pickling operation in the tanning drums is completed, a measured amount of chrome liquor is fed by gravity into the drums and the hides are "drummed" until tanning is completed. After tanning, the leather is dropped from the drums and piled flat on platforms to drain. Then it is trucked to the wringers where the excess liquid is squeezed out and passed through "setting-out" machines which remove the wrinkles and lay out the flanks of the hide so that the leather is smooth and flat throughout. The next operation is known as the "bluesort," the name being derived from the fact that the leather at this point has a distinct bluishgreen color from the chrome tan. The blue sort is a rather amazing sorting process, for the highly skilled sorters may make as many as thirty-two different divisions of the leather as they sort it for grade, weight, defects, and for right and left sides. Splitting comes next, the sides being sliced into two layers to give a grain layer of the proper thickness. The flesh splits are finished into work gloves, luggage linings, and specialty items of great variety.

After splitting, the leather is weighed up into lots of the proper size and thrown into the coloring wheels for bleaching or dyeing. Following coloring and another setting-out operation to smooth the leather, the sides are ready for drying. Drying is done on a continuous basis with the leather pasted to glass plates. The paste solution is sprayed on the large glass plates and the leather is brought into close contact by squeegeeing it out flat with metal slickers. The paste operators work from the center of the hide out to the edges, removing the wrinkles and some of the stretch as they work, so that the leather will dry flat and smooth.

Operations remaining after the drying include staking, buffing and brushing.

Finishing may involve the application of as many as seven coats of finishes. These finishes are generally applied by a machine, although hand work is required in certain phases of the operation to insure the best possible results. Various types of finishing materials are used, depending on the end results desired, but in general such properties as flexibility, good adhesion, water resistances, crock resistance (that is, resistance to rub-off), and good filling action are considered essential. The finished leather may be passed through a graining machine which brings out the natural grain appearance and it is then plated. This is done on hotbed presses and serves to bond the finish to the leather and improve the luster of the surface.

After plating, all rough edges of the leather are trimmed off. Then the sides are passed through a measuring machine which shows the size of each piece in square feet. Next the colors are checked again against a master color sample to make sure the shade is exactly right, and sorters make a final check for grade, weight and quality. The leather is then ready to be bundled and shipped. Hides are composed of thousands of fibers, and, when the hide is made into leather, these fibers enable it to transmit air and to dissipate heat and moisture. Leather also possesses strength, firmness and flexibility.

Plastics characteristics in general are ease and cheapness of fabrication and attractive appearance. In comparison with metals plastics are weaker and less stiff in sheets of equal thickness, lighter in weight, and good electrical and thermal insulators.

Metals are very resistant to organic solvents but are attacked to a greater or lesser degree by acids and bases. Certain plastics are resistant to many solvents, but, in general, plastics are attacked by organic liquids although they are relatively inert toward aqueous acids and bases and resistant to corrosion. Metals are crystalline and ductile, plastics usually amorphous (except for nylon, polyvinylidene choloride, polyethylene and fluoropolymers) and formed with heat rather than by cold drawing or casting from a melt. Although not so stiff as most metals at the same

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thickness, plastic articles can frequently be made stiffer than corresponding metal articles of the same weight because of the much lower densities of typical plastic materials. Some plastics provoke little or no tissue reaction.

In comparison with leather, solid plastic sheets are not permeable to moisture and the softer grades are not as resistant to tearing; but they have wider color possibilities, are available in transparent and translucent grades, more resistant to abrasion, weathering and bacterial action, do not absorb perspiration, and are much easier to keep clean.

In comparison with wood, plastics are somewhat more dense, more transparent in many cases, non-absorbent, superior as electrical insulators, and some grades are flame resistant. In addition to these factors, the use of plastics is usually favored because of their handsome appearance, uniform color and physical properties and ease with which they may be cast, molded, or extruded.

The foregoing describes in general the large variety of materials available to the technician in the field, and indicates that the choice of material for the job at hand is tempered by the properties desired. Since a wide range of attributes is necessary, familiarity with the general characteristics of the available materials is of paramount importance.



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## **Braces and Brace Management**

#### ERBERT F. CICENIA, Ed.D., and MORTON HOBERMAN, M.D.

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#### General Principles of Bracing

Within recent years, reemphasis upon the rehabilitation of severely disabled individuals has "spotlighted" the importance of proper fitting braces in the teaching of ambulation and daily activities. There seem to be several points of view regarding the intelligent selection of braces for lower extremities. One group holds that patients should be braced maximally as indicated by a careful analysis of existing tests of muscle function. Followers of this plan contend that any excess braceage may be discarded as the patient's recovery and proficiency in handling his body improve. They assert that braces and other supportive apparratus can be an asset in teaching control of body segments and in the functional training program. For example, they might say that the patient, hovering on the borderline between wearing a pelvic band and attempting activities without one, might do well to wear the pelvic band for a number of weeks to develop stability and the sensation of proper body alignment.

An opposing point of view is that most patients with paraplegia-type of involvement, especially when due to poliomyelitis, can learn to ambulate successfully with crutches and little or no braces. While this may be true, it must be remembered that this is done at the expense of better stability, and in the case of children, of future deformities (particularly genu recurvatum). The resultant deformities are often more difficult to correct than to prevent initially. It is our experience that patients trained from this viewpoint usually have more difficulty performing elevation activities and generally ambulate at a much slower pace.

Another point of view regarding bracing is that the patient should be given a minimal amount of braceage initially. If this proves to be inadequate for the patient's needs, more braceage is then added. We do not believe that this viewpoint is psychologically sound, especially in a therapeutic training program designed to utilize residual capabilites to their fullest extent. From the psychological aspect, the first viewpoint, that is, maximum braceage or even "over-braceage", is preferable since later removal of unnecessary bracing does give the patient a sense of achievement and improvement. We have attempted to work out a mid-position between the maximum but frequently overbraced viewpoint and the minimum or underbraced viewpoint. For the past three to four years, at the New York State Rehabilitation Hospital, we have been pretraining and pretesting our patients to determine whether or not they could do without attached trunk braces and pelvic bands. From a review of the usual manual muscle tests it frequently seems that the patient will definitely need a trunk brace to maintain the erect position, or a pelvic band to control rotation of the lower The trunk brace, however, definitely limits the functional extremities. potential of the patient. We find that many of these patients can hypertrophy the latissimus dorsi muscles to help maintain the erect posture with a more flexible support such as a corset. Prior to ordering a trunk brace attached to long leg braces, an effort is made to hypertrophy the latissimus dorsi muscle and lower third of the trapezius and to teach the patient to use them

as trunk extensors (1, 2). These patients, as well as those with good trunk muscles but essentially flail lowers, are also tested with simple padded posterior splints with knee caps. The splints place the extremities in the same alignment as they would be in long leg braces. We are thus able to determine whether the patient can be taught control of hip rotation without a pelvic band prior to brace prescription and construction. (3). These determinations can be made, in most patients, in five to ten days of training and observation. We have also been attempting to strengthen poor grade muscles by progressive resistive exercises prior to brace prescription and construction. In this way we hope to be able to order a short leg brace initially instead of a long leg brace which eventually is cut down to a short leg brace. It must be emphasized, however, that whenever there is a possibility that less braceage will decrease the safety factors and stability, or result in the production of future deformities, the larger amount of braceage is ordered.

Bracing the lower extremities has two primary functions; the first relates to deformities, the second to support and locomotion. In most instances both deformity and locomotion assistance must be considered in the same patient. It is here that a knowledge of the various types of materials used in brace construction, and of the various types of brace construction and parts is important. Most lower extremity braces are made either of some type of steel or aluminum. Too often, the selection of one or the other of these materials has been dependent upon the preference and ability of the bracemaker rather than on the needs of the patient and his particular Steel supplies more rigidity than aluminum for the same crossproblems. section area. On the other hand, aluminum is of lighter weight than steel for the same cross-section area (4). In the patient with marked flaccid paralysis of both lower limbs and some trunk weakness, weight of the braces is usually of greater concern than their rigidity. However, if this patient had marked spasticity rather than flaccidity, rigidity of the brace material would probably have precedence over the weight factor. These are not the only points of difference between steel and aluminum, but they illustrate some of the factors which should be taken into account in deciding on the brace prescription.

The brace prescription should be written by the physician after examination of the patient and discussion with the bracemaker of the particular problems presented by this patient and his disability (5). The parent (member of the family), therapist, and nurse, who will see the patient daily, are also important members of the brace team. Because of their more intimate contact with the patient, they should be able to observe and report to the physician and bracemaker whether or not the brace is performing the function for which it was intended. While braces are static substitutes, patients do grow, occasionally get fatter, and muscles do atrophy. All these changes necessitate brace changes and alterations.

The majority of leg braces found in use in rehabilitation programs for patients with paralysis of the lower extremity—paraplegia, polio, multiple sclerosis, cerebral palsy, etc.—are those intended for support and locomotion. Leg braces in this category are generally of two types: long leg brace with or without pelvic band, and short leg or drop foot brace. Although there are different kinds of long leg braces (weight bearing, non-weight bearing, etc.), the type which seems to meet the needs of the majority of severely involved lower extremity patients may be described as a double-bar supporting brace with stirrup or caliper, knee lock and knee cap, and with or without pelvic band. The following technical terminology and description of parts

should be helpful in working with individuals dependent on braces and crutches for daily living (fig. 1A).

### BRACE DESCRIPTION AND TERMINOLOGY

#### Uprights

Uprights, struts or bars, as they may often be referred to, are described as the supporting bars which splint the extremity on one or both sides, and run parallel to the longitudinal axis of the extremity. It is the general concensus today that long leg braces should have double upright bars, that is, a medial and lateral strut, since it is extremely difficult to brace an extremity properly with one upright. When single upright construction is desirable, Jordan (6) advises that it be constructed as a spiralbar design, which achieves stability by the spiral-like course it takes about the leg.

From a technical viewpoint one may say that upright may be either of hollow columnar structure or of solid-bar columnar structure. Tubular uprights afford relative lightness in relation to strength and rigidity. In solid-bar construction the center or core contributes little to the rigidity of the rod (7). The disadvantages of tubular uprights are the considerable difficulty encountered in adjustment of uprights, as for growth factors in growing children, and the bulkier appearance of tubular materials.

In the construction of a double-bar brace, the prevailing practice is to make the lateral upright of the brace about two to three inches below the trochanter with the medial upright made about two inches below an imaginary line extending anteriorly from the tuber ischia. At the New York State Rehabilitation Hospital, the general policy is to carry the lateral upright up to just below the prominence of the greater trochanter as suggested by Abramson (1). In addition, the upper end of the medial upright ends at the lower end of the thigh band, and a more posterior extension spans the width of the thigh band (fig. 1A, g). In this manner, the frequent complaint of pressure and pain on the upper inner aspect of the thigh is avoided.

All Haverstraw braces are constructed in corrective form. They are built in conformity to the lines of the anatomical position rather than to conformation to the lines of the deformity. The advantage of this principle is that braces so constructed will have a tendency to correct deformity, whereas braces conforming to a deformity will only maintain the "statusquo".

#### Bands

Bands or cuffs, as they are frequently referred to, are semicircular strips of sheet metal which connect the uprights and give rigidity to the structure of the brace. Bands are located at the thigh and at the calf. Usually two bands are used at the thigh. They may be used individually at different locations on the thigh or they may be used close enough to be incorporated into a single leather cuff. If the upper thigh band is made so that it curves upward and outward to fit loosely into the gluteal fold, rather than almost transverse, Abramson (1) claims that the gluteal mass can be used to act as a soft tissue block to control rotation of the lower extremity.

The relative position of the lower thigh band and the calf band is also important. If the adjacent edges of these bands are placed too close, it is not possible to flex the knee to 90 degrees. If the knee joint is slightly offset posteriorly, the bands can be closer together. The depth of the lower thigh and calf bands is usually slightly greater than the actual measurement, while the leather lining is made to the actual measurement. If these bands are too deep, hyperextension may occur at the knee; if they are too shallow,



Fig. 1. A.— Nomenclature: a) Protective flap; b) pelvic band; c) drop piece; d) trochanteric joint; e) thigh extension piece; f} thigh band; g) thigh cut out; h) lateral upright; i) knee joint, medial aspect; j) drop ring lock; k) knock-knee pad; l) knee joint, lateral aspect; m) lateral upright; n) calf band; o) calf extension piece; p) medial upright; q) ankle joint; r) ankle stops; s) stirrup upright. B—Single upright short leg brace, spiral-bar design.

the knee is forced "out of the brace", and pressure is placed on the calf and lower thigh.

#### Joints

In a long leg brace, joints are carried at the ankle, the knee, and the trochanter. The trochanteric joint is used in conjunction with a pelive band or hinged back brace. Joints will fit and operate properly only if the mechanical axis of the brace joint is aligned with the natural axis of the articulations of the extremity, and if the joints are correctly placed in rotation to one another. Von Werssowetz (8) has made the observation that the trochanteric joint should be placed at the level of the top of the greater trochanter, the knee joint should be opposite the midpoint of the femoral condyles, and the ankle joint should be centered transversely about one-quarter to one-half inch above the tip of the lateral malleolus (aligned with the axis of the tibiotalar articulation). Joint construction which fails to consider these points of fittage will permit friction between the brace and the extremity, produce limitations of joint motion, and facilitate bizarre movements of the extremity.

Occasionally the knee joint is omitted when knee flexion is not necessary or when knee flexion is undesirable. Omission of knee joints reduces the cost of a brace considerably. In young children of nursery or pre-school age knee joints are often omitted when it is thought that the brace is only for temporary use (up to 12 months). Again in young children, the distance from the ankle to the heel is so small that it may not be feasible to put an ankle joint on the brace. In very painful ankles, ankle joints are frequently omitted on the brace.

The most widely used and generally accepted kinds of joint construction are the box joint and the overlap joint. Recently brace research projects have been experimenting with so-called double-joint construction. The double-joint (fig. 2A) utilizes two centers of rotation which move in unison in an effort to more nearly approximate the action of the human knee. In a single-joint construction the path of movement of the thigh and path of the fixed axis of the brace struts tend to pull away from each other (7). Double-joint construction offers some improvement over this. However, the improvement is so slight that it does not justify the increased cost of production.

The most commonly used mechanical joint construction for doublebar long leg braces is the box or clevis joint (fig. 2B, C) which is more generally employed at knee and hip placement and only occasionally at the ankle (fig. 2E). This joint is so named because of the shape of the



Fig. 2. A—Knee joint, double-joint construction; B—Box or clevis joint, posterior view; C—Box joint, side view; D—Overlap joint; E—Employment of box joint construction at the ankle; F—Ring drop lock; G—Use of spring clip to hold up the ring-drop lock; H—Ringdrop lock with release rod; I—Automatic ring-drop lock; J—Swiss lock with bail; K—Swiss lock with release rod; L—Automatic lock, plunger type; M—Adjustable joint.

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upper bar or female component. The joint box is "U-shaped" with the ends perforated to receive a pin, rivet or sleeve about which the joint pivots. The joint head of the lower upright is milled to fit the clevis slot of the upper upright joint box. The box or clevis type of artificial joint may be either free or have a locking device. When aluminum is the metal selected for brace construction, the joint lining should be reinforced with a more durable metal: Mr. Elmer E. DuBois (9) of this hospital's brace shop has successfully used a bronze bushing as a joint lining in all aluminum braces for over seventeen years as an orthopedic technician. The rivets or threaded pins which are used in an aluminum brace are made of steel. Where freedom of motion in a desired plane is a prime prerequisite, as it may be in cerebral palsy, a ball-bearing modificaion of the box joint as advocated by Phelps (10) is a definite advantage over the usual box or clevis joint construction.

Because of the economy and simplicity of fabrication, the overlap or hinge joint (g. 2D) is usually employed if unlimited joint action is required. This is especially true when the selected brace is constructed with a single lock at the knee or hip. In this instance the medial joint is usually made as an overlap joint. Ankle joints may also be of the overlap type, especially when stirrup or foot sandal types of foot attachments are used. The overlap joint is simply described as a joint in which the upper and lower joint heads lap over each other. Each joint head is perforated to receive a pin, rivet or sleeve about which the joint jivots. Overlap joint construction may be either free motion or have a locking device.

#### Locks

If a stop at the joint is required, there are a number of constructions which have been devised. The most commonly used lock for double-bar long leg braces is the ring-drop lock (fig. 2F) or slip lock as it is sometimes called. This is simply a metal ring which rides freely along the upper joint bar and drops into place over the lower upright assisted by gravity to stabilize the joint extension. This type of lock is most generally recommended for use at the knee and hip joints. Deaver (11) advises that only one ring lock be used at the hip joint. His feeling is that a patient may be able to unlock one hip lock in order to sit down, but doubts that he can be taught to release both hands from his supporting base to manage two hip locks. However, this can be overcome to an extent through the use of a spring steel clip (fig. 2G) or spring loaded ball-bearing stop to hold up the ring-drop lock, so that two such locks can be used at the hips (or knee joints) when absolutely necessary for very heavy or obese individuals.

If an individual has difficulty in performing the daily activity of locking and unlocking the brace at the knee when in a "jacked" or flexed position (for instance when getting to and from the erect position or to and from a straight chair, bed, toilet, or automobile), a rod or release lever extending along the external surface of the upper joint upright is added to the ring which enables the lock to be released at approximately upper thigh level (fig. 2H). This obviates the need to reach down to unlock the joint. The ring-drop lock may be used on either a box joint or with an overlap joint.

The ring-drop lock may also be built as an automatic lock with some modifications. The automatic ring lock utilizes a rod attached to the ring as described in figure 2H to permit flexion at the joint, but in addition a spring mechanism is employed to lock the brace in extension without manual manipulation of the ring (fig. 2I). There are a number of constructions for automatic locks which may be considered instead of the simple, although

effective, automatic ring lock. There are two other basic categories of automatic locks most generally used to lock a joint: first of all, the cam lock; and second, the plunger lock. Most automatic locks are springactuated, but they sometimes utilize elastic webbing and provide automatic locking when the joint is extended. The spring provides a constant load on the male lock bar so that when the engaging parts are in proper relationship, the lock bar automatically seats itself into a slot.

A cam lock can be described as an automatic locking device in which a short cam or lever type projection is used as a male locking bar. (A cam is herein described as a rotating, pivoting, or sliding piece, or projection.) The locking of the joint is accomplished by action of a spring load on the locking bar which forces the locking bar into a machined receiving slot. The locking bar is usually fastened by a rivet in the upper joint upright and makes contact with its receiving slot which is generally machined on the posterior edge of the joint box on the lower bar. A variety of cam locks are used as automatic locking devices. Some of the more popular kinds of cam locks are the Schweizer or Swiss lock, sometimes referred to as a bail lock\*: the von Baever lock, which Jordon (6) describes as an improved Schweizer lock; the French lock in which the cam lock action is concealed in a joint box; and the bow lock and spring-lever lock, which are other variations of locking devices with concealed wedging cam lock action. Since all of the above mentioned cam locks are essentially the same in construction principle, we have chosen as an example for the construction details of an automatic lock (cam type) one of the most frequently used locking devices for the knee joint, the Schweizer or Swiss lock (fig. 2J), This is usually a double knee lock built as a milled joint with short lock-bars used to lock the joint in extension. The two lock-bars are connected by a rounded piece of steel, posteriorly at the level of the popliteal region. This half ring or bail, usually of steel, is fastened to the uprights of the brace below the knee joint. The bail is connected with the calf band by an elastic webbing or a small spring coil which automatically locks the joint in extension when the engaging parts are in proper relationship. To release the locks, the bail is lifted with one hand which opens both lock-bars simultaneously. Patients with poor balance frequently learn to release the locks by backing up to a stationary object such as a chair, bed, etc. (fig. 3). In this way neither hand is removed from the crutches to release the locks.

For safety reasons, the efficacy of the use of the bail with an automatic locking device for patients with adductor spasms is questionable. In these cases they have been known to frequently trip the knee lock accidentally.

A plunger lock is another type of automatic locking device but one in which a hardened pin or tongue is used as a male locking piece instead of a cam or lever as is the case in a cam type automatic lock (fig. 2L). The locking of the joint is accomplished by contact of the plunger with a receiving slot or groove. The locking force is usually provided by a helical compression spring which provides a constant load on the plunger, forcing it into the receiving slot when the engaging parts are in proper relationship.

<sup>\*</sup>A bail is a hoop or ring used to join two adjacent parts. For use in bracages, a bail is a half ring of metal which connects the cam levers of a double lock brace. The association of the bail with the Swiss or Schweizer lock which has come about through usage is erroneous. A bail can be used with any type of cam or plunger lock when a double lock is indicated. The locking of both joints of a double-bar long leg brace prevents any undue torsion on the joint structures. A bail offers a definite advantage in that it releases both locking devices simultaneously.



Fig. 3. Use of Swiss lock with bail in sitting activity (crutches to bed.)

Release of the lock is accomplished by a steel cable or rod passing axially through the spring from the plunger to a release lever so located as to be convenient to the reach of the wearer. When tubular uprights are used, the release components are ingeniously concealed within the hollow of the tubing (fig. 4A, B). Here too, as in the cam lock, there are several varieties of serviceable plunger type automatic locks. Among the more popular are: the Klenzak lock, usually employed with tubular braces; the Becher automatic lock, in which the plunger locking components are concealed in a

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joint box with the release components exposed on the posterior aspects of the upper strut; the knee lock joint, and the automatic lock knee joint, in which all components of the lock (that is, release lever, spring, plunger and slot) are exposed on the lateral aspects of the upright. Plunger locks are also very often built with the bail feature described above in connection with the description of cam locks.

A variety of adjustable joints or joints with motion control have been devised to overcome joint contractures and/or brace a leg for supportive purposes when the hip or knee cannot be fully extended (fig. 2M). Such a joint permits increases in the degree of extention as the gradual correction of the flexion deformity is accomplished.



Fig. 4. A, B—Automatic lock, plunger type with concealed locking components (Klenzak lock by permission of Pope Foundation, Inc.); C, D—Compression spring joint Klenzak toe lift by permission of Pope Foundation, Inc.); E—Components, compression spring toe lift (by permission of Pope Foundation, Inc.).

#### Shoe Attachments

Basically there are two types of commonly used means to attach a shoe to the brace: 1) the caliper and 2) the stirrup.

Of these two types of shoe attachments, the caliper type (fig. 5D) is probably the easier to construct and the more economical in cost since it consists only of a metal tube inserted through the heel of the shoe into which fit "pins" attached to the lower end of the lower leg uprights. Its greatest asset is that it permits the patient to use the brace with more than one pair of shoes because the cost of putting a metal tube through the shoe heel is relatively inexpensive.

The caliper type has a definite disadvantage in that it displaces ankle motion to the heel of the shoe. With every step that is taken the brace uprights move forward and backward. The disadvantage to a patient with an ununited fracture of the tibia, for example, is readily visualized. The disadvantage for a paralytic limb is also present since the continued shifting of the uprights produces alternate pressure anteriorly and posteriorly through the transverse bands and cuffs. This may result in stretching of the ligamentous structures around the knee, chafing and irritation of the leg (potential site for decubitii in spinal cord injuries) or a tendency for the heel to slip in and out of the shoe. Other disadvantages are that frequent interchanges of shoes from the braces may cause the uprights to become sprung, necessitating the addition of a strap at the point of attachment to hold the upright pins in the heel tube. Frequently the tubes become clogged with

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dirt and grit making interchangeability difficult. Caliper tubes are of two varieties: 1) the caliper round (fig. 5D) which as the name implies uses a round hole, and 2) the caliper rectangular (fig. 5E) which uses a rectangular tube. Since the caliper rectangular prohibits motion at the heel, it has been used successfully with a joint at the ankle level, thus offsetting the major disadvantage of the caliper, namely, displaced ankle motion.

The stirrup type (fig. 5A) is a "U-shaped" bar, the center of which is mounted in the center of the sole of the shoe, at an adequate point in the anterior part of the heel with provision for the "normal" amount of toe-out. The uprights of the stirrup are joined to the lower ends of the lower leg uprights at the ankle to form a joint. Because the stirrup gives the most physiological type of ankle joint, various modifications have been designed to make it removable. One variation used at the New York State Rehabilitation Hospital is the bolt-on detachable stirrup which consists of the usual stirrup setup, but instead of a rivet at the ankle joint, a flex-lock nut and NFUS threaded stud or bolt are used (fig. 5B, C).

Deaver (12) describes a variation which he calls a French lock (fig. 5G). This consists of pins which project horizontally from each stirrup upright. The lower end of the lower leg upright has a "bushed" aperture into which the pins insert. Interchangeability occurs by merely spreading the lower leg uprights and removing the stirrup from between the uprights. Another variation of the detachable stirrup is the Keyhole Catch. This variation makes use of modified shoulder rivets which are fixed in place on the upright rami of the stirrup in combination with claw-end struts, the openings of which are keyhole shaped. When the shoe (with stirrup attachment) is held in 180 degrees of plantar flexion, the stems of the shoulder rivets,









Fig. 5.A—Stirrup type shoe attachment with rivet as pivotal point; B, C—Components, Bolt-on detachable stirrup; D—Caliper round; E—Caliper rectangular; F—Foot-sandal or insert type of stirrup; G—French lock (by Deaver).

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which are elliptical rather than cylindrical, can be slipped downward from the keyhole shaped opening or claws of the struts thus facilitating the removal of the shoe from the brace. To replace the shoe the same procedure is followed except that the stems of the shoulder rests are slipped upward into the keyhole and then the shoe is dorsi-flexed to lock the stirrup firmly into the keyhole shaped openings.

In some instances where spasticity of the toe flexors or calf muscles is a problem especially in brace management, a foot-sandal or insert type of stirrup may be preferred (fig. 5F). The foot-sandal is a metal "shoe-like" plate attached to the brace uprights, stirrup fashion. The shoe is worn over the sandal. This arrangement is similar to a metal arch support with side uprights and attaches to the brace uprights to form a joint at the ankle. The sandal, in addition, has attached sections of soft leather which lace over the dorsum of the foot and occasionally at the heel in the manner of a special orthopedic shoe. Cosmetically these types are more acceptable than the others described since nothing is attached to the outside of the shoe. Another advantage is that shoes can be changed without any additions to the shoes. The major disadvantage of this type of attachment occurs in the patient who wears only one brace. In this case the width of the two shoes differs considerably, and it may be necessary to buy two pairs of shoes to obtain one serviceable pair.

#### Ankle Stops

In both of these types of shoe attachments "stops" of various designs may be used to limit the amount of dorsiflexion and/or plantar flexion of the foot. Generally the caliper type makes use of flange-like.stops, whereas "pins" of hardened metal are preferred for use with the stirrup type of shoe attachment. Control of the ankle joint motion is controlled usually in four considerations. First, for caliper attachments, stops are used as follows: 1) Unlimited motion (no stops), 2) equinus stop (posterior), 3) calcaneus











Fig. 6. A—Helical torsion spring type drop foot brace, wire spring type; B—Use of wire spring on caliper attachment; C—Use of wire spring on stirrup attachment; D—Compression spring drop foot brace, Klenzak type toe lift brace (by Pope Foundation, Inc.); E—Double-bar drop foot brace with ankle stops; F—Posterior spring brace.

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stop (anterior), 4) limited ankle motion (anterior and posterior stops). Second, for stirrup attachments, stops are used as follows: 1) Unlimited (no stops), 2) anterior stops (limited plantar flexion), 3) posterior stops (limited dorsiflexion), 4) limited ankle motion (anterior and posterior stops).

#### Drop Foot Braces

There are generally four types of short leg braces or so-called drop foot braces: the helical torsion spring brace, the compression spring brace, posterior spring brace, and double-bar type with ankle stop.

Of the helical torsion spring type drop foot brace, the wire spring type (fig. 6A) is probably the simplest to make and most economical of all since it consists of bilateral uprights of piano wire coiled at the heel and attached under the sole of the shoe in front of the heel. The brace is secured to the leg by a calf band. This brace is usually sufficient in the ordinary type of toe drop due to peroneal nerve injury, but it is generally not useful in the spastic toe drop of a hemiplegia or where lateral stability as far as control of varus and valgus is indicated. The use of wire springs applied to the uprights of a caliper type or a stirrup type brace readily modifies these types of shoe attachments for use as drop foot brace (fig. 6B, C). Another variation, the Army drop foot brace, utilizes a hinge joint at the ankle with a coiled wire spring enclosed in a joint box.

The compression spring drop foot brace is a more rigid ankle brace utilizing a steel stirrup with a compression spring housed in the lower end of the lower leg upright at the ankle joint. The most popular of this type of drop foot brace is the Klenzak toe lift brace (figs. 5C, D, E and 6D). The Klenzak uprights can also be reversed for patients who have a normal anterior tibial and weak or paralyzed calf muscles. In this case the brace becomes a "heel lift" rather than a "toe lift" brace and may aid in the prevention of a calcaneal deformity. The compression spring drop foot brace is probably the best type for the patient with flail or essentially flail lower extremities, insofar as performance of daily activities is concerned and for whom long leg braces are indicated. Most of these patients experience difficulties in doing a swing-through gait and ascending and descending ramps with braces equipped with other toe lifts or ordinary stops at the ankle joint. They are continually walking on their heels when going down a ramp or on their toes when going up a ramp and thus do not have the security of good With compression spring toe lifts, in these activities, the body balance. weight stretches the springs, allowing for slight plantar flexion or dorsiflexion so that weight bearing is on the entire sole of the foot. The tension on the spring can be easily adjusted with a screwdriver to the strength required.

The double-bar type with ankle stop (fig. 6E) is a reproduction of the stirrup or caliper shoe attachment for long leg brace. The degree of movement at the ankle is controlled with fixed ankle stops.

The posterior spring brace (fig. 6F) is a simple appliance with narrow spring steel bands or leafs following the posterior aspect of the leg and attached under the heel. When the foot is off the ground, the spring steel lifts the forepart of the foot. This type of brace is readily made interchangeable so that it can be worn with any shoe so equipped with a heel tube to take the heel pin.

#### Brace Modifications

The construction of a double-bar long leg brace and short leg brace can be modified to meet specific conditions which interfere with training and function.

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#### Pelvic Bands

The original intent of the pelvic band was as a component of a spinal brace (13). In this capacity the pelvic band served to hold the entire back brace in close contact with the moving body as well as to distribute the pressure of the supporting force over as large an area as possible. In recent developments of supportive therapy, the pelvic band has been used independent of any spinal brace as an orthopedic appliance unto itself. Many institutions utilize them to improve hip stability and to control internal or external rotation of the lower exremities. A pelvic band consists of a wide, thin band of sheet metal, accurately shaped to the contours of the pelvis, and encircling the posterior and lateral circumference of the pelvis. In order to gain a firm hold on the pelvis it should be fitted below the iliac crest and not to the patient's waist. The metal is well padded with felt or leather and attached to the lateral strut of a long leg brace on a level with but slightly. anterior to the greater trochanter, creating a simulated joint at the hip. The pelvic band is inclined forward about twenty degrees so as to conform to the angle of the sacrum. It may or may not be used in conjunction with hip locks. If control of rotation of the lowers is the only indication, then hip locks are not usually required; whereas, where greater hip stability is required to attain proper stance, they may be indicated. That portion of the support which extends to the front of the pelvis consists usually of a band of padded leather, which by means of straps and buckles is used to hold the band securely in place.

Pelvic bands are designed and constructed in many varieties. The simplest and most commonly used type of pelvic support is the straight pelvic band (fig. 7A). It consists of a well-padded band of sheet metal shaped to fit the pelvic contour and lies at the level of the midsacrum in the back. In order to provide additional support as low as possible, some pelvic bands are angular in design. The butterfly pelvic band (fig. 7B) is a type so shaped. It curves downward on each side of the sacrum over the buttocks and angulates upward as the band passes forward to the level of the trochanters. Thomas describes the finished band as vaguely resembling a butterfly in shape. An angular pelvic band (fig. 7C) is another type of shaped band



Fig. 7. A—Straight pelvic band; B—Butterfly pelvic band; C—Angular pelvic band; D—Double pelvic band; E—Split pelvic band; F—Pelvic band with gluteal extensions or "butterfly pads".

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which fits somewhat low over the posterior aspect of the sacrum and then angulates sharply upward again to the level of the trocanters.

Steindler (14, 15) describes a type of pelvic band, the double pelvic band (fig. 7D), which utilizes two transverse bands placed from four to six inches apart and shaped to the contours of the lower lumbar region. The bands are located one above and one below the iliac crests and extend anteriorly around the pelvis to be joined in front of the anterior superior iliac spines. Four short struts, two posterior and two lateral, extending from the upper transverse band to the lower, maintain the intended location of the double bands. It usually has a corset-type front fastened to the lateral struts.

Occasionally a pelvic band is constructed in two halves, as a split pelvic band (fig. 7E), to facilitate the management of the braces, especially bilateral long leg braces, in putting on and taking off braces for purposes of dressing and undressing. The two halves are joined posteriorly by means of lace and eyelets or by strap and buckle. This arrangement is frequently employed in devices requiring bilateral above-knee prosthesis as a means of controlling rotation of the artificial limb.

#### Spreader Bars

Placed at the ankles they have been used with great success by some therapists to correct rotation or scissoring of the lower extremities. "Spreaders" are metal bars attached to the medial struts producing more or less static positioning of the legs in one place, thus facilitating body stability and the correct placement of the feet during certain elevation activities and in the execution of the "swing" gaits.

#### Gluteal Extensions or "Butterfly Pads"

They are semicircular metal plates attached to the pelvic band so that each pad rests over the buttock just above the tuber ischii (fig. 7F). They are used in high trunk lesions to help stabilize the pelvis and facilitate the rotation of the hips forward under the body. This is frequently necessary in order to prevent "jack-knifing." (Jack-knifing—Flexion of the trunk at the hips.)

#### Gluteal Straps

Another method of stabilizing the pelvis and rotating the hips under the trunk is the use of guteal straps, which are web elastic straps attached to the pelvic band posteriorly and fastened to the thigh band so that each strap is stretched downward across the gluteii.

#### Knee Straps

These are leather straps attached to the knee cap and used to pull the knee away from the struts of the brace in order to correct genu valgum or genu varum deformities. Sometimes it is preferable to use knock-knee pads to prevent abrasions at the medial aspects of the knee. These are small round pads attached to the medial strut at the point where the knee comes into contact with the brace (fig. 1A, k). To help a recurvatum deformity, a recurvatum strap is used which runs behind the knee at the popliteal region.

#### Knee Cages

A knee cage, also called "knee support" or "knee brace," consists of two uprights with posterior bands attached to the uprights at either end. Knee cages can be made without a knee joint, or with a freely moveable knee joint, or with a knee joint that can be locked in extension. The knee cage is held in position over the posterior part of the limb by a knee cap and/or thigh or calf bands with anterior lacing.

Such knee cages have a number of uses in the treatment of knee and other lower extremity disabilities. We have found knee cages useful as a

support for weak quadriceps muscles to prevent genu recurvatum in an otherwise sound extremity where it was not necessary to burden the patient with the additional weight of full length uprights and shoe attachment.

It has been our experience that it is difficult to keep a knee cage in proper position, especially on a flail or markedly atrophied extremity unless the cage is made with a long lateral upright extending to the shoe. In such a case, a knee cage then becomes a long leg brace and it loses its advantage of lightness. If the knee cage is constructed with a thigh cuff similar to the thigh corset of a below-knee prosthesis with laced front, the knee cage is completely adjustable to the limb's contour and is thus maintained in proper position during ambulation.

Another arrangement is to build the posterior thigh band in the same manner as the thigh band in a double bar long leg brace, but with the addition of a built-in elastic knitted shell tapered to fit the natural contour of the thigh.

#### T-straps

So named because of their "T" shape, they are ankle straps used to pull the ankle away from the struts in correcting eversion or inversion of the foot. Because structures supported by the splinting effect of braces tend to compensate and adjust to the pressures of the brace, T-straps require constant checking. For example, in polio, a varus condition in the foot corrected with an outer T-strap, after a length of time, may require its complete removal or change to an inner T-strap to correct a tendency toward a valgus condition. In some places T-straps are referred to as "Y" straps they are one and the same.

Braces and other supportive apparatus are essential equipment for patients who are disabled and incapable of performing activities essential for daily living without them. If the brace is to serve the individual and enable him to lead a normal life, it is important to instruct and educate the individual in its proper maintenance, for the upkeep of a brace can be a considerable financial burden to the wearer. A separate paper will be devoted to brace maintenance (16).

It is essential that an individual, dependent upon some type of orthopedic appliance for the successful performance of the many activities encountered in daily living, receive adequate training in the proper use of his appliance. A number of articles and books have been written on the techniques of ambulation and functional activities with braces and crutches. This paper will concern itself only with the preliminaries of brace management. It will include putting on and taking off braces, and dressing and undressing with braces.

#### PUTTING ON AND TAKING OFF BRACES

### Putting on Braces (Bilateral long leg braces with pelvic band)

Starting Position: Sitting position on bed with leg extended, arms at sides, palms flat on the bed and opposite the hips. Braces are arranged in supine position at either side of the legs with all straps or laces open. (The braces, when removed, should have been placed conveniently by the bed, easily accessible when the individual is ready to wear them.) The pelvic band should be in line with the hips. Procedure: With the palms flat on the bed and opposite the hips, straighten the elbows, depress the shoulders, and lift the buttocks clear of the bed. With the buttock held off the bed move the body over the pelvic band and lower the buttocks between the pelvic band with the hips in line with the trochanteric joint of the brace. Place legs alternately between the struts of the brace. Unlock either knee, flex the leg, and then the brace in order to bring the shoe and foot closer

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within reach of the hands, preparatory to placing the foot in the shoe. Place foot in shoe and work foot into proper position in the shoe. Repeat, placing other foot in shoe. Lace shoes, fasten calf bands, buckle knee cap, fasten thigh bands, and buckle pelvic band.

#### Getting Out of Braces

The procedure for getting out of the braces is the reverse of the above mentioned procedure. Namely, open all straps and laces, remove the feet from the shoes, lift the legs alternately out from between the struts of the brace, push up and lift the buttocks out of the pelvic band to the side of the braces. In certain specific cases it might be more feasible in moving out of the pelvic band to push the body backward and slide out of the braces, instead of pushing up and sideward.

Some individuals, usually those wearing bilateral or single long leg braces, might prefer to put on and take off braces in a wheelchair. Basically the technique is the same as for putting on and taking off braces in bed, and only slight modifications are necessary to enable the individual to perform the skill from a wheelchair.

#### DRESSING AND UNDRESSING WITH BRACES

#### Dressing with Braces (Bilateral long leg braces with pelvic band)

Starting Position: Dressed in under garments. If patient wears a corset, this is put on directly over under garments. Sitting on bed with braces on and all straps or laces fastened.

Procedure: (Male Patients). Put shirt on in usual fashion. Put on trousers by unlocking the knee joints, bending as far forward at the hips as possible and pulling each leg of the trousers over the shoes and struts of the braces. (Male patients who wear a back brace with attached corset will have to pull on the trousers before lacing the corset, otherwise they will be unable to bend forward to reach their feet.) When the trousers are pulled up as far as they can with the buttocks on the bed, the individual must be back in the supine position and bridge the body by extending the head and arching the back. With the pelvis clear of the bed, the trousers are pulled up over the buttocks and hips.

Procedure: (Female Patients). Put dress on in sitting position. Pull dress under the hips, one side at a time, by shifting the weight from one buttock to the other. Or, return to supine lying position and pull dress under the hips, one side at a time by shifting the weight from one side to the other.

If the individual does not have the musclature necessary to completely bridge the body, he may pull one side of the trousers up at a time with a half rolling motion of the trunk until the pants are well over the buttocks and hips. Patients without a pelvic band should experience little difficulty with the trousers as they can rotate the legs at the hips to facilitate the procedure.

#### Undressing with Braces

The procedure for undressing with braces is the reverse of the above mentioned dressing procedures.

Note: The list of References cited in this article, and a companion article on Brace Maintenance will appear in the March, 1958 issue of the Journal.



Dr. Cicenia

Dr. Hoberman

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Morton Hoberman was graduated from Wayne University College of Medicine in 1935. He is now Chief of Rehabilitation Services and Research at the New York State Rehabilitation Hospital, West Haverstraw, N. Y. He is also Associate Professor in the Department of Physical Medicine and Rehabilitation at the College of Physicians and Surgeons, Columbia University. He is also Consultant to the Joseph Bulova School of Watchmaking. Dr. Hoberman is also a Diplomate of the American Board of Physical Medicine and Rehabilitation.

## **Italian Journal Reprints Oalma Authors**

The Italian Orthopedic Appliance Association is publisher of a Journal, Scienza E Technica Ortopedica in Italia E All'Estero (Orthopedic Science and Technique in Italy and Foreign Countries). The issue for March and April 1957, reprints with due credit, two articles which first appeared in the OALMA magazine, the Orthopedic and Prosthetic Appliance Journal.

These are: (1) McCarthy Hanger, Jr.'s article, "L'Industria Ortopedica Negli Stati Uniti D'America" (This appeared in the June '56 issue of this *Journal* under the title, "Economic Aspects of the Artificial Limb Industry"), and (2) Dr. Robert G. Thompson and Michael Amrich's article, "Protesi Per Amputazione Parziale Della Mano" (This appeared in our *Journal* under the title: "A Prosthetic Thumb for the Partial Hand Amputee").

# Peters To Teach At New York University



Basil Peters C. P. &O.

Basil Peters of the B. Peters Company in Philadelphia has agreed to serve as an instructor in the Prosthetics Education program at New York University. He will teach *Course No. 743, Above-Knee Prosthetics for Prosthetists*, which will be offered four times during the 1957-58 academic year. Mr. Peters has had extensive experience in prosthetics having served as chief of the limb and brace section at the Philadelphia Navy Yard during the Second World War, and operated his own limb facility since then. *New Course is Offered* 

In late September, just prior to the OALMA Assembly, *Course No. 749A*, a three-day advanced seminar in the diagnosis and correction of above-knee fitting problems, was offered for the first time. This course was conducted as far as possible on a round-table basis so that students and faculty might have ample opportunity to share experiences and methods with each other and analyze problems together. It was gratifying to find that the students who attended felt the experience had been quite valuable and pronounced the course a success. Two additional sections will be offered during the year.

In addition, four courses in Above-Knee Prosthetics, several courses for rehabilitation personnel, and one course in Upper Extremity Prosthetics will be offered during the 1957-58 academic year. Further information about these courses can be obtained from the Prosthetics Education Program, New York University Post-Graduate Medical School, 550 First Avenue, New York 16, New York

Courses are given on the second floor of the Basic Sciences Building of New York University College of Dentistry, 342 East 26th Street, at the corner of First Avenue and 26th Street. The area contains a completely modern limb shop, fitting rooms, amputee training rooms, and substantial classroom space.

Living accommodations convenient to the school are available at reasonable cost. Information and assistance in obtaining reservations may be had upon request.

A limited number of traineeships are available to help defray the cost of attending these courses.

# UCLA to Give New Course Schedule Announced for Los Angeles Campus

### UCLA Offers Advanced Course in Above-Knee Prosthetics

An Advanced Course in Above-Knee Prosthetics is the name of a new two and one-half day course being offered for a select group of prosthetists who have successfully completed one of the two-weeks courses in Above-Knee Prosthetics. The new program is designed to give outstanding graduates of the Above-Knee Prosthetics Courses an opportunity to explore some of the more complex and difficult aspects of AK fitting techniques, using newly-developed principles and practices that were evolved out of the intensive experience of the nine Above-Knee Prosthetics Courses completed to date.

Those who are qualified to take the course will profit from it in several ways:

- 1. They will learn to apply the new and improved techniques of above-knee prosthetic fitting and alignment by actual practice with amputees, under the guidance of your instructors, combined with discussions of problems you have encountered since completing the two-weeks Above-Knee Prosthetics Course.
- 2. They will be qualified to work in amputee clinics with those doctors, therapists and prosthetists who have attended the more recent Above-Knee Prosthetics Courses in which these advanced techniques were covered.
- 3. They will be able to render even more satisfactory prosthetic service for their above-knee amputee patients than they have in the past.

The first of these courses started December 12, and continued until December 14. Five more will be given in the Spring of 1958.

Designed for the advanced prosthetist, this is a short, intensive study course for those who have successfully completed the two-weeks course in Above-Knee Prosthetics at U.C.L.A. This program offers a new approach to some of the most perplexing problems of prosthetics practice. Flexion and adduction analysis enable the prosthetist to render a better service to amputees by improved fit and alignment.

Research and analysis of the case studies from the nine previous schools conducted at U.C.L.A. have revealed important information related to socket fit and shape. As a result of these studies, new methods of socket layout and initial shaping have been developed to insure proper contour of the socket as related to the stump. Marked improvement in amputee comfort and function may be accomplished by the use of these improved techniques, making this advanced course a necessity for every prosthetist who wants to give the very best in prosthetic service to his above-knee amputation patients.

- 1. Improved Techniques in Obtaining Prosthetic Information
  - A. The Problem of Limited Hip Extension: a new approach to the problem of hip flexion contractures. The prosthetist will learn a scientific method to measure flexion contractures and diagnose them in their true light as related to prosthetic design. This new discovery was found by study of the amputee subjects at U.C.L.A. during the course in above-knee prosthetics.

- B. The Need for Hip Adduction Measurements: a completely new method to establish the available adduction angle of the femur and transpose it to the socket plan. When properly applied, this new method tends to eliminate the necessity for making gross changes in abduction or adduction frequently found with procedures in the past. This technique is also a time-saver since it does away with excessive changes at dynamic alignment, which result in additional socket corrections.
- C. Simple Rules for Muscular Classification: information gathered from the nine previous schools reveals definite trends of pattern design related to the various stumps. It is now possible with a few basic rules to design or modify a pattern conforming to the stump contours, thus saving the prosthetist from excessive changes at the initial fitting.
- D. Non-Pathogenetic Edema: the discussion and analysis to be presented on this subject will stimulate the thinking of every prosthetist. Studies made of nearly one hundred fitted sockets form the material for this section as listed in the outline below.
  - 1. Types

a. At initial fitting of amputee.

- b. Chronic, appearing after substantial wearing of the prosthesis.
- 2. Methods of Control
  - a. Fitting techniques.
  - b. Stump perimeter, socket tension analysis.
  - c. Measurement control.
- E. Preparation of the SACH Foot
  - 1. Shaping for proper function as well as cosmesis.
  - 2. Problems of installing the SACH foot on above-knee or the below-knee prosthesis.
  - 3. Analysis of proper heel cushion.
  - 4. Substitution or replacement for standard type foot.
  - 5. Alignment problems.

The time schedule outline listed below illustrates the activities in the U.C.L.A. Medical Center Advanced Prosthetics Course.

1st Day, Thursday:

12:30	PM	to	3:00	PM	Prosthetic information
3:00	PM	to	3:30	PM	How to take the new flexion and adduction
					measurements
3:30	PM	to	4:00	PM	Practice measurements
4:00	PM	to	5:00	PM	Prosthetic analysis, including pattern and socket plan
5:00	PM	to	6:00	PM	Dinner
6:00	PM	to	6:30	PM	Layout of the AK socket block (new method)
6:30	PM	to	7:00	PM	Practice layout
7:00	PM	to	9:00	PM	Initial shaping, stump perimeter, socket ten- sion anlysis

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2nd Day, Friday:

 8:00
 AM
 to
 10:30
 AM

 10:30
 AM
 to
 12:00
 Noon

 12:00
 Noon
 to
 12:30
 PM

 12:30
 PM
 to
 2:30
 PM

 2:30
 PM
 to
 4:30
 PM

 4:30
 PM
 to
 6:00
 PM

 6:00
 PM
 to
 7:00
 PM

 7:00
 PM
 to
 7:30
 PM

 7:30
 PM
 to
 10:00
 PM

Practice initial shaping Lecture and demonstration initial fitting, non-pathogenetic edema Lunch Practice initial fitting Lecture-demonstration, SACH foot Practice: SACH foot Dinner Static alignment

 3rd Day, Saturday:

 8:00 AM to 10:00 AM

 10:00 AM to 11:00 AM

 11:00 AM to 12:00 Noon

 12:00 Noon to 12:30 PM

 12:30 PM to 2:30 PM

 2:30 PM to 4:00 PM

 4:00 PM to 4:30 PM

 4:30 PM to 6:00 PM

 6:00 PM to 7:00 PM

 7:00 PM to 9:00 PM

Critique: Group I Plans, patterns and layout: Group II Initial shaping Lunch Continue initial shaping Initial fitting Static alignment Dynamic alignment Dinner Discussion and critique



CERTIFICATION EXHIBIT—The importance of training for the orthotist and prosthetist was featured in the Certification Exhibit in the 1957 Congress of Physical Medicine and Rehabilitation. Shown above at the booths at the Los Angeles session are, left to right: Kenneth L. Dodd, Santa Monica; Dr. O. Leonard Huddleston and Leroy Noble, C. O. Dr. Huddleston is Director of the California Rehabilitation Center at Santa Monica.

The following dates are allocated to various geographical areas on a tentative basis. Those of you cannot attend the session allocated to their area, should let U.C.L.A. know which course you would prefer to attend. Class size is limited to 12 students and enrollment is by invitation only. A prompt inquiry is urged since places cannot be held without a definite reservation.

January 30 - February 1	Northern California, Oregon, Washington, Canada, Alaska and Idaho.
February 20 - 22	Wyoming, Colorado, Utah, Nebraska, Kansas, Iowa, Oklahoma and Arkansas.
March 6 - 8	Texas, Louisiana, Mississippi, Tennessee, Kentucky and Virginia.
April 3 - 5	Minnesota, Illinois, Wisconsin and Michigan.
May 8 - 10	Open.
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# **Orthopedic-Prosthetic Idea Exchange**

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

To all of you who responded to graciously to our initial column, our sincere thanks. We need your comments, not only from the physicians, but from the technicians, therapists, and administrators too. You must have a pet theory or ingenious idea that someone else could adopt—please pass it on!

Several clinics are reporting increased use of the SACH foot, especially with BK prostheses. Some veterans find it successfully replaces the 4-way ankle joint with diminished maintenance. Apparently its use is spreading to Symes amputations, Suction socket AK prostheses, etc. Are you using SACH feet? Write us about it!

Dr. Phillip Moore, of Mt. Edgecumbe, Alaska, informs us of some interesting problems peculiar to his frigid area, such as prostheses fitted over Shoe-Pacs and special Arctic footwear. Incidentally, they need good technicians up there. Anyone interested should contact Dr. Moore for a very interesting and profitable career.

Our correspondent, in Hawaii, Dr. Ivar Larson, demonstrated several unusual juvenile amputees at the Pan-Pacific Congress recently held in Honolulu. One child with very short "flipper' type of upper extremities was able to successfully manipulate the elbow lock and terminal device by his stubby fingers. Maintenance and perspiration are two important problems that arise from the constantly warm climate.

One of the features of the Pan-Pacific meeting was an amputation Symposium organzed by *Dr. Miles Anderson* and his UCLA staff. Your editor was privileged to participate by presenting the clinic concept in solving amputation problems. All attending surgeons received copies of new UCLA publications, entitled: "Manual of Above-Knee Prosthetics," and "Arm Amputee Check-Out and Training." They are excellent treatises and the chapter on gait is a dandy—better get a copy if you have not already.

From Baltimore, we learn of PROTEKO-SORB, a pre-packaged silicagel preparation in assorted sizes, in fiber bags. They appear to be useful and we plan to give them a trial in our perspiration problems. One of our prosthetists is trying to adopt a knee seal which will also firmly hold these bags while in use within the socket.

Wish we had more to tell you, but some of you folks just aren't talking. Let us in on your pet situations, and let us share your problems. Maybe someone else has just the answer you need! We want to hear from the prosthetists too—this column belongs to all of you—you-all!

EVERETT J. GORDON, M.D.

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### Hello there! I'm Lorraine.

I have been RE-HA-BIL-I-TATED through cos-mes-is. Those are big words for a little girl but it's been a big thing for me.

You see, I was born with a congenital deficiency of my left hand. You know, I grew up wishing I were a boy so I would have pockets I could put my hands into. I guess you can see what I mean.

While I was still in high school, my parents had me go to an orthopedic doctor specialist to see what could be done for my hand. He told us my problem was a cosmetic one and easily corrected through the wearing of a new type pros-thet-ic device.



He gave us the address of a local artificial limb dealer.

This man turned out to be the nicest person. He explained how everything would be done and even showed me a sample of how it would look. He said that the trade name of this type of prosthe-sis was **Realastic** — do you get it? I think the name is awfully cute because it says that the pros-the-sis looks real and lasts, is made of plastic and is elastic. Wel-l-l, it *suggests* all that and I know what it says is more than true.

Mother was terribly excited but I didn't think at the time that anything for me could be so good. Anyway, this nice man (the pros-the-tist) took a plaster cast of my poor little stunted hand and then a half one of my good right one.

He also took ever so many measurements and you know, he had the cutest trick for matching the complexion of my right hand. He used color samples just like small fabric swatches, only they were in flexible plastic and looked just like skin.

All this stuff was sent to the *Realastic* people and then we waited for about two weeks. Finally, one day Mr. Pros-the-tist called and said the finished work had arrived and for me to come in and be fitted.

It was *beautiful* — just like what my own poor little hand should have been. And it fit perfect! Mother broke out crying with joy and for a little while she had to be re-ha-bil-i-tated, too. Parents always have a sort of guilt complex as though it's some fault of theirs when baby isn't born perfect.

Mr. Pros-the-tist made some minor adjustments so I could wear my hand home and I've been wearing it ever since. Not the same one, silly, because that was a long time ago and part of my pros-the-sis has been replaced. You see, my hand has two parts, the **Realastic** "glove" which is the outside and the "insert" which replaces the portion I am missing. The insert I now wear is the same but this is my second new glove I am working on now. The charge for the replacement is only a little over a third of the original cost.

I get from one to two years' use from the glove and I could get more only I like for my hand to look perfect always. After I graduated from high school, I took a job as cashier in a store. I used to sit there and think of all those people for whom I was making change and not one of them dreamt that I didn't have two perfectly normal hands.

Sometimes, I used to see people who had amputations like my own or had lost a whole part of their arm. I wished then that I had the nerve to tell them about this *Realastic* thing and how much it does for a person.

You know, Mr. Pros-the-tist told me that 20,000 people become arm amputees every year from accident or disease. In addition, he mentioned 5000 more who had "minor" (just imagine calling it minor) amputations to the hand. I just wish all these people knew what I know about **Realastic**? He says (Mr. Pros-the-tist), that **Realastic** can be used for gloves over mechanical hands, leg covers for artificial limbs and ever so many things—even for ears and noses!



### **PROSTHETIC SERVICES OF SAN FRANCISCO**

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Realastic\* "Looks REAL - It LASTS"



### SIX NEW MEMBERS JOIN OALMA Leimkuehler Plans Membership Drive

Vice President Paul E. Leimkuehler, the new Chairman of the Membership Committee, announces the election of the six new members listed below, and plans for an active membership campaign in 1958.

A vigorous effort will be made to acquaint every desirable limb and brace firm with the advantages of membership in OALMA. Mr. Leimkuehler emphasized especially the development of new services in recent years, including the OALMA "Cost of Doing Business" survey, the Wage Survey, the Visual Aids Loan Library, and the greatly broadened Insurance Program.

In announcing these memberships, Mr. Leimkuehler urged all members to add these names to page 35 of the OALMA Membership Roster:

Anthony Medical Supply and Ambulance Service, Inc., 320 Hempstead Avenue, West Hempstead, Long Island, New York. Telephone: Ivanhoe 6-2700. David L. Barnum, President; Julius Biro, Head of Brace Department. Scope: artificial limbs, braces, surgical supplies, canes, crutches, wheelchairs.

Lerman & Son, 8374 Wilshire Blvd., Beverly Hills, California. Telephone: OL 3-1460. Max Lerman, President. Scope: braces, and surgical supplies.

Expert Surgical Appliance Co., 145-10 Jamaica Avenue, Jamaica, New York. Telephone: 6-8620. Mrs. Irene Weinberg, President.

Maurice J. Markell Shoe Company, Inc. (Associate Member), 332 South Broadway, Yonkers, New York.

Howard Reinherz, Orthopedic Braces & Appliances, 6801 Sheridan Road, Kenosha, Wisconsin. Telephone: OLympic 4-2801.

Rothschild's Medical & Surgical Supplies (Associate Member), 1268 South State Street, Syracuse 3, New York. Telephone: GR 6-5369. Lee Rothschild, President. Firm in operation thirty-one years. Scope: braces, surgical supplies, canes, crutches, wheelchairs.

# Leaves from the OALMA "Who's Who" Sketches of New Members

One of the most interesting establishments carried on the membership rolls of OALMA is the *Brace Shop of the Carrie Tingley Hospital for Crippled Children*. This shop is located in the town of Truth or Consequences, New Mexico.

The brace shop was opened in 1937 at the same time the hospital was opened. The shop is a separate building and has approximately 2,000 square feet of floor space. It is made up of the following rooms: metal, shoe correction, leather, corset, lobby, office, fitting, shoe storage, and storeroom. "We consider our brace shop very well equipped to turn out the necessary braces for our crippled children work."

The staff of the shop consists of three bracemakers and three apprentices. Frank Luchini, Manager of the shop, has held his position since 1942. He was a delegate to the 1957 Assembly in Washington. Since the shop is far away from other large centers, the hospital has, of necessity, had to train its own men. Leo P. Schwartz, administrator of the hospital, extends a cordial invitation to other members of OALMA to visit Carrie Tingley Hospital whenever they find themselves in the great state of New Mexico.

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Mrs. Irene Weinberg, at her desk. The picture is by her son, Howard Weinberg, a professional photographer.

The Expert Surgical Appliance Co. of Jamaica, New York, which has re-affiliated with OALMA, celebrated the Fourteenth Anniversary of its founding on October 11th. Its success is the result of devoted efforts of Mrs. Irene Weinberg, President of the Company and her late husband, Larry Weinberg, who founded the company October 11, 1943.

Larry Weinberg was already an experienced and skilled orthotist. Behind him lay many years of experience in the field, for he had begun his career as an apprentice in Germany. There he had become a fullfledged orthopedic mechanic. He had earned his "Gesellen Brief" and begun work on his Master's Degree. But Germany in the thirties under the Nazi regime was no place for one who believed that all men are equal. Accordingly, Larry Weinberg came to the United States in the year 1935. He surmounted the difficulties of a new language, and was associated with several American surgical and orthopedic appliance companies.

The Expert Surgical Appliance Co. was first located on Sutphin Boulevard, Jamaica, Long Island, but business grew to such an extent that it was necessary to find new quarters, and in 1948 the present building at 145-10 Jamaica Avenue, Jamaica, Long Island, was purchashed. Here the business is now located with four spacious private fitting rooms, a wellplanned workshop and display areas for a complete line of sickroom supplies.

Today the company is active not only in the field of orthopedic appliances but also in artificial limbs. It is a member of the Metropolitan Orthopedic Appliance and Limb Manufacturers Association, and the facility is certified. Mrs. Weinberg was a delegate to the 1957 National Assembly of the Limb and Brace Profession held in Washington.

### The Maurice J. Markell Shoe Company

The history of this firm is actually the story of Maurice J. Markell, the founder and active head. Mr. Markell began his career in the retail shoe business in New York in 1914. He soon became known as a specialist in prescription shoe fitting, and worked closely with the brace and limb profession supplying brace shoes for polio victims during the great epidemics which followed the first World War.

About 1930, Mr. Markell developed the first *Tarso Supinator* and *Tarso Pronator* shoes at the request of a group of orthopaedic surgeons who had for some time felt a need for shoes of this type. These were an immediate success. Since they were probably the first such shoes ever made on a production basis, stocked like regular shoes and sold at a ready made price, they constituted a substantial contribution to the public good.

ORTHOPEDIC & PROSTHETIC APPLIANCE JOURNAL

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Dr. M. J. Markell, new OALMA member, with R. W. Goldsby of Mobile, at the OALMA Assembly in Washington.

Almost immediately, and with little if any direct advertising, there was a demand for Tarso Shoes from prescription shoe centers, medical institutions and physicians throughout the United States and from overseas as well. Ultimately Mr. Markell found it necessary to leave the retail business and to devote his full efforts to wholesale distribution.

Today Tarso Shoes are available exclusively from the M. J. Markell Shoe Co., in Yonkers, New York.

The Markell Shoe Company has continually broadened its line, adding lace-to-toe surgical boots, babies pre-walker boots, straight last shoes of all types, and finally Denis Browne splints. However it remains an organization devoted exclusively to the children's prescription footwear field. Mr. Markell feels that the complexities of this field are such that only a small specialized organization, able to give personal attention to each order, can provide the speedy and reliable service which a dealer must have to maintain his standing with the medical profession.

### The "ORIGINAL"

### WILLIAMS Lumbo-Sacral Flexion Brace

(Designed by Dr. Paul C. Williams)



"To reduce the lumbo-sacral lordosis and thus lift the weight from the posterior vertebral structures. Permits free ant. flexion of the lumbar spine but prevents extension and lateral flexions."

#### Measurements:

- 1. Chest (about 4" below nipple line)
- 2. Waist (at navel line)
- 3. Pelvic (1/2 distance between greater trochanter and crest of ilium)
- 4. Seventh cervical spinous process to the prominence of Coccyx.

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### MADE TO ORDER

### **DELIVERED COMPLETED**

### **READY TO FIT**

rigid pelvic band and hip sections for positive abduction and adduction control

sealed radial and lateral thrust ball bearing joints used throughout

rigid full length shanks in shoes for positive foot control

many special features available for individual patient requirements

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APPLIANCE



### CORPORATION

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### **New Member**

Howard R. Reinherz, C. O., Kenosha

Howard R. Reinherz, C.P.& O., became a member of OALMA at the 1957 National Assembly—the same session which saw the adoption of his motion that OALMA establish an Audio-Visual Committee and film library as a new service to members. Howard is a graduate of Temple University, the School of Chiropody and interned in that field at the University Hospital and the Philadelphia General Hospital. He saw service in World War II, primarily at the Mayo General Hospital in Galesburg, Illinois, doing orthopedic Appliance work under Dr. Philip Lewin of Chicago.

Howard established his own facility in Kenosha, Wisconsin in 1947, and commenced the practice of chiropody and foot surgery along with the work of the brace company. At present he is engaged in the performance of both enterprises. He is a consultant orthotist at the Naval Hospital, Great Lakes, Illinois and on the Associate Staff of the Highwood Hospital, Highwood, Illinois. He is a member of the American Legion, the Kenosha Interprofessional Institute and the National Association of Chiropodists. Mrs. Reinherz is the former Miss Fay Deutch of Wausau, Wisconsin. They have two children, Barbara—eight years old and Richard—six years old.

### **BOOKS RECEIVED**

Books received by the Journal or the Headquarters Library of OALMA are acknowledged in this column. Reviews will be published in future issues of the *Journal* as space permits.

REHABILITATION LITERATURE, 1950-1955-—A bibliographic review of the medical care, education, employment, welfare, and psychology of handicapped children and adults. Compiled by Earl C. Graham, and Marjorie M. Mullen, National Society for Crippled Children and Adults; Mc-Graw-Hill Book Company, Inc. 1956; 621 pages—\$13.00.

A MANUAL OF FRACTURES AND DISLOCATIONS—By Barbara Bartlett Stimson, M.D., 3rd Edition, 224 pages, 97 Illustrations; \$4.50; Published February 1956, Lea & Febiger, Washington Square, Philadelphia 6. Pennsylvania.



# P braces CAMP





### SPINAL HYPEREXTENSION BRACE

A new washable and odorless Camp brace for positive hyperextension in cases of compression fractures, osteoporosis with kyphosis, Marie-Struempell's disease and adolescent epiphysitis. Easily adjusted rotating pads at sternal and pubic areas to eliminate pressure edges.

### CHAIR BACK BRACE

One of Camp's fine plastic appliances, the chair back brace is highly recommended for support of the lower lumbar spine as a limit to lateral and rotary motion. All sizes 12 inches high with top and bottom bands increasing with size increases, making it possible for you to stock only three basic sizes for complete service. Shaped by warming under infra-red lamp.

### THOMAS PLASTIC COLLAR

A proven intermediate cervical collar where prolonged, non-rigid support is indicated in treatment of the cervical syndrome, subluxation, arthritis and cervical radiculitis. This plastic collar is made of non-toxic, washable upporting base, edged with Naugalite-covered foam rubber. Easy-to-use, simply adjusted, fitted with lock buckle and button clasp.

### a complete CAMP stock . . .

Gives you flexibility in serving doctors in your area and their patients in every major support need. Camp's wide variety of supports, appliances and apparatus makes fitting patients to specific prescriptions a matter of routine. With representative models of all Camp products you can serve your medical market immediately. And Camp's high standards of scientific design and production will give all your customers total satisfaction.



MATERNITY SUPPORTS









GENERAL SUPPORTS FOR WOMEN

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# To All Certified Orthotists and Prosthetists

Greetings from Roy M. Hoover, M.D., President of the American Board for Certification

First of all I would like to express my appreciation to the members of the American Board for Certification for the honor they have given me in electing me president for the coming year. This is an office which has been ably filled in the past and I trust that the work of the Board will continue to be of the same standards as under the able leadership of our previous presidents.

The Certification Board has now completed its tenth year. During this time much has been accomplished to establish standards of excellence in the work of the Orthotists and the Prosthetists and also to develop standards from a business and professional standpoint which are second to no profession in the country. We hope that this effort is only a beginning and that year by year the Orthotists and Prosthetists will endeavor to give more excellent service to the handicapped of the country than they ever have in the past.

These ten years have seen the development of excellent training courses in prosthetics. First the course on the arm, then the course on above the knee prosthetics as given at U. C. L. A. and New York University. These training courses have given wonderful opportunities for improving the knowledge and proficiency of Prosthetists. I sincerely hope that the near future will see the establishment of comparable training courses for Orthotists. Such courses would make it possible for an Orthotist with vision to improve his knowledge and efficiency in carrying out his chosen field of endeavor.

I know that my fellow members on the Board will do all they can toward furthering the Certification movement and the encouragement of advanced training facilities for members of the profession, but we expect every member to do his part in utilizing the facilities available for improvement and encouraging the highest standards of technical skill and professional ethics in our daily contact with the medical profession, orthotists and prosthetists, and the great mass of handicapped fellow citizens with whom we come in contact.

To guide us in carrying out the certification program I have named the following committees. I would like to request that everyone cooperate fully

and give all the assistance required, to these work groups:

I. Committee on Credentials—To review and act upon all applications from persons desiring Certification. To advise the national office as to any further information desired on any candidate. The decisions of this committee determine who shall be eligible to take the examinations. Chairman: Frank Harmon, Carlton Fillauer, D. A. McKeever.

II. Committee on Facilities—To review and make decisions upon applications for Certification from facilities. To advise the national office as to any further information. The decisions of this committee as to approval or disapproval are final unless an appeal is requested for review by the entire Board. Chairman: McCarthy Hanger, Jr., Karl Buschenfeldt, Vernon Nickel, M.D.

III. Committee on Examinations—To administer and conduct the examinations in places and on such dates as the Board shall designate. Chairman: E. W. Snygg, M. J. Benjamin, Charles Hennessy, McCarthy Hanger, Jr.

IV. Committee on Standards—This is a new committee which absorbs the functions of the Judiciary Committee. To recommend standards and ethics in the best interest of the patients, doctors and agencies served by Certified facilities and personnel. This committee will receive, consider and determine the appropriate disciplinary action in all cases of alleged infraction of established standards. Chairman: Col. August W. Spittler, Chester C. Haddan, David E. Stolpe.

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### Notes from the Editor's Desk

The *Journal* has a new "sister" publication. This is the "OALMA Almanac," a six-page monthly bulletin devoted to news and views of the limb and brace field.

The new Almanac made its first appearance in November 1957. It will be published every month of the year except the four months in which the Journal appears. This means that every month of the year there will be a magazine devoted to the limb and brace field.

The Almanac was established by the OALMA Board of Directors for the convenience of member firms. It goes to them by first class mail. Copies are punched so that they may be kept handy in a looseleaf notebook for ready reference. While the new publication is intended for members, a sample copy will be sent to any firm interested in OALMA membership.

Features of the new publication include: A question-and-answer service known as "Ask OALMA," trade news, announcements of new products, economic surveys, and announcements from OALMA and Certification headquarters.

The January 1958 issue of the *Almanac* will contain an analysis of wages paid in artificial limb and brace establishments throughout the United States.

A limited amount of advertising will be accepted in the *Almanac*. Among the firms which have already reserved space are the Knit-Rite Company, Prosthetic Services of San Francisco and the Sierra Engineering Company. —L. A. S.

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### **Meet Some New Directors of OALMA**



Joseph Gitlin, Region VII



C. D. Denison, Region III

#### **BIOGRAPHY OF NEW DIRECTORS**

The eleven-man OALMA Board of Directors was established and set up so that the individual member would have a representative from his part of the country when important decisions are to be made. Each fall as a result, eleven members of OALMA are picked for this National office—one from each of the eleven regions into which the United States is divided.

So that members in other regions may become better acquainted with these eleven men, we are beginning here a series of biographies, which will be continued in the March 1958 issue.

Cedric D. Denison, President of the C. D. Denison Orthopaedic Appliance Corporation of Baltimore, is the new Regional Director for the Middle Atlantic Region of OALMA—Pennsylvania, Maryland, Delaware, Virginia and the District of Columbia. He succeeds Basil Peters of Philadelphia.

Nineteen hundred fifty-eight will be the 40th anniversary of Mr. Denison's career in the field of limbs and braces. He began with the Spencer Corset Company of New Haven as a designer and builder of surgical corsets and braces, and remained with them, operating his own business from 1922 to November, 1938. During this period he did considerable work for the Yale Football Team and other athletic organizations. Mr. Denison moved to Baltimore in November, 1938 to become associated with the Baltimore League for Crippled Children and to operate a brace shop, employing handicapped people. It was in this shop that the initial research work for cerebral palsy bracing was done by Mr. Denison under the supervision of Dr. Winthrop M. Phelps.

Mr. Denison re-established his own business in November, 1941, and concentrated his efforts on cerebral palsy bracing. A new modern shop and offices were constructed and occupied in 1945. The organization has been incorporated since October 1947 with Mr. Denison as President, his son Robert K. as Vice President, and his wife as Secretary-Treasurer.

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- . . . for year 'round comfort

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- . . . large enough to handle orders with dispatch
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SUGGESTION . . . check your stock . . . mail your order today.



### KNIT-RITE Spinal Braces . . . are shipped same day order is received.

Chair Back Taylor Williams

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Taylor Spinal Brace with pelvic girdle and shoulder straps.



Part of the display on Certification at the American Medical Assn. meeting in Philadelphia this month. Basil Peters and Anthony Cocco of Philadelphia are at the booth with William Tosberg of New York University.

### Joseph I. Gitlin

Joseph I. Gitlin came into the prosthetic field in July of 1932, when he joined the staff of the Minneapolis Artificial Limb Company as Credit Manager. His talents were such that he was asked to stay on and become an associate in the firm. In the years since then he has had a prominent part in the development of the organization. Currently, Mr. Gitlin is Vice President, Treasurer and a Director of the Minneapolis Artificial Limb Company. He also holds the same offices in the Plastic Fibre Limb Company and is Vice President, Secretary and Director of the firm, Ray Trautman and Son, Inc. His latest assignment in addition to these duties, is as Vice President, Secretary and Director of Rochester Orthopedic Appliances, Inc. of Rochester, Minn., a Certified Facility which took over the brace and limb shop of the famous Mayo Clinic.

Mr. and Mrs. Gitlin attended the 1956 National Assembly in San Francisco, where he was one of the panel on the OALMA Economic Project.

Mr. Gitlin received his education in the public schools of Minneapolis and the University of Minnesota, where he took courses in engineering and business administration. The program of the Boy Scout movement has always interested him and he is presently Scout Commander of the Viking Council of the Boy Scouts of America and a member of the National Council of Boy Scouts of America.

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WITH 1st and 2nd finge NITH Naturally shaped Finer gauged and to the jointed fing Realistic cosmetic g 8 1/2.

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

with naturally shaped and molded rubber finger tips.

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

**NEW** Realistic cosmetic gloves exceedingly lifelike in sizes  $7\frac{1}{2}$  - 8-

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# ALSO THE LAMINATED WOOD HAND WITH FIBRE CORED FINGERS PLYLITE





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OALMA Director for Southern California and Arizona: Fred Quisenberry

FRED QUISENBERRY, President of Alpha Orthopedic Appliance Company of Los Angeles, is the new Regional Director for Southern California and Arizona, succeeding Kenneth Dodd of Santa Monica.

Fred is celebrating his thirtieth anniversary in the artificial limb field. But his interest in artificial limbs goes back to 1920, when at the age of eleven he lost his left leg below the knee in a train accident. He dates his special interest in this field to his meeting with OALMA Past President Clyde Aunger, who was then owner of the George R. E. Milligan Company. From 1927 on Mr. Quisenberry remained with the Milligan Company for 20 years, with the exception of a year and a half spent in Seattle with the Lundberg Company, where he formed a fast friendship with Russell Brain and Eric Gustafson. While with the Milligan Company he started the Western Wholesale Parts Company for Frank P. Brown.

In 1947, Fred acquired a share in the Alpha Orthopedic Appliance Company which he now operates with his partner, Woodrow Yamaka. Fred has long given attention to training procedures. He is a graduate of the first Suction Socket School, and the several business management seminars and the course on lower extremity fitting at the University of California, Los Angeles. He also took a training course in the manufacture of the Aluminum Artificial Limb Company at the C. H. Davies Company in Philadelphia. He has served two terms as Vice President and one term as Secretary of the Society of Orthotists and Prosthetists. He is a Certified Prosthetist and Orthotist.

### What's News

Word has been received of the marriage in Berlin on July 13, of *Heinz Pfau*, prosthetist, to Miss Ursula Wissinger. Mr. Pfau was one of the group of German experts who visited the United States in 1951, to study American techniques of prosthetic production. The couple make their home at Podbielskiallee 20-22, Berlin-Dahlem, Germany.

# BEST WISHES FOR PEACE, HEALTH AND HAPPINESS IN THIS NEW YEAR OF 1958



DORRANCE-HOSMER will continue in their sincere effort to bring you better prosthetic components and devices to help insure success in your important work of rehabilitation.

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# NRA Meets at Minneapolis OALMA Members Take Part in Program



Photo by John Hendrickson

OALMA EXHIBITS AT N.R.A. SESSION—Lucius Trautman, Past President of OALMA, points out details of our Training Course to H. W. Gunnarson, Superintendent of Physical Restoration in the Minnesota Vocational Rehabilitation Office. Robert C. Gruman, General Manager of the Winkley Company, who set up the OALMA Exhibit, is at the right.

The 1957 conference of the National Rehabilitation Association held in Minneapolis in October turned out also to be the largest and best attended ever held. To the many OALMA members who attended and took part in the Conference at the Nicolet Hotel, it brought back memories of the days in 1946, when OALMA met in Minneapolis.

Robert Gruman of the Winkley Company reports that OALMA members took an active part in many sessions in addition to the formal program on Orthopedic Appliances which OALMA presented to the N.R.A. session. Gruman himself served as Co-chairman of the Finance Committee. The Scientific and Supply Exhibits included an OALMA booth on the Certification Educational Program and displays by the Hosmer, Winkley. Buchstein-Medcalf, and Trautman Companies. Walter H. Erickson headed the Committee on Prizes.

President Hennessy presided at the OALMA session. Appliances which displayed new techniques and materials in bracing were presented to the audience and attracted considerable attention. C. E. Medcalf showed an appliance with placement of the heel to overcome internal or external rotation and a copper beryllium spring drop foot brace. Gordon Plorin showed a Milwaukee Brace with the added feature of a laminated plastic, making a

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- 2. Cutting time.
- 3. Stitching time.
- 4. Assembly costs.
- 5. Material waste.

We will be happy to make for you, to your specifications, padded covers for uprights, pelvic bands, thoracic bars and other parts.

With these parts on hand in your store, you can practically assemble a brace while the patient waits.

Brace aprons and brace belts are also available.

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Another picture by John Hendrickson of the Winkley Co., shows Howard L. Benshoof, O.V.R. Regional Representative, going over prosthetic courses with Everett Haines. Manager of the Winkley Company at Des Moines. Mr. Benshoof is a former president of the National Rehabilitation Association.



lighter weight, more sanitary appliance. Dr. Jacquelin Perry and Roy Snelson of Rancho Los Amigos staff reported on "New Developments in Functional Arm Bracing Correlated with Reconstructive Surgery in Severely Paralyzed Upper Extremities." This was substantially the same paper they had presented earlier in the week to the OALMA Assembly.

Dr. Miles Anderson and President Hennessy discussed Modern Training in Orthotics and Prosthetics. Lucius Trautman, Past President of OALMA, summed up the results of the Educational Program now in existence and in planning as "one of the finest results of the research program by the Prosthetics Research Board".

The realism of an actual case presentation by Erich Hanicke of Kansas City drew the close interest of his audience as he presented in film and on slides the story of a bilateral AK Prosthetic patient. This girl born with feet at approximately mid-thigh level, now walks on two AK prostheses with the legs built in the sockets.

Erich Hanicke had prepared this film with the interest of rehabilitation workers in mind. He pointed out that usually they see only the beginning and then the end result of the fitting with the appliance. What they often miss is a view of what goes into the making of the various appliances, and they follow up on the social and occupational activities as the prosthetist sees it. The patient presented by Erich was a student at a University, seriously concerned about her appearance, at the time Erich made the first set of limbs. The slides and film show the evolution from "small to tall". She is now a medical and X-Ray technician, happy in her work and with a satisfactory social life.

In a report on Prosthetic Appliances Today, concluding the program, Daniel Becker discussed the APRL and Becker Hand; Walter Erickson discussed the SACH Foot, and Chairman Bob Gruman presented an amputee with a Stewart Hydraulic Knee Unit and quadrilateral socket. Chester Nelson presented a woman patient wearing a Canadian Hip Disarticulation prosthesis.

In a final comment, our Program Chairman, Bob Gruman, points out that Minneapolis easily accommodated this convention, with a registration of over 1,000. It was his recommendation that OALMA gave serious consideration to returning in the not-too-distant future to Minneapolis for its Assembly.

### With Complete Confidence



**SOUND BASIC DESIGN**—In developing the corset type of support, Freeman has worked closely with the medical profession. The result of this work and cooperation is a sound basic design that can give the exact degree of support or immobilization desired and still retain comfort for the wearer whether he's sitting, standing or reclining.

**COMPLETE LINE**— When you handle Freeman surgical supports you have available the *right* model for every surgical garment application the doctor may prescribe. You can be sure that each is correctly designed for its job and *will be worn* because it will be comfortable. That's why you can fit and sell Freeman garments with confidence.

FREEMAN • Self-smoothing, Non-Wrinkle Fly. Exclusive. Speeds putting on gar-QUALITY ment, assures extra comfort • Petal-Soft Interior Finish. Cushions stays, avoids irritation • Nylon Laces at points of greatest strain • Soft Plush Padding under hooks and eyes • Superb Needle Work • Correct Materials.

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my inspection .	
Men's Women's Size	City

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# Laboratory and Shop Notes

A Column of Practical Ideas

Contributing Committees Alvin L. Muilenburg, Chairman; G. E. Snell, C. O. Anderson, Erich Hanicke, Joseph Martino.

This is meant to be a practical column, devoted to methods and equipment used in the actual fabrication of appliances. Contributions are welcome.



SPECIAL CAST HOLDING DEVICE

Erich Hanicke of Kansas City describes a special cast holding device:

New materials and new techniques sometime require new methods of fabrication. The photograph shows a heavy stand which we use to hold plaster of paris casts. Originally it was designed to facilitate application of celluloid in the manufacture of celluloid corsets and also the molding of heavy leather for corsets and sockets. At that time we did not realize how much more valuable this stand was going to prove with the introduction of celastic molding fabric and especially the fibre glass and resin technique.

This method has enabled us to have much better control over our work and it also gives the necessary resistance to the force which must be exerted to obtain a good product. This is especially true in leather molding.

We used a barber chair as a base. The entire mechanism can be elevated or lowered to desired height. It has a heavy double outlet head with a clamping feature to tighten a machined ferrule. This ferrule holds 1 inch pipes that are put into the casts when the plaster is poured. The pipes are held secure in the ferrules with allen cup screws. A pipe tee mounted on a short end of pipe serves as a right angle clamp for holding tools, etc.

Incidentally, instead of making body casts solid with plaster, we use the rolling method and make the cast about 1" thick. Two short  $\frac{1}{2}$ " pipes are plastered into the wall of the cast. Two couplings with C clamps are fitted onto a long 1" pipe, adjustable up and down. In this manner the pipe frame can be easily detached from the cast and used for the next cast.

From Alvin Muilenburg of Houston, Texas: See-8 resin is excellent for repairing cracks in wood sockets, knee blocks and feet. When mixed with

Sano-Cel (a fine white powder available from See-8 dealers) it can be used in any consistency. Sawdust and fibre glass can also be used when extra strength is needed.

Ed Snell of Little Rock (Director of Region VIII) has a labor-saving device:



In fitting suction sockets on the adjustable leg, we frequently find it necessary to re-set the valve in the duplicating process. To avoid this extra labor and also to save time in fitting, we have devised a temporary valve which can be inserted in the hole bored for the standard valve and used without waiting for glue or plastic to set. This device can be made in your own shop in just a few minutes using materials which you probably already have on hand, as per the attached sketch.

John D. Hinnant uses a unique type of roller pencil with scale built in. With this he is able to measure the inside of the circumference of even a small child's socket. John reports that it is a very handy item to take with you to clinics. The roller pencil attracted much attention when he displayed at the National Assembly. This 'Roller Rule" can be ordered from the Roller Rule Company, 1319 Gavitota Avenue, Long Beach 13, California.

Joseph H. Martino, President of the United Limb and Brace Co., Inc. and a member of the Journal Committee sends along five suggestions for your consideration:

1. Provide articulated platforms for the double above-knee amputee by installing an ankle joint with anterior and posterior bumpers. This permits the platforms to remain longer in contact with the floor, making for more stability.

2. Laminate special size forearms on beeswax forms instead of plaster. Easily contoured, easily melted out. Quicker production.

3. Coat interior finish of suction sockets with Ambroid Cement diluted 50% with Ambroid Solvent, sanded in between coats. Four or five coats provide hard gloss like finish. Do not permit patient to wear for 24 hours.

4. Use a Stanley Surform File for rasp work on willow legs.

5. Supplement Silesian suspension with an elastic iliac crest strap to hold bandage in place on lean, slim patients.



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### **OALMA Holds "Problem Clinic"**



"SUDDEN DEATH" FOR THE EXPERTS—Los Angeles members of OALMA and their guests portray the type of group discussion which has proved so helpful in Regional meetings this last year. This type of program has been described as "rough on the expert authorities but good for the members." In the back of the room between the two blackboards may be seen experts Charles A. Hennessy, Dr. Miles Anderson, Glenn Jackson, with Kenneth Dodd, then Regional Director and Leroy Noble. The audience, which posed the "hard nuts" for the experts to break, are shown from left to right: First table—Joseph Traub, Andrew Osborn, Ray Sollars, Al Muilenburg of Houston, Texas and Leroy Nattress of the UCLA staff. Second row—M. L. Van Zandt, Manual Dobreny, Tashi Ishibashi, F. O. Peterson, Jack Pava of Santa Barbara, and Leroy Snelson. Third row—Jay Greene and Gene Kress of the U. S. Manufacturing Co., Kenneth Kingsley, Max Lerman and Jack Conry. Fourth row—Richard Fadely, John Bray, Clarence June and Armand LaPointe,. John Kolman and Al Wing. Fifth row—Richard Nims, Dick Roe, Regional Director Fred Quisenberry and Roddy (Chips) Chupurdia.

### LABORATORY AND SHOP NOTES (Continued)

Two Suggestions from C. O. Anderson (Prosthetic Services of San Francisco): 1. The setting time of plaster of paris may be hastened by adding commercial potassium sulfate. Table salt (sodium chloride) is also effective but reacts on the surface of the cast when it dries out. Potassium sulfate has an even superior acceleration, without the bad effects.

Simply throw a pinch or two of the powder into the mixing bowl water, then add the plaster. If the opposite effect of slowing the setting period is desired, substitute alum instead.

2. According to tests conducted at U. S. Army Prosthetic Research Laboratory, the fit of a cosmetic glove on an APRL hand appliance may be improved or a malfunction corrected by dipping in hot water  $(100^{\circ} \text{ C})$ .

Up to three dips can be made at three minutes each to eliminate wrinkles. Further dipping for longer periods will produce yellowing. Malfunctions due to the glove should be corrected by extending fully the thumb and opposing fingers and then dipping both for 120 seconds. Dipping should *not* be attempted where there is a flaw in the glove or it has been punctured for any reason, such as in the insertion of hair. Water must be kept from the hand mechanism.

ORTHOPEDIC & PROSTHETIC APPLIANCE JOURNAL

### The World Congress

The International Society for the Welfare of Cripples held its Seventh World Congress in London, July 22 to 26, 1957. Milton and Adele Tenenbaum, and Mrs. Mary Dorsch of New York City were official delegates of the Orthopedic Appliance and Limb Manufacturers Association. William A. Tosberg, Technical Director of Prosthetic Research Service of New York University, presented a report to the Congress on "Professional Problems of Prosthetists and Orthotists." This report will appear in the March, 1958 issue of this Journal.

The technical exhibits at the Congress included a display of the Prosthetics Research Board and of Tenenbaum Prosthetics. Dr. Howard A. Rusk of New York City served as President and presideed at the sessions.

To inform our readers about the Congress, we are including in this issue: (1) A Report on the Congress and a post-Congress Tour of Europe by Milton and Adele Tenenbaum; and (2) A Report on Technical Aspects of the Congress by Mr. Tosberg.

#### A Report on the London Congress and a Tour of Europe by OALMA Delegates Milton and Adele Tenenbaum

We had accepted an invitation to attend the Seventh World Congress of the International Society for the Welfare of Cripples in London as delegates, from the United States, of OALMA. It was our first transoceanic flight and, with some trepidation, on Sunday, July 14th, we boarded our Constellation at Idlewild. We kept reassuring ourselves that planes fly back and forth across the ocean every day, but statistics become very personal when you are fastening your own safety belt. At that moment, we would have gladly exchanged our KLM charter plane for a rowboat.

Our fears proved to be groundless. After a short stop at Gander, Newfoundland, for refueling, we found ourselves four miles up in the air over the ocean, and setting our course for Prestwick, in Scotland. The most beautiful sight that night, and one whose memory we will always treasure, was the aurora borealis' crashing lights pulsating across the sky. The strangest sensation during this scintillating display was the fact that on one side of the plane was deepest night, and on the other, sheer daylight.

Twelve flying hours after we had taken off from New York, we were circling Prestwick Airport, and our one week *pre-Congress tour* began in Edinburgh. This wonderful city is a contradiction of grey stone buildings, grey skies, and the most vivid colorings in flowers and gardens and rosy-cheeked complexions you will find anywhere.

The tour director hustled us off that very day to visit Edinburgh Castle. This ancient stronghold, home of Mary, Queen of Scots, stands today exactly as it was in the Middle Ages. The castle dominates a high ridge of rock that falls a sheer 270 feet into the gardens below.

The following evening the English Speaking Union held a reception for us. We found that, contrary to popular opinion, the Scotch are not a dour race, but very charming and full of good humor. In this far northern latitude, it was a curious sensation to retire at 11 P.M. while it was still light out.

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The next day, Tuesday, July 16th, our bus started down the east coast toward England. Our itinerary was to be five days to London. We proceeded south through Berwick-on-Tweed, Newcastle-on-Tyne, and stopped at Durham, where we visited a lovely old cathedral. After leaving Durham, we finally arrived, on the evening of July 17, at York.

York is an ancient city which was founded before history was written. The Romans colonized it, and we observed a group of archaeologists digging for, and finding, their relics in the back yard of an old house. Here, we found a charming, winding little street, called the Shambles. The upper floors of the archaic houses which line the road lean toward each other, as though guarding their aged secrets of history. This street is a thousand years old and once was tenanted exclusively by butcher shops. England changes so little that even to this day a goodly number of butchers are still doing business in this street.

In York can be found Half-Way House, which is today a school for blind children. It was here that King Henry VIII would stop to rest when he visited the North of England. One night he was served a magnificent loin of beef. He was so delighted that he knighted it Sir Loin of Beef. So remember that, when you are served sirloin of beef today, do not partake of it lightly as it ranks higher than we commoners.

On Saturday, July 20th, we took the train down to London. It was a memorable experience riding through the lovely English countryside for four hours. We had a compartment, and, after having seen many spy thrillers on television, we couldn't help but entertain a sneaking suspicion that, at any moment, as we emerged from a dark tunnel, we would suddenly find a bearded villain sitting beside us. We were too imaginative, however, because the only thing that came into our compartment were cinders, and plenty of those.

The Seventh World Congress and Exhibition was truly international and was the largest meeting of its kind ever held. Donald Wilson, Secretary-General of ISWC, had done magnificent work in making the advance arrangements, and Mrs. M. A. Montgomery, an Englishwoman of rare charm and distinction, had personally undertaken to stand the losses, if any, of the exhibits section. Any profits were to be kept by ISWC.

There were 1300 delegates representing 44 countries. The scope of the subject matter embraced every type of disability. There were over 70 elaborate exhibits from 11 countries which were open to the public. Due to the high incidence of disability suffered by the English during the war, there was an intense amount of interest shown, and considerable paid public attendance. Over one hundred technical papers were read by leading international authorities dealing with the medical, social, vocational and educational aspects of rehabilitation for people with all types of disabilities.

The Congress was convened by the Duke of Devonshire, and addressed by Dr. Howard Rusk, President of ISWC. The second day, Prince Philip spoke and attended the exhibits. We were introduced to him and found him extremely likeable.

One of the enjoyable aspects of the Congress was the many good friends we met from the States. Mary Dorsch, Bill Tosberg, Dr. Henry Kessler, Bill Page, Ben Wilson, Col. Maurice Fletcher, Dr. Eugene Murphy, Mary Switzer, Captain Thomas Canty, Willis Gorthy, and Milt Cohen were but a few.

One of the surprises we encountered was the intense interest displayed by government officials in the exhibits. First, the Lord Mayor



The Lord Mayor of London visits the Tenenbaums at the Congress. The wife of the Lord Mayor is at the right.

attended; then, on succeeding days, the Lord Mayors of Oxford and Westminster came with their entire staffs. We were later told that practically every high official in the government had visited the exhibits.

Although a full program of discussions and visits was planned for each day of the Congress, there were numerous opportunities for the delegates to meet socially and to be entertained by our British hosts. Some of the social events we attended included a tea party by the Duke of Devonshire, an afternoon reception by Lady Rowlandson, and, in the evening, a reception given by Her Majesty's Government at Lancaster House.

The most brilliant reception we attended was given by the City of London at Guildhall. Never have we seen such pomp and circumstance even in the most lavish Hollywood spectacle. The ballroom was an immense stone structure, with lofty ceilings which seemed to vault into infinity. One end was dominated by the two statues, famed in history, Gog and Magog. At the other end, a display of solid gold large platters reflected the soft lights.

Upon entering the tremendous hall, a liveried "caller" announced our names, and we proceeded to the receiving line made up of our official hosts, the Lord Mayor and Mayoress of London, and his official staff. They all wore medieval costumes and wigs, with the exception, I trust, of Her Honour. There also were mace-bearers whose ancient function is to keep order. Fortunately, their duties today are symbolic, and they confined themselves to tapping one's shoulder lightly, when necessary.

After being introduced, we turned to observe the glittering assemblage. In Britain, formal dress is *de rigeur* for functions such as these. Everyone wore dress uniforms, kilts, native costumes, or formal dress. Colored silk ribbons and sashes on bemedaled chests were common among the men. I regretted that I did not have the medals I had won as a schoolboy for swimming and dramatics. This would have been the only opportunity I ever have had to wear them.

During the evening, our hosts escorted us on a tour of the crypt beneath, where food was served. In the adjoining rooms, we examined the Magna Charta, and a collection of gold cups and chalices. As a new Lord Mayor assumes office, he presents the city with a solid-gold carved trophy. This has been going on for centuries, and the Guildhall has an impressive collection.

Afterwards, as we were standing outside and waiting for a cab, we were amazed to see how lightly this fortune in gold was handled. A little moving van backed up to the door and the gold trophies and plate were carried out and stowed under old blankets. One constable, without sidearms, stood alongside standing guard. After the van was loaded, one man climbed in back of the open van, and they rode off to the vaults. No other guards or escorting cars were evident. As a matter of fact, the constable stayed behind and assisted in getting us a cab. I asked him how he could possibly protect such immense treasure by himself. He replied goodhumoredly, "With personality, sir."

If you ever visit Scotland or England, be sure to take along warm clothes, even in July and August. Bill Tosberg had talked me out of taking a topcoat, and I almost froze. You must be certain to take an umbrella or raincoat also. Adele made up a motto, saying: "The sun is out; it's going to rain." Invariably, she was right.

There was so much to see and do in London that it is difficult in this short account to relate everything. Certain experiences and memories recall themselves. The upholstered subway trains in which you are allowed to smoke, and which display "help-wanted" signs for conductors and engineers at 11 pounds per week. (This amounts to \$30.80.) Westminster Abbey, scene of Queen Elizabeth's recent coronation. Madame Tussaud's, where life-like waxen creatures inhabit dark horror chambers in the cellars, and figures of the world-famous, posture forever on the upper floors. (We had met Prince Philip the day before, and when we were confronted with his waxen counterpart we were taken aback. It is difficult to tell one from the other.) The smart little taxis, in which you ride a tremendous distance for a pittance; the multitude of bright red, double-decker buses swarming through the city; the street girls patrolling Piccadilly, and the music halls where English variety artists sing American songs with an impeccable American accent, yet talk a Cockney dialect.

In retrospect, London was delightful in all ways. C. P. Steeper, of Hugh Steeper, Ltd., who do the upper-extremity prostheses for the entire population of Britain under the Ministry of Health program, sent a car for us, and we visited their tremendous factory. Afterwards, he took us to visit Leon Gillis, chief surgeon at Roehampton, and his charming wife at their home.

On Saturday, July 27, our group split up. Some had chosen to take the Scandinavian tour. Bill Tosberg left for Copenhagen to lecture. We elected to see southern Europe. Sleepy-eyed, at the insensible hour of six A.M., some of us left the hotel and, shortly thereafter, we emplaned for Basle, Switzerland. Evidently, our pilot was afraid of heights, or had lost his compass and was using road maps. We flew practically at treetop level until we approached the English Channel. After crossing all of France over the cloud layers, the pilot brought us down through the heavy overcast on the final leg of our flight.

Basle is a pleasant little city. We had dinner with Mary Dorsch at the Hotel de Trois Roix. This famous old establishment is extremely

ancient, having been built in the 14th century. We dined next to a huge picture window directly over the Rhine. This is the upper part of the river, and the current is swift and ugly. It is so powerful that even motorpowered boats can cross the river only by looping themselves to a strong wire cable to keep from being swept downstream. In Basle, France, Switzerland, and Germany adjoin. Some of the fortifications used in the last war still remain on the banks of the river. We taxied over the border into Germany to shop for a camera, but found that, after his usual discount, our local supplier's prices were only a little more.

After a day and a night in Basle, we left for Lucerne. We found a glorious little jewel of a city nestled under the foot of Mt. Pilatus, directly on the shore of Lake Lucerne. Our hotel was only 30 days old and extremely modern in architecture and furnishing. As a matter of fact, Switzerland is more modern in conveniences for the tourist than any other country we visited. Even the Statler hotels in this country would come out second best.

After everyone had dashed off on a wild shopping spree for watches, we got back to the serious business of sightseeing. We left by train for the foot of Mt. Pilatus, and there boarded a funicular railroad for the ascent to the peak. The gradient is so steep that the railway cars and seats are built with a 45 degree tilt. Otherwise, passengers would fall out of their seats. Ordinary wheels could never give sufficient traction and motive power is derived from a gear rack situated between the rails, while driven, toothed gears propel the train. Unfortunately, the day was overcast, and after climbing half-way, but yet at a dizzy height, we became immersed in solid banks of clouds. From time to time, we could just barely make out little dun-colored cows wearing tinkling bells about their necks, who seemed to delight in halting our progress by standing in the middle of the track. The terrain was so rugged and rocky that at first we thought they must be mountain goats. Occasionally, as we rounded a hugh escarpment of rock, we would come upon a tiny farmhouse ,hardly visible in the murky mist. I do not know how these people survive, nor how their little cows, no bigger thanSt.Bernard dogs, could forage on the meager patches of grass.

After the summit was reached, we could barely find our way through the clouds to the restaurant. We might have been in the steam room of a Turkish bath; but it was cold and damp here. I know that we missed a magnificent view, but the only way we saw it was on the picture post cards which we bought.

After making the winding descent, we embarked on the boat back to Lucerne. The boat ride around the lake and the scenery was exquisite. Little Swiss chalets nestle on the mountainside and tumble down through emerald-green and verdant pastures with lofty poplars to the very shores of the lake. There are no roads in the lake region and the only way to get about is by boat. Lucerne would be a wonderful place in which to retire, or, at least, to have an OALMA convention some day.

Tuesday morning, July 30th, we found ourselves on the train to Venice, Italy. This journey is one of the most spectacular train rides on earth: The ascent to St. Gotthard Pass, high in the Alps, where snowcovered glaciers are suspended from rugged mountain peaks, and then, finally, the headlong descent into northern Italy. The Alps create a natural barrier to the heavily-laden rain clouds and cold winds of Switzerland.

That evening we arrived in Venice. This city is a phenomenon by itself. It is actually built on the water. The gondolas are not merely a tourist attraction, but are a necessary means of transportation. The only possible means of getting about in Venice is through its canals. Although there are some motorized launches and ferries, it is a common sight to see travelers arriving at a hotel with their baggage, not secured in any way, piled high on an unsteady gondola. The striped poles projecting from the water in front of every house, which you have seen in countless pictures, are not decorative. They are useful as a sort of marine hitching post. The only other way to travel through the city is to walk through narrow, winding streets which are really only alleys.

We stayed at the Hotel Danieli, an ancient nobleman's palace fronting the water. The restaurant, on the top floor, is open to the sky, and its view encompasses the Grand Canal and the harbor. At dusk, the twinkling-lighted gondolas, Lido in the distance, and the public buildings and churches bathed in colored radiance are all breathtaking.

That night, I had the frustrating experience of attending the gondoliers' "Serenata" with three girls in one gondola. It was a highly romantic, though necessarily cultural and platonic, experience.

The next day we toured St. Mark's Cathedral and Square, the Doge's Palace, and the Bridge of Sighs. We also took a long gondola ride to the Island of Murano, where we were able to watch the finest glass-blowing in the world being done. Centuries ago, the Venetians were the only people who possessed the secret of glass making in such an amazing variety of colors. To protect their monopoly, they sequestered their artisans, together with their families, on this island. Today, descendants of these same families still practice their art. Production methods do not seem to have changed much. Their tools and ovens seem incredibly ancient. In the center of a small, earthen-floored room stood a huge oven with many openings in the sides. From these openings, skilled technicians withdrew their blowpipes with globs of molten glass attached to the ends. They were assisted by many apprentices, and it was an uneasy sight to see them scurrying about, carrying their white-hot burdens dangerously close to bare arms and torsos. No protective clothing is worn, and they are dressed scantily due to the heat.

On Thursday, August 1st, we left early in the morning by chartered bus for Bologna, Florence and Rome.

We stopped at the ancient red city of Bologna and then proceeded to Florence. This is one of the most beautiful cities in Europe, and a treasure house of art. The Piazza Michelangelo, on a high promontory, overlooks the city, and in its center stands the famous statue of David, looking off into the distance.

On Saturday, August 3rd, we resumed our journey. After crossing the Appennine mountains, we arrived that evening at our destination: beautiful, historic Rome.

It is difficult to describe in a few short sentences the glories of this queen of cities. We attended the open air opera, "Aida," at the Terme Carracalla, those vast Roman baths which are today in ruins. The stage was so immense that live horses and chariots could race about the stage. The Italian singers have such powerful voices that amplifying systems were unnecessary. We visited the vast collection of treasure that is the Vatican Museum in Vatican City. If one could spend many lifetimes with its contents, it still would not be possible to study it all. The Museum's crowning jewel, the Sistine Chapel painted by Michelangelo, is one of

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REHABILITATION WORKERS RECEIVED BY POPE PIUS XII—Among others in this audience at Castel Gondolfo, Rome, are: 1) E. B. Whitten, Director of the Natl. Rehabilitation Association at the extreme right; (2) Mrs. Mary Dorsch, third from the right; and (3) Milton Tenenbaum, fifth. Mrs. Tenenbaum is in the rear of the group.

The Pope spoke as follows to the group:

During your brief stay in Rome, come from the Seventh World Congress on Rehabilitation in London, you have wished to receive Our blessing on yourselves and your work. Or let Us give it a more definite and fitting title: your apostolate of charity, truly an apostolate deserving the admiration of all men and which, We are certain, is most pleasing to Him, Whom St. Peter recalls as One Who went about doing good (cfr. Act. 10, 38)

Man is born into Society, as a vital member, to make his contribution, each according to his powers, towards the advancement of the common good. Some, and their number is not small, are heavily handicapped by various physical disabilities, most often come upon them quite apart from their own responsibility, and thus the possible field of their activity is severely narrowed. But it were a grave mistake, as well as a sad lack of Christian charity, for Society simply to discount their contribution. On the contrary, it is for the community to show a special interest in developing their limited abilities and, as far as possible, placing them where with dignity and uninhibited self-confidence they may gain a livelihood and share the joys of a normal human life.

Your international society is a federation of more than thirty voluntary national organizations dedicated to the rehabilitation of these disabled citizens. The service you render is one that touches every human heart; and while We pray that God may continue to bless and prosper the work. We would use this occasion also once again to express the ardent affection of Our paternal heart for those whom you serve. Be of good courage; sustain your resolution to play your part in making this world a fitter place for God's creatures to dwell in, the while you lift up your eyes to heaven, knowing full well that the God of all love and mercies knows your condition, will measure His demands by your restricted powers, and that the valiant cheerfulness, with which you accept the restriction and use the powers, will have its own reward, when with ineffable joy you possess Him forever.

It has been pleasant to spend these few minutes with you, gentlemen and ladies; and with grateful affection We impart to you, to your dear ones and to all whom your federation serves, Our Apostolic Blessing.

the wonders of the world. Many other world-famous artists have contributed to the beauty of the Vatican.

On Sunday, August 4th, we were to have a private audience with His Holiness, Pope Pius XII. Accordingly, we drove to Castel Gondolfo, where he was in summer residence. We have later been told that for a small group of approximately 25, such as ours, a private audience was improbable. However, we found that the Pope was intensely interested in rehabilitation, and wished to see us.

Castel Gondolfo is an old walled citadel, and the entrance to the courtyard is gained by a steep little street. Those who have seen "Seven Wonders of the World" in Cinerama will remember this courtyard, where the Pope grants public audiences from a balcony. The entrance is an ancient gate protected by a brightly-uniformed Swiss Guard. We crossed the courtyard and entered the main building. After climbing a cobbled, winding ramp, wide enough for a carriage to ascend, we gained the upper floor. Now, we were escorted through many brocade-walled rooms, whose floors were lined with intricately designed marble. Each door was protected with a Swiss Guard armed with a pike.

Finally, we reached the small audience chamber and waited for His Holiness to enter. As he came into the room and sat down to read his message, even the non-Catholics among us were indelibly impressed by his simplicity, and the aura of nobility which seemed to surround him.



We could not help but feel that we were confronted with rare greatness personified in this quiet-mannered and gentle man, whose youthful appearance and smooth skin belied his age.

After he finished reading his message, he blessed us all and then arose. He came over to each one of us, and shook hands while inquiring as to which phase of rehabilitation each individual was interested in.

On Tuesday, August 6th, we left from Ciampini Airport, on the outskirts of Rome, for Paris. The flight over the blue Mediterranean, and then the French Alps, was spectacularly beautiful. We alighted at Orly Airport, just outside of Paris, in only two and one-half hours.

Paris is another city about which so much is known that it would be redundant to describe it in detail here. Among the highlights was dinner in a charming restaurant halfway up the Eiffel Tower, and then the ascent, by elevator, to the observation platform. The view from here is unique, as Paris is spread out like a huge tapestry below. We attended the Folies Bergere which is little short of an artistic triumph. My appreciation was somewhat spoiled, however, because a delinquent in our party, of low moral character, borrowed the binoculars I had been lugging all over Europe for this very occasion, and then disappeared!

Although the men in our group intended to elevate their cultural level by visiting the Louvre Museum, and the Folics again, we found

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ourselves, instead, escorting our wives from one perfume shop to another. Perfume is fantastically cheap in Paris, and as rumors spread as to which of the shops were offering larger discounts, the women scrambled about like bird dogs on a fresh scent. Naturally, it was unthinkable to allow the men to go off by themselves, as Paris is a city of male opportunity.

On Saturday, August 10th, we emplaned for home via the same KLM Constellation and crew that we had flown over with. We stopped off in Amsterdam, Holland, for five hours as guests of KLM and went on a sightseeing trip through its canals.

Once more, we lifted our glistening wings; this time for Shannon, Ireland. We crossed over London at night and for the first time realized the immensity of this great city while viewing its widespread, lacy patterns of light from the air. After alighting at Shannon briefly, we resumed our flight. We landed the next morning at Goose Bay, Labrador. Our flying time had been 17 hours and 20 minutes.

Before we were allowed to leave the plane, the interior of the cabin was sprayed copiously with insecticide. A U. S. Public Health officer walked up the aisle and ventured the opinion that we all looked mighty healthy. After showing our smallpox vaccination cards, and having our baggage inspected, we suddenly realized that we had been readmitted to the United States, and that our wandering had ended.

### **Technical Aspects of the World Congress**

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

#### Technical Director, Prosthetic Services, New York University—Bellevue Medical Center

More than 1000 people representing forty-one nations attended the 7th World Congress of the International Society for the Welfare of Cripples in London. They came to England to exchange ideas for a better service to the physically handicapped. Many came to study progress in the field of prosthetics and orthotics, and among these was a large presentation from the United States. Mr. and Mrs. Tenenbaum and Mrs. Dorsch from the OALMA have reported their impressions of the Congress and of the preceding and following tours from the social point of view. It is my intention to report on the technical aspects.

Part of the Congress was a technical exhibit which included prostheses and orthopedic appliances shown by manufacturers from the United States, Denmark, England, Greece, Norway and Western Germany. The United States was represented by a panel showing the work of the Prosthetic Research Board. The development of a device from an idea stage until its production by commercial agencies was shown; also some devices which are not as yet commercially available but show sufficient promise to be considered for testing and development. Charts and photographs demonstrated the educational program conducted by the Prosthetic Research Board in cooperation with the American Board for Certification and the Orthopedic Appliance and Limb Manufacturers Association.

The display of the Milton and Adele Tenenbaum Company, attracted many visitors, and the remarks of Prince Philip, the Duke of

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Devonshire, the Lord Mayor of London, and many people well known in the field of rehabilitation were highly complimentary. The outstanding quality of their skin gloves and of their prostheses for partial hand amputations has never been approached in any European country. The faithful reproduction of texture and color was admired by professional people as well as by laymen.

The German display demonstrated the close cooperation between Government, Limbmakers Guild and rehabilitation agencies, public and private. Their display consisted of tables, film slides and demonstration of working models. Their upper extremity prostheses showed the influence of American technology. It was only six years ago that a German Committee visited the United States to investigate American amputee service. Functional arm prostheses were not common in Germany then, but the devices shown in London displayed a high degree of progress in this field. Some of their techniques in the manufacture and fitting of artificial arms appear to be superior to ours. Prof. Dr. O. Hepp, the leader of the German team mentioned previously, is presently director of a government supported prosthetic research center. The braces displayed in their exhibit were made partially from light-weight stainless steel and from plastic materials.

A prize for the most comprehensive display of rehabilitation services was awarded to the Danish exhibit. Prostheses and braces were included in their display.

All of the European prosthetic and orthopedic appliances demonstrated were of superior workmanship, whereas design usually followed conventional patterns.

One exhibit, however, differed from all the others in this respect. It was the display assembled by the I. S. W. C. Committee on Prostheses, Braces and Technical Aids. Here were samples of new designs which had become available since the last Congress in The Hague, Holland, in 1954. It combined the work of many countries. America was represented by the adjustable leg and the alignment duplication jig which was designed by the University of California in Berkeley under the sponsorship of the Prosthetic Research Board. It can be presumed that several other countries will utilize this combination since the remarks expressed by many prosthetists were highly positive. Considerable interest was also shown in the cerebral palsy brace constructed at Newington Home and Hospital for Crippled Children by Mr. J. Rosenberger, C.P.&O. A unique foot splint made by the Winterkorn Company of New York found approval by many physicians.

France showed an artificial arm powered by a very small motorbattery assembly. It was demonstrated by an amputee with great facility. The outstanding German contribution was the Heidelberg arm, which has been seen in the United States already, and was commented on in a previous issue of the Journal. A Swedish amputee demonstrated a hydraulic knee mechanism which is described in another article of this issue.

Dr. M. Hiyeda from Japan showed some excellent examples from the Orient to show how prosthetic devices have to conform to the requirements of the regions and also the culture of their people. American and European artificial limbs are quite unsuited for use in rice paddies. Artificial legs as we know them do not permit the wearer to squat, a position which is essential in the Orient.



AMERICAN CORNER AT THE WORLD CONGRESS—A group of American prosthetists and research personnel pose for their picture with the Duke of Devonshire at the World Congress. In the background may be seen the exhibit of the Prosthetics Research Board, featuring the contributions of engineers, Veterans Administration personnel, physicians and prosthetists. Left to right: William Tosberg, C. O. and P.; Dr. Howard A. Rusk; Colonel Maurice J. Fletcher of the Army Prosthetics Research Laboratory; A. Bennett Wilson, Staff Engineer of the Prosthetics Research Board; the Duke of Devonshire; Milton Tenenbaum, the OALMA delegate to the Congress; and Dr. Eugene Murphy.

A field trip to the Roehampton Hospital was very interesting for the participating prosthetists. The British government purchases almost all of their lower extremity prostheses from the Hanger Company and their artificial arms from the Steeper Company. The Hanger Company employs about 1000 men and women in the manufacture and maintenance of their limbs. Their production figure is approximately 10,000 new legs and 100,000 repairs and alterations per year. Since the British government is the almost exclusive purchaser of these devices, the Government maintains a close surveillance over the production, income and profit of the company. Most legs are made from aluminum, preshaped on presses, and molded over different sized mandrils. Whenever wood sockets are used they are formed and shaped with hand tools. No routers were seen. The A. K. socket shapes closely resemble the so-called plug fit sockets which were popular in the United States until the end of World War II. Suction sockets are not yet popular in England. The knee brake mechanism demonstrated appears to be very good and can easily be adjusted by the amputee without removing the prosthesis. A pelvic hinge joint which allows flexion, extension, adduction, abduction and also rotation did not appeal to the writer, since it is rather bulky and does not appear feasible for most average A. K. stumps.

The majority of arms demonstrated at the Steeper Company were made from an excellent grade of molding leather. Pre-fabricated forearms were made from aluminum. Split hooks are not as popular as they are in the United States. Hands are made from a strong plastic material and are of simple design. They are well suited, however, to hold the handle bars of the bicycles and motorcycles that are seen in great numbers all over Europe.
A demonstration by patients with amputation at all levels proved the value of a well integrated amputee program. The gait picture appeared to be excellent in most cases. Of particular interest was the great number of knee disarticulations. The prostheses for this type of amputation were provided with an ingenious knee friction device which allows a gait better than that generally seen in the United States by amputees with a similar type of amputation. A great many children with lower extremity anomalies were demonstrated. The leg extensions were molded from leather and followed standard design.

A rather extensive discussion concluded the day. The general theme of the discussion was that the concentration of production stifles progress, although it creates a well tested device. Combined with good surgery and extensive use training, the British amputee receives adequate prosthetic service. He does not, however, receive the benefit of modern research, the results of which are available to the American and other amputees; such as the suction socket, plastic materials, modern alignment methods or hydraulic knee mechanisms. In most other European countries one or the other of these designs, methods or materials can be observed. Lack of competition seems to slow down their introduction in Great Britain.

It was the impression gained by all that the team approach as practiced in Roehampton has proved its value. The visit and discussion by experts from many countries will contribute to acceleration of a technical research program.

#### THE COPENHAGEN TRAINING COURSE

Another development of significance was the First International Prosthetic Training Course conducted by the Committee on Prostheses, Braces and Technical Aids under the direction of its chairman, Dr. K. Jansen. This course took place at the Orthopedic Hospital in Copenhagen, Denmark. About seventy students from twenty-three countries participated. They were almost equally divided into Physicians, Prosthetists and Therapists. Dr. H. Kessler and Mr. Donald Wilson from the United States addressed the group. Among the International Faculty were Captain Thomas Canty, USN, Colonel Fletcher, Dr. Inman, Dr. Murphy, Mr. Bennett Wilson and the writer from the United States; also participating were instructors from Denmark, England, Germany, Japan and Sweden.

This course was outstanding. Many phases of prosthetics were covered through lectures, slides, working models and shop demonstrations. Dr. Canty performed a cineplastic operation. Dr. Kuhn of Germany made upper extremity prostheses using plastic laminates and a vacuum system which allowed the formation of severe undercuts in some sockets without extensive efforts by the technician. This production method deserves further study. The writer demonstrated the manufacture and fitting of the U. C. type of A. K. socket; also the use of the adjustable leg and the alignment jig. Dr. Canty showed the method of cast taking for the Navy soft socket. Of particular interest was an elastic plaster of paris bandage as demonstrated by a eGrman instructor. Mr. Lyquist, shop supervisor of the prosthetic shop at the Orthopedic Hospital, used this bandage to make a socket for Dr. Kuhn, an above-knee amputee. The uncorrected socket was then mounted on the adjustable leg and worn by Dr. Kuhn as a suction socket prosthesis. It would seem that such a plaster bandage could have extensive application in prosthetic techniques.

### **New Buildings for Hanger**



HANGER OF GEORGIA NEW BUILDING—This is the architect's sketch of the new building under construction by J. E. Hanger, Inc., of Atlanta, Georgia.

Construction of a new highway straight through their old location, led J. E. Hanger of Georgia and the Southern Prosthetic Supply Company to plan a completely new building, which is sketched above. Now under construction at 947 Juniper Street N. E. in Atlanta, the building will be occupied about the first of March 1958. The twenty thousand square foot structure adjoins adequate parking for employees and patients. All retail operation space is air-cooled.

The building is completely brick. It is set on a slope which makes it possible to have all retail operations at the street level, with wholesale and manufacturing operations at the lower level, where full truckloading facilities are available.

This will be headquarters for all Hanger retail operations in the Southeast. In addition the Linenkohl Minor Shoe Company, an affiliate firm, will be making custom orthopedic shoes under the same roof. Southern Prosthetic Suppy Company will have considerably expanded space. This company is now manufacturing the SACH Feet, carving the setups as well as manufacturing the wood blocks.

#### WORLD CONGRESS REPORT (Continued)

The Regnell Hydraulic Knee from Sweden was worn by several pilot wearers during the course. Through conversation with these amputees and from observation it appears that this device gives great stability on weight bearing, safety while walking and a very good gait pattern. The Copenhagen shop had fitted thirty-two Regnell knees. They were found to be greatly appreciated by all amputees.

Some of the outstanding lectures were those of Dr. V. Inman from California on normal and amputee gait, of Dr. Sr. Brandt of Copenhagen on Cerebral Palsy, and of Prof. O. Hepp of Germany on Bracing.

The course closed with a banquet which proved the Danes as wonderful hosts.

Exchange of information is one of the best means for improvement of knowledge, and improved knowledge will facilitate acceptance of the Prosthetist as a qualified member of the team working for improved amputee service.

The London Conference and the Copenhagen Course have convinced the writer that many people from many nations are working towards this goal. The United States is leading in the field of prosthetic education and research. By combining this work with similar efforts in other countries it is possible to elevate the standards in all countries. The next World Congress will be held at New York in 1960. This should give the United States an excellent opportunity to demonstrate further progress and at the same time to benefit from the work which will be exhibited by other nations. It is not too early to plan for such an opportunity.



**OALMA REPORT** 

by

President JOHN A. McCANN

First let me repeat here the statement I made at the National Assembly, in Washington last October: "Humbly and with a deep sense of responsibility do I accept this great honor of being elected presidentof OALMA. I pledge you my best efforts, so that one year from now I will not have violated your confidence in me."

To help me in carrying out this pledge, you have elected Karl W. Buschenfeldt of Stoughton, Mass., as First Vice President, Paul E. Leimkuehler of Cleveland as Second Vice President and M. P. Cestaro of Washington, as Secretary-Treasurer. These are seasoned men with a wide knowledge of our field and a deep concern for the welfare of the artificial limb and brace profession. They, together with our Regional Directors, join me in a pledge of our best efforts.

With the assistance of our Washington headquarters, we began work early in October on our program of service to you. Soon after my election, I journeyed to Washington to confer with Treasurer Cestaro, Director Glenn Jackson and Assistant Director Les Smith on plans for the year ahead.

I can report to you the following steps taken:

1. News Bulletin — "Our Almanac." We have established a monthly news bulletin, for members only, to carry news and views about our activities. Members of OALMA have already received the November issue of this "Almanac" news bulletin.

2. Wage Surveys — OALMA members at the National Assembly held a workshop on Personnel Problems. Discussions there brought out the need for a survey of wages paid in the limb and brace field. Accordingly, we have sent out a questionnaire to every member asking for figures paid as wages before withholding. These questionnaires are being summarized in the National Office and every member will receive an analysis of it in the next Almanac.

3. Unfair Competition — We share your belief that the interests of the handicapped are best served by an economically sound limb and brace profession. Accordingly, we are continuing our efforts to impress upon physicians, agencies and government that the private practice of prosthetic and orthopedic appliance care is just as essential and desirable as is the private practice of medicine. We hope to report some progress during the year.



Officers of the New England Council pose with program headliners at a recent meeting: Standing, left to right: Eric Klahr, treasurer; John Glancy, secretary; Oke Lundin, vicepresident. Sitting, left to right: John F. Buckley, president; Dr. Carroll Silver, and Dr. Stanley Simon, who took part in the program.

4. "Cost of Doing Business" Information — We have just sent out to participating member firms the second OALMA Economic Report. This covers operations for the year 1956, with comparison ratios for 1955.

5. Insurance Program — "January 1958" will be an "open month" in which members may enroll under our broad "insurance umbrella."

Adequate insurance coverage is a problem for a small business concern, and the bulk of our members fall in that group. To meet this need, OALMA operates an efficient and reasonably priced group life and surgical benefits coverage. To qualified members, we also offer assistance in securing professional liability coverage.

6. Brace Dictionary Project — There is a real need for an illustrated Dictionary defining the principal braces in use in the United States. We have named Vice President Buschenfeldt and four other noted orthotists to compile material for and plan this dictionary. With your help we hope to come up with a standardized nomenclature of braces, so that orthotists and physicians may speak the same language throughout the United States when they discuss braces, regardless of the area in which they trained.

In the months ahead I will be seeing many of you at Regional Meetings. This will give us an invalable opportunity to share our thoughts and aspirations. Until then I send you my best wishes for a Happy Christmas and a bountiful New Year for all members of the Limb and Brace Profession.

John HMlferen

DECEMBER, 1957

### **REPORT ON REGION I**

Region I, of OALMA is made up of the New England States. Blessed with convenient transportation and an abundance of orthopedic and prosthetic appliance talent, this Region has for several years held a series of outstanding meetings. These are usually held in Boston, through the courtesy of the Liberty Mutual Insurance and Rehabilitation Center.

This list of meetings, held and planned for the period from April 1957 through February 1958, is given here for the convenience of other Regions who may be discussing the type of program to be held.

New England Regional Council Programs:

- April-Mr.Edward Falcione, Bryant College of Business Administration, Providence, R. I. "Small Business Problems."
- May -N. Y. U. Prosthetic Research and Development Group, "Panel program on new developments in prosthetics." Invited guests were P.T.'s and OT.'s and interested orthopedists. Meeting was held in auditorium of the Boston Medical Library.
- June Mr. Joseph Aveni, C.P., Liberty Mutual Rehabilitation Center, Boston, Mass. "Liberty Mutual's Rehabilitation Program for Workman Compensation Cases"

July and August, no meetings held.

- Sept. Dr. Carroll Silver and Dr. Stanley Simon, Orthopedic Surgeons, Miriam Hospital and Consultants to the Meeting Street School. "Surgery and Bracing in the Cerebral Palsies." This was illustrated with movies including the new Torso-Suspension walker designed by OSRI with Dr. Silver and Dr. Simon. Guests were R. I. Chapter, APTA.
- Oct. —This was the Council's annual review of the National Assembly where the entire program is reviewed along with comments from members who attended.

Nov. —Regular Monthly Meeting—Members and Guests. Liberty Mutual Rehabilitation Center, 691 Boylston Street, Boston, Mass. Program: "Problems in Rehabilitation of the Older Age Group— Age 45-65." Presented by the Rehabilitation Project Team, Our Lady of Fatima Hospital, Providence, R. I. Dr. O. V. Cinquegrana, M.D., Consulting Psychiatrist. Marianne Kelley, R.P.T., Chief Physical Therapist. Julie Phelan, O.T.R., Occupational Therapist. Joan Langhorn, Social Service Department. George W. Moore, Supervisor, Division of Vocational Rehabilitation, State of Rhode Island. Business Meeting: Election of Nominating Committee.

- Jan. 27th, 1958—Regular Monthly Meeting, Members and Guests. Liberty Mutual Rehabilitation Center, 691 Boylston St., Boston, Mass. Program: Ronald E. Stenning, Director of Training, Browne and Sharpe Mfg. Co., Providence. "Planning of On the Job Training Programs." Report of Nominating Committee.
- Feb. 24th, 1958—Liberty Mutual Rehabilitation Center, Boston, Mass. Annual Meeting. Report of the President and officers for the past year. Election and installation of officers for the coming year.



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OUR SOTH YEAR SERVING THE PROSTHETIC PROFESSION

DECEMBER, 1957

## CROSS COUNTRY REPORT What's New in the Brace and Artificial Limb Field Meetings - OALMA - Suppliers - Certifees

THE SOUTH SAYS COME—Ed Trageser and Russ Johnson of Truform stand by as W. L. Floyd, Program Chairman, issues an invitation to the Southeastern meeting at Charleston February 14 to 16. Mrs. Floyd is at the right.



## **Golf and Prosthetics**

The Journal is late in reporting results of the National Amputee Golf Tournament which was held in Toledo, Ohio, last August 17.

A field of 125 players took part in this ninth Annual Tournament, which was held at the Heather Downs Country Club near Toledo. Randol Womack, a 19-year-old sophomore at Eastern New Mexico University, placed first in the field.

The New Mexico player lost his right leg just below the knee in an accident five years ago and began playing golf a year later. Wally Baskovich of Gary, Indiana, a former member of OALMA, was runner-up. Third place winner was Stan Zakas of Cleveland, Ohio.

Three other members of OALMA took part in the tournament: Roy R. Rice of the Atlanta Artificial Limb Company, George Friddle of Toledo and Vice President Paul Leimkuehler of Cleveland.

The 1958 Tournament will be held at the Baltusrol Country Club, Springfield, New Jersey.

### **Emblems for Your Letterhead**

• *Cuts of the seals* of OALMA and a Certification Emblem for the Certified Facility may be purchased for authorized purposes from OALMA headquarters at a cost of four dollars each. The Certification Emblem will be sold only to managers of Certified facilities which are authorized to use it on their letterhead and information folders.

• WILLIAM A. TOSBERG, C. P. & O., is the Chairman of a new Committee to promote prosthetic service and training in technically underdeveloped countries. The committee was authorized at the Seventh World Congress for the Welfare of Cripples held in London in July.

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REGION VIII MEETING—-The Gonzales Warm Springs Foundation at Gonzales, Texas, will be host to OALMA members March 8. Randolph Witt, head of the Brace Department, shown at the right, is in charge of the meeting.







## **"FOOT BALANCERS OF ALL DESCRIPTIONS"**

Certainly no one type of foot appliance is fitted for all foot conditions, that is the reason why we offer you a great variety of appliances.

Cork—Rubber—Celastic Supports and Inlays. Levy Mould and Forefoot Balancer—Artificial Toes and Forefoot Amputees and short Limp Extension. Orthopedic work is our specialty.

All Inlays are made with Oak sole leather base—and in many types blue tempered steel springs are added. Also every type of stainless steel brace all hand hammered to your cast.





Our newest Levy Latex Mould to cushion the foot suited for such cases as Arthritis, Diabetic, Ulcers, Burns, Scar tissues, and Verruca. A plaster of paris cast is essential for this type. All Inlays are hand made to your prescription.

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## **Rancho Los Amigos Offers Scholarships**



TRAINING CENTER—The Administration Building at Rancho Los Amigos. Jack Conry, C.O., lecturing on Anatomy of the Hand.

An unusual opportunity to learn while earning will be offered the four persons selected for a \$2,000 scholarship at Rancho Los Amigos Hospital, Hondo, California. This institution, which is an Associate Member of OALMA will be glad to hear from OALMA members who have trainees qualified for this position and from other interested applicants. Applications should be mailed to: Roy Snelson, Chief Orthotist, and Assistant Program Director, Rancho Los Amigos Hospital, Hondo, California.

Prerequisite

The trainees must have a high school diploma and be willing to spend two years of concentrated effort to complete the course of Upper Extremity Orthetics. The annual salary will be \$2,000.00 Room and board may be obtained on the grounds for about \$60.00 a month.

#### **Faculty and Related Personnel**

Dr. Vernon L. Nickel, Chief Orthopedist of Rancho Los Amigos, serves as Program Director and will be in general charge of the institution. Assisting him will be Roy Snelson, C.O., Chief Orthotist and Associate Director and Jack Conry, C.O., Instructor.

Among the consultants who will assist in the training are: Dr. Jacquelin Perry, orthopedic surgeon (who appeared on the program of the 1957 Assembly), Lois Barber, O.T.R., Miss Hazel Adkins, R.P.T.; Miss Frances Eckland, R.P.T.; Russell Forney, M.S., Counseling Psychologist; Claire Kopp, O.T.R.; Miss Viola Robins, R.P.T.; Janet Stone, O.T.R.; Albert D. Wing, B. E., Research Engineer, Miss Elizabeth Yerxa, O.T.R.; Rochard Young, Certified Orthotist.

#### **Curriculum and Facilities**

Students will have the advantage of living and receiving their training at Rancho Los Amigos Hospital, which has been designated by the National Foundation for Infantile Paralysis as a Respiratory Center. The orthotic department of Rancho is new and excellently equipped. The Institution is -located on a college-like campus in Los Angeles County, California.

The curriculum is based on a forty hour week. In the beginning the students will be spending more time in the class room than in the laboratory. As the student advances more time will be devoted to the making and fitting of ortheses and less time in the lecture room.

A typical day in the beginning session would be as follows: The students day will start at 8:00 A.M. and finish at 4:30 p.m. The first two hours will be spent in the classroom and the subjects covered will be gross anatomy and osteology, followed by a fifteen-minute break. Following the break, class is resumed and in the remaining hour and forty-five minutes, subjects of tools and instruments will be covered such as the ABC's of hand tools, shop mathematics and measuring devices. Following the one-half hour lunch period, class will be resumed and the subject of metallurgy will be discussed for one hour. This ends the lecture time for the day, and the balance of the afternoon will be spent in the laboratory applying theory learned to making assistive devices such as swivel spork, pencil holder, razor holder, comb holder, etc.

## What's News

• An International Congress of artificial limb and brace and truss manufacturers and fitters will be held in Brussels, Belgium, May 25-26, 1958. This will be a part of the famous International Exposition to be held in Brussels in May and is under the sponsorship of the "Union Professionelle des Bandagistes et Orthopedistes de Belgique."

OALMA has been invited to be officially represented at this Congress through its President and to be responsible for two reports:

1. about the professional organization in the United States and

2. a technical report on some aspect of artificial limb and brace manufacture.

This invitation is being considered by the Executive Committee of OALMA, which would like to hear from any members who may be planning to attend this International Congress.

• Del Anderson of Prosthetic Service of San Francisco and his wife Bebe, have returned to this country after twenty months abroad. Old friends may once again look to meeting them at the Regional meetings and at the National Assembly, where they will be representing Prosthetic Services of San Francisco.

ORTHOPEDIC & PROSTHETIC APPLIANCE JOURNAL

## **Assembly Scenes and Pictorial Review**



The OALMA Party at Williamsburg—left to right, George Thornton of Denver, Mrs. A. G. Sullivan, Mrs. Thornton, Richard Kraft and Mrs. Kraft of Buffalo, Mrs. Lloyd Brown and Mrs. Alex. Finlay of Milwaukee.

## The Post Assembly Trip to William sburg

### By LLOYD BROWN, Dorrance Company

It was the enthusiastic belief of those taking the Post-OALMA Assembly trip to Williamsburg and Jamestown that this was a most worthwhile outing. In fact, it is amazing that so few people took advantage of this wonderful oportunity to see the birth place of our country in this year of the 350th Anniversary of the landing at Jamestown in 1607.

The OALMA party of nine people was picked up at the Statler Hotel in Washington Thursday by limousine and shown points of interest on the drive down into the beautiful state of Virginia. A special treat was the opportunity to visit the St. John's Church in Alexandria, Virginia, which was built in 1741. Here it was possible to sit in the very pew from which Patrick Henry made his famous speech.

Arriving at the *Tides Inn* at Irvington, Virginia, in the late afternoon, all present were enthralled with the beauty of the spot. The beautiful buildings were nestled amongst the trees and were almost surrounded by the waters just off Chesapeake Bay. All agreed that they would like to stay weeks instead of days. The dinner, as well as all subsequent meals, was served in immaculate good taste.

After dinner, the OALMA group mingled with the other guests to take part in the organized games of the evening. Next morning, they were picked up by their limousine for their tour of Jamestown and Williamsburg. That is, all except Mr. Alex Finley of Milwaukee who could not pass up the opportunity to spend a day fishing in lower Chesapeake Bay. Not only

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CHECKING NEW PROSTHETIC ITEMS—That's one of the valuable dividends of Assembly attendance. Here Past President Lee Fawver of Kansas City examines some of the products offered by designer Carl Woodall (at the left).

did he thoroughly enjoy this chance to make the boat trip in these fine waters, but he managed to land three striped bass. He claimed this to be sufficient reward for his trip to Virginia.

Under the courteous surveillance of their driver guide, the balance of the group covered many of the historic spots of Williamsburg and Jamestown. Here they found that buildings have been restored to their original condition and were beautifully furnished with correct period furniture. Personnel in these places were all in authentic costumes of the 17th and 18th Century. Some felt that the awe-inspiring and beautifully furnished mansion of the early Virginian rulers, when still an English conony, was the outstanding part of the historic town. Others felt the stockaded fort with correctly costumed and armed guards was tops. All enjoyed seeing and boarding the three little ships that are exact replicas of those used by the early band of colonists who landed in Jamestown back in 1607.

Another beautiful meal at the Tides Inn helped wind up a wonderful day. Bingo was the game of the evening and it was noticed that the OALMA party succeeded in snaring their share of the prizes.

The next morning, the Tides Inn was bid farewell and steps were retraced to Williamsburg for the touring of the beautifully restored homes. The Court House, where Washington, Jefferson, Patrick Henry and the many others had served, and the jail, complete with stocks and leg irons, soon used up the remaining time. Traveling North, all enjoyed the beauty of the Virginia countryside. The tour ended at the good old Statler at Saturday evening. After warm goodbyes, OALMA members were sooon scattering to all points of the country and their homes.

This was truly a wonderful trip and all agreed that the Post-Assembly event should become a regular part of all OALMA National Assemblies. Those participating in this year's trip were Mr. and Mrs. Alexander Finlay, of Milwaukee; Mr. and Mrs. Kraft, of Buffalo; Mr. and Mrs. Lloyd W. Brown, of San Jose, Calif.; Mr. and Mrs. George Thornton, of Denver, and Mrs. Ann Curtis Sullivan of New Brunswick, N. J.

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ASSEMBLY REUNIONS—Upper right, Howard P. Emery of American Rawhide Mfg. Co., Ralph Storrs of the Pope Division and Lloyd Brown of the Hosmer Corp. — Mr. and Mrs. Jerry Shearer of Accurate Knitting Mills with part of their exhibit (middle).—At bottom, Pat Siress of Oak Park, with Richard Bidwell of Milwaukee, William and Gus Scheck of Scheck & Siress.



DECEMBER, 1957



Mrs. Virginia Hedges President



Mrs. Bobbye McGraw 1st Vice President



Mrs. Margaret Peters 2nd Vice President



Mrs. Gertrude Buschenfeldt, Secretary



Mrs. Pearl Leavy, Treasurer

## TO THE LADIES:

### from

## **OALMA's Woman's Auxiliary**

It is nearing the "Holiday Season" and many of us have seen the first snowflakes fall, yet it seems only yesterday that we were all planning to attend the OALMA National Convention in Washington, D. C.

To some of us it was a first visit to Washington, to others another opportunity to enjoy the varied entertainment offered by "Our Nation's Capital." For me it was a special occasion as I attended my first Convention in Washington six years ago.

Being elected President of the OALMA Women's Auxiliary will make this year of association with Washington a particularly memorable one. I wish to express my appreciation for the confidence placed in me and also wish to thank the many friends who extended congratulations. At the left of the page you will see the pictures of our incoming officers and the title held by each.

Registration days followed the usual pattern: the renewing of old friendships, greetings exchanged and adding a few more names to a growing list of new and old friends.

The cocktail party on Sunday night showed a record attendance and was, I am sure, enjoyed by all. It was especially nice having Mrs. Glenn Jackson in our midst once again and looking her usual lovely and gracious self.

Mrs. Margaret Peters, Program Chairman as well as Secretary and our new 2nd Vice-president, did a wonderful job in planning a most interesting tour of Washington and vicinity ably assisted by Mr. Lester Smith, Assistant Director of OALMA.

This is only part of what we all enjoyed: A visit to the White House, the Capitol with its beautiful murals and history in the making, luncheon in the Old Supreme Court Chambers, a tour of George Washington's home and its beautiful gardens, Old Alexandria with its colonial atmosphere, Lincoln Memorial, Jefferson's Monument, the Changing of the Guard at Arlington Cemetery (a most impressive sight), the Moslem Mosque and the Voice of America Studios. Some of us were fortunate to be able to attend a Reception at the German Embassy and others led the way for the Queen of England in a Post Assembly trip to Wil-



## Voice of America Studio Tour by OALMA Ladies

liamsburg and The Jamestown Festival. The "Grand Finale" was the Dinner-Dance where we said our good-byes and made plans to meet next year.

As wa all know next year will bring one of the most glorious of Conventions. The Eden Roc is a most luxurious hotel and a place where we will all have a wonderful time. I will be looking forward to seeing all of you in that wonderful vacation spot of Florida next fall.

In a recent letter, Mr. Lester Smith, Assistant Director of OALMA, states that in addition to the four issues published of The OALMA Journal our OALMA Board has authorized publication of a Monthly News Almanac in the other eight months of the year. He will be glad to hear from the ladies on any news they wish to have printed in The Almanac.

Mrs. Karl Buschenfeldt, our new Secretary has asked that we put in a request that readers notify her about news events, birthdays, etc.

Best wishes for a Happy Holiday Season.

MRS. VIRGINIA HEDGES. President

DECEMBER, 1957

## **OALMA Plans 1958 Assembly**



The Eden Roc at Miami Beach

### 1958 NATIONAL ASSEMBLY TO MEET AT MIAMI BEACH Famed Eden Roc Hostelry Selected

The 1958 National Assembly of the limb and brace profession will be held at the Eden Roc, Miami Beach, Florida, October 26-30, 1958. The *Eden Roc*, considered to be one of the most beautiful new hotels in Florida, in addition has unusual facilities for meeting rooms, seminars and exhibits.

Ralph Storrs, head of the Pope Brace Division, has been named Program Chairman. He and his committee will work with the headquarters staff of OALMA in planning the scientific program of the assembly. Mr. Storrs served as Vice Chairman of the 1957 Assembly, with special responsibility for the selection of exhibits.

Ted W. Smith of Kansas City will serve as chairman of the Exhibits Committee for the Assembly. His committee is charged with the responsibility of setting up arrangements for technical supply and educational exhibits at the Assembly. Mr. Smith and his committee will work closely with OALMA headquarters staff.

Chairman Storrs and Smith join in extending a cordial invitation to all readers of the Journal to send them suggestions for making the 1958 National Assembly an outstanding one from the standpoint of value received for those who attend.

ORTHOPEDIC & PROSTHETIC APPLIANCE JOURNAL



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### GUIDE TO MEDICAL WRITING By Henry A. Davidson, M. D. Published by the Ronald Press Co.,

New York, N. Y., 1957, 338 pages, \$5.00.

If you want step-by-step guidance on basic writing techniques prepared especially for those who work in the various health fields, this is your book. The subtitle reads "A Practical Manual For Physicians, Dentists, Nurses, Pharmacists." And you could just as well add "Orthotists and Prosthetists" to that list.

The author is a well known editor and has made the Journal of the Medical Society of 'New' Jersey an outstanding magazine. The practical nature of his book is indicated by the very first chapter title, "Stalking the Idea: How to Start An Article". For those who want to try their hand at writing orthopedic and prosthetic articles, this book can be cordially recommended.—LAS.

### THE ACCIDENT SYNDROME— THE GENESIS OF ACCIDENTAL INJURY, A CLINICAL APPROACH By Morris S. Schulzinger, M. D.

- Published by Charles C. Thomas, Springfield, Ill., 1956, 234 pages, \$6.50.
- Reviewed by Richard M. Locke, C.P., J. E. Hanger Co., Birmingham, Alabama.

"The Accident Syndrome" has been written for large companies or clinics who stress safety twenty-four hours a day, and have enough money to hire an analyst for their hospital clinics. The author has been very thorough in his analysis of accidents.

Although the book as a whole is not of direct concern to the limb and brace field, it does point out the following: 1. Peak hours for accidents in industry are 10:00 A.M. and 3:00 P.M. This suggests a morning and afternoon coffee break. 2. Irresponsible and maladjusted individuals have a significantly higher incidence of accidents, especially repeated ones, than responsible and normally adjusted individuals.

In the course of our professional work we see many people because they are the victims of an accident. Perhaps more than any other group we can realize the suffering and tragedy which accidents bring in their wake. We can realize also the need for accident prevention and analysis.

#### ORTHOPEDICS FOR THE GENERAL PRACTITIONER

By William E. Kenney, M.D. and

Carroll B. Larson, M.D., F.A.C.S. Published by the C. V. Mosby Company, St. Louis, 1957, 413 pages, illus., \$11.50

Reviewed by John F. Buckley, C. O., Orthopedic Services of Rhode Island.

Dr. William E. Kenney, the senior author of this new and differently arranged text, is well known to our profession because of his article on inter-relationships which appeared two years ago in our Journal.\* He has now, in collaboration with Dr. Carroll B. Larson of the University of Iowa, written a text dedicated to "The Hard Working General Practitioner. May this book guide him in his orthopedic problems, lighten his burden, and make his professional life happier through a fuller understanding of this special branch of Medicine."

<sup>\*</sup> Remarks on "Improving Relationships Between Orthotists, Prosthetists and Orthopedists." Sept. 1955, pp. 17-21.

This text is primarily a source or reference book for the family physician, so that he may better diagnose,

treat and know when to ask for consultation regarding his orthopedic patients.

It is a most readable book due to its unique arrangement and elaborate cross indexes and references. The book is arranged by body areas such as hip, knee, ankle, etc. and by the type of complaint relating to that part of the body. In each section there is a list of the diagnoses and the standard treatment.

We believe this book can be of great value to the orthotist and to trainees preparing for certification examinations. By virtue of its simplicity and thoroughness, we would recommend that it be added to the reference lists of our apprenticeship standards and related academic training schedules. For example, a trainee puzzled by calcaeneus deformities has only to look under post-poliomyelitic deformities of the foot and ankle (pp. 53-55) and read:

"Calcaeneus Deformity-Upon occasion, weakness of the gastrocnemius, which is responsible for a type of calcaeneus deformity, is found. This condition is less common than the drop foot disability just described. The patient walks with a flatfooted gait, because he is unable to spring up onto tiptoe during the normal phase of the gait. Conservative therapy consists of the use of a brace of the spring type which is the reverse of that found in the drop foot brace, and is constructed so that the patient will be aided in the attempts to rise up on tiptoe. This type of deformity is frequently progressive, and therefore operation is commonly employed."

What more complete yet simple explanation is necessary for the trainee in orthetics? This excerpt from Doctors Kenney's and Larson's treatise is typical of the entire work.

We have noted that there is not too much material on amputations, and

## In Memoriam

MATHEW BACH, President of the Bach Surgical and Orthopedic Co. of Detroit, died suddenly the morning of September 1st. He had been in excellent health until he suffered a cerebral hemorrhage August 31st. The Certified Facility which he founded is being continued by his wife.

THOMAS J. PHILIP, OALMA member and president of the Philip Orthopedic Center of Erie, Penna., died August 11, at the age of 42. Mr. Philip received his training with Hans W. Christoph. He opened his own establishment in 1947. This facility is being continued by Mrs. Philip.

We regret to announce the death on August 20, of DR. STERLING BUNNELL, noted surgeon, in San Francisco. Delegates to the 1956 Assembly at San Francisco will recall the presentation on "Hand Splints" which he gave as a seminar.

We regret to report the death of MRS. ESTELLE L. SNYGG, wife of Edward W. Snygg, in San Francisco on November 9. She is survived by her mother, in addition to her husband and by six brothers.

undoubtedly the authors felt that it was not necessary, since the text was written as an aid in diagnosis for the general practitioner. We hope, however, that since many amputees are often seen by other than orthopedists, the authors will include some of the new prosthetic developments in future editions.

In summary, this reviewer found the entire text to be very similar to the clear, concise and simple explanations he has so often heard Dr. Kenney give to his staff at clinics. He recommends this text as part of the required reference and reading material for all trainees in orthetics and feels sure that any orthotist would find it an invaluable addition to his library.

### DECEMBER, 1957

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BUTTON

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