# BETTEMBER, 1966 IRTHOPEDIC & PROSPRETERAPPEARS The Journal of the Limb and Brace Profession





Robert G. Thompson, M.D.



Claude N. Lambert, M.D.



Durward R. Coon, C.P.O.









John A. Metzger, C.O.

AMERICAN BOARD FOR CERTIFICATION IN ORTHOTICS AND PROSTHETICS, INC. (See pages 214-215)

## OFFICIAL NOTICE

The 1966 National Assembly of the American Orthotics and Prosthetics Association will be held October 16-20, 1966

# PALM SPRINGS, CALIFORNIA

Reconvened Session OCTOBER 20-28 HONOLULU, HAWAII (AOPA Technical Mission)

FOR PROGRAM DETAILS AND REGISTRATION INFORMATION write The American Orthotics and Prosthetics Association 919 18th Street, N.W., Washington, D. C. 20006

See pages 207-213

The Assembly is open to all who are interested in the rehabilitation of the orthopedically disabled

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SEPTEMBER, 1966

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#### ORTHOPEDIC & PROSTHETIC APPLIANCE JOURNAL



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PAGE 204

SEPTEMBER, 1966







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# **1966 NATIONAL ORTHOTICS** and **PROSTHETICS ASSEMBLY** Place: The Holiday Inn-Riviera, Palm Springs, California, U.S.A. The Dates: October 16 to October 20, 1966 **Reconvened Session:** October 20-28, Honolulu, Hawaii (AOPA Technical Mission) **Preliminary Sessions:** October 13 to October 15, 1966 **Registration Forms from:** AOPA, 919 18th Street, N.W. Suite 130 Washington, D.C. 20006 NOTE: MEMBERS ARE URGED TO MAKE EARLY HOTEL RESERVATIONS



FRED J. ESCHEN, C.P.O. President, The American Orthotics and Prosthetics Association



LEROY NOBLE, C.O. Assembly Program Chairman

# **Pre-Assembly Events**

# October 13-THURSDAY

- All Day: Golf Tournament at San Jacinto Country Club, Palm Springs.
- Afternoon & Evening: **Pre-Assembly Tour**. Members planning to join this group may check in at International Hotel, Los Angeles.

# October 14-FRIDAY

#### EVENTS IN PALM SPRINGS:

All Day: Second Day of Golf Tournament at San Jacinto Country Club.

Arrangements by JOHN METZGER, C.O.

EVENTS AT LOS ANGELES, DOWNEY AND DISNEYLAND: AOPA Pre-Assembly Tour (Optional)

> 9:00 a.m.—Buses leave International Hotel for UCLA campus

- 10:00-11:30 a.m.—Visit to the Rehabilitation Building, the Child Amputee Prosthetics Center, and the classrooms of the Prosthetic-Orthotic courses, and to Prosthetic-Orthotic Program, Cerritos College
- 11:45 a.m.—Luncheon at the Sky Room, Kirkeby Center
  - 1:00 p.m.—Buses leave for Rancho Los Amigos, Downey, California
  - 1:30-3:00 p.m.—Tour of Rancho Los Amigos facilities, including the Brace Department
- 3:00 p.m.—Buses leave for Disneyland Hotel
- 4:00 p.m.—Arrive and check in at Disneyland Hotel. Buses take you to Knotts Berry Farm for steak dinner and visit to the old mining town, etc. Return to Disneyland Hotel that night.

Note: The Pre-Assembly tour is concluded on Saturday.

## **October 15-SATURDAY**

- 10:00 a.m.—Three-hour guided tour through "The Magic Kingdom" of Disneyland
  - 1:00 p.m.-Luncheon, "on your own"
  - 2:00 p.m.—Buses leave for the Holiday Inn-Riviera, Palm Springs

SEPTEMBER, 1966

#### EVENTS IN PALM SPRINGS:

- All Day: Exhibits being set up in the Convention Center, Holiday Inn-Riviera. Arrangements by the Taylor Company
- Morning: Meeting of AOPA Board of Directors Meeting of Suppliers to the Orthotic and Prosthetic Profession

JERRY LEAVY, Moderator. Attendance restricted to bona fide Suppliers.

Afternoon: Meeting of ABC Board of Directors

# Formal Opening of the 1966 Orthotics and Prosthetics Assembly

# October 16-SUNDAY

9:00-10:00 a.m.—**AOPA-ABC Voter Registration** JOSEPHUS FERGUSON, C.P.O., Chairman

- 10:00 a.m.-5:00 p.m.-Exhibits Open in the Convention Center
- 10:00 a.m.-Ladies Auxiliary Meeting

10:00 a.m.—FORMAL OPENING OF THE ASSEMBLY President FRED J. ESCHEN, C.P.O., presiding Brief Announcements by:

Program Chairman LEROY NOBLE, C.O.

Exhibits Chairmen CLETUS ILER and KEN-NETH DODD, C.O.

Report of the Committee on Nominations, HERBERT J. HART, C.P.O., Chairman

10:30 a.m.—Business Meeting, American Orthotics and Prosthetics Association, to consider By-Laws revision. Attendance restricted to Members in good standing.

11:00 a.m.-12:00 p.m.-TWO CONCURRENT TECHNICAL SESSIONS

- 1. Milwaukee Brace Session: A Report on Experience in California with presentation of patients. CHARLES BONNETT, M.D. PAUL LINDBERGH, C.O.
- Preparatory Prostheses: WILLIAM A. TOSBERG, C.P.O., Moderator Panel: ALLEN S. RUSSEK, M.D. ROBERT G. THOMPSON, M.D. EDWARD T. HASLAM, M.D. HENRY GARDNER, C.P. THEODORE G. WILLIAMS, C.P. ALVIN L. MUILENBURG, C.P.O.

#### 1:30-2:30 p.m.—Upper Extremity Orthotics: Myoelectric Devices: A Survey

THORKILD ENGEN, C.O., Moderator. WORDEN WARING, Ph.D. and DANIEL ANTON-ELLI, E.E., Human System Designs Center, Rancho Los Amigos

2:30-3:30 p.m.—Pathology and the Mechanism of Gait: Gait Analysis

CHARLES M. FRYER, M.A., Instructor in Orthopedic Surgery, Prosthetic-Orthotic Education, Northwestern University

- 3:30-4:30 p.m.—New Techniques and Devices— Ideas for you to take back with you ERICH HANICKE, C.P.O., and JAMES HEN-NESSY, Co-Chairmen
- NOTE: Write-ups of the techniques and devices are to be submitted in advance. Mimeographed copies of those approved will be available to persons attending this presentation.
  - 4:30-5:30 p.m.—Meetings of Regions of AOPA

7:00 p.m.—Pool-side Reception and Buffet Supper with informal entertainment

# October 17-MONDAY

9:00 a.m.-5:00 p.m.—**Exhibits Open** in the Convention Center

#### TECHNICAL SESSIONS:

#### 9:00-10:30 a.m.-Intra-Agency Programs:

Medicare, State Agencies and Schedules—a question and answer session chaired by D. A. MCKEEVER, C.P., Chairman of the AOPA Intra-Agency Committee

10:30 a.m.-12:30 p.m.—TWO CONCURRENT SESSIONS:

#### 1. Orthopedic Shoes-

Presentation by EUGENE SABEL, New York University, based on his lectures in the NYU Prosthetic and Orthotic courses

 End-Bearing Characteristics of Lower Extremity Amputation Stumps: Research Studies on Silastic Implants—

Presentation by ALFRED B. SWANSON, M.D., BRYAN HOTCHKISS, M.D., and VANCE MEADOWS, C.P., Michigan Crippled Children's Commission. Accompanied by slides and film

#### 1:00 p.m.—Certification Luncheon

- ABC President D. R. COON, C.P.O., presiding Speaker: ROBERT G. THOMPSON, M.D., ABC Board Director and Assistant Professor of Orthopedic Surgery, Northwestern University Medical School
- NOTE: Luncheon will be followed by the business session of the American Board for Certification. Attendance restricted to Certifees and heads of Certified Facilities.
  - 1:00 p.m.—Ladies Auxiliary Luncheon at the Palm Springs Tennis Club
    - Auxiliary President Mrs. SHIRLEY SOBBE presiding

Program Chairman: MRS. JEWELL METZGER

- 5:00-8:00 p.m.—**Trip by Aerial Tramway** to summit of San Jacinto Mountains (the longest and highest tramway ride in the world). Cocktails and roast beef dinner available at the Alpine Restaurant at the top of the ride, if desired.
- 8:00 p.m.—Meeting of the Sub-Committee on Medicare of the Intra-Agency Committee

(Fifty-two members) D. A. MCKEEVER, C.P., Chairman

Concurrent Meeting of Sub-Committee of Institutional Relations Committee

Chairman MARY DORSCH, C.P.O., presiding

# October 18-TUESDAY

- 9:00 a.m.-5:00 p.m.—**Exhibits Open** in the Convention Center.
- 9:00-10:00 a.m.—VA Contacts—Format: A discussion of your suggestions and possible changes.

Presented by the VA Liaison Committee, M. P. CESTARO, Chairman

10:15 a.m.-12:15 p.m.-TWO CONCURRENT SESSIONS:

> 1. Current Developments in Immediate Post-Operative Prosthetics: A Symposium

CLINTON L. COMPERE, M.D., Moderator Panel: ERNEST BURGESS, M.D. JOSEPH TRAUB, C.P. RICHARD G. BIDWELL, C.P.O.

2. Plastisol Coatings and Application Techniques

DAVID H. HARDEN, Wayne State U., Detroit

RICHARD D. KOCH, U. of Michigan Medical Center

12:30-2:30 p.m.—Poolside Buffet Luncheon and Fashion Show

Presented by WALTAH CLARK of Palm Springs, Hawaii, and Los Angeles

#### 2:30-5:30 p.m.-Rancho Los Amigos Program

- (1) Application of the Halo—RICHARD YOUNG, C.O.
- (2) Orthotic Management of the Early Fracture—VERT MOONEY, M.D. Roy SNELSON, C.O.

PATRICK MARER, C.O.

- (3) Gauging the Effectiveness of Unweighting Systems in Orthotics—ERNEST BARN-TRAGER, M.E.
- 8:30 p.m.—Meeting of Conference of Prosthetists at Riviera Hotel

Chairman CARLTON FILLAUER, C.P.O., presiding

## October 19-WEDNESDAY

- 9:00 a.m.-12:00 p.m.—**Exhibits Open** in the Convention Center until NOON
- 9:00 a.m.—Ladies Breakfast in the Crystal Room Program Chairman, MRS. JEWELL METZGER
- 9:00-10:30 a.m.—Higher Education for the Orthotic and Prosthetic Field

Presented by the AOPA Committee on Education, JOHN GLANCY, C.O., Chairman, in cooperation with the Committee on Prosthetic-Orthotic Education of the National Academy of Sciences-National Research Council, HAROLD W. GLATTLY, M.D., Executive Secretary

- 1. Psychological Tests in Selecting Orthotists and Prosthetists for Employment, DR. RUSSELL FORNEY, Cerritos College
- 2. Cerritos College Students' Project
- Panel: Answering your questions on "Where to send my son and/or daughter for college training in our field." JACK D. ARMOLD, Ph.D., LEONARD MARMOR, M.D., SIDNEY FISHMAN, Ph.D., DEAN CHESTER PACHUCKI, and DEAN ELWYN SAFERITE.

11:00 a.m.—Concluding Business Session of the American Orthotics and Prosthetics Association, and Election of Officers

President FRED J. ESCHEN, C.P.O., presiding

#### 12:30 p.m.—AOPA Board meets at luncheon

#### 2:00-3:00 p.m.--- Upper Extremity Prosthetics

JERRY LEAVY, Moderator Myoelectric Devices and Otto Bock Arm Panel: GUSTAVE GINGRAS, M.D., F.R.C.P. GEORGE ROBINSON, C.P. COL. H. M. HAGUE

3:00-5:00 p.m.—Prosthetic and Orthotic Developments in Europe

Howard Thranhardt, C.P., Moderator Patella-Tendon Supra-Condylar below knee prosthesis with complete enclosure of the patella and the femoral condyles

KURT MARSCHALL, C.P. ROBERT NITCHKE, C.P.

(This presentation will include an account of the techniques of M. GUY FAJAL of Nancy, France, and the American Adaptation)

#### 7:30 p.m.-RECEPTION AND BANQUET

President FRED J. ESCHEN, C.P.O., presiding Installation of New Officers Presentation of Awards Dancing

#### ADJOURNMENT

# October 20-28, 1966

#### Reconvened Session: AOPA Technical Mission Honolulu and Kaanapali, Hawaii

- 1. Sessions on The Role of Orthotics and Prosthetics in Rehabilitation
- Tour of Orthopedic Wards, Shriners Hospital
- Economic Processes in our Field: Roundtable Discussions
- 4. Future of the Profession: Roundtable Discussions

# The American Board For Certification In Orthotics and Prosthetics, Inc.

The Officers and the Board of Directors of the American Board for Certification, whose pictures appear on the cover of this issue of the Orthopedic and Prosthetic Appliance Journal, are charged with implementing the voluntary Certification program which is at present the only reliable index to proficiency and ethics in this field. The Board is composed, in accordance with the Corporation's By-Laws, of three orthopaedic surgeons and four orthotists and/or prosthetists. Brief biographical sketches of these officers and directors follow.

#### President: Durward R. Coon, C.P.O., Detroit, Michigan.

Mr. Coon was elected President on September 1, 1965, after serving since 1963 as a Director of the Board. From 1961 to 1963 he served on the Board's Committee on Facilities, and was Chairman from 1963 to 1964. During 1964-65 he was Chairman of the Committee on Credentials and Secretary-Treasurer of the Board. Mr. Coon entered the field of orthotics and prosthetics in 1943 and since 1944 has operated the D. R. Coon Company, a Certified Orthotic and Prosthetic Facility in Detroit. He received his Certification in Orthotics and Prosthetics in January, 1949.

#### Vice-President: Claude N. Lambert, M.D., Chicago, Illinois.

Dr. Lambert was born in Salt Lake City, Utah, and graduated from Rush Medical College in 1928. After serving his residency in surgery and orthopaedic surgery at Illinois Research and Education Hospital, he was appointed Attending Orthopaedic Surgeon at that institution and at Presbyterian-St. Luke's Hospital. At present, in addition to his private practice, Dr. Lambert is Professor of Orthopaedic Surgery at the University of Illinois Medical Center and on the staff of the Prosthetic-Orthotic Education Program at Northwestern University.

#### Secretary-Treasurer: Bert R. Titus, C.P.O., Durham, North Carolina.

Mr. Titus was nominated by the Certified Prosthetists and Orthotists as their representative to the Board of Directors of the American Board for Certification for the 1964-1967 term. He was elected Secretary-Treasurer in 1965. Mr. Titus entered the field of orthotics in 1944, while in the Army, and since 1946 has been associated with the Department of Prosthetics and Orthotics of Duke University. He received his Orthotics Certification in 1950, and his Prosthetics Certification in 1955. He is a member of the Committee on Prosthetic Research & Development, National Academy of Sciences, and was a member of the Board's Committee on Examinations 1958-1963.

#### Director: William E. Brownfield, C.P.O., Boise, Idaho.

Mr. Brownfield, nominated to the Board by the Directors of the American Orthotics and Prosthetics Association, was elected to a three-year term

in November 1964. Mr. Brownfield, after some years in the surgical supply business, became interested in the prosthetic and orthotic field. Since 1940 he has operated Brownfield's, Inc., a Certified Prosthetic and Orthotic Facility in Boise. In addition, he serves as Orthotic and Prosthetic Consultant to the State of Idaho, Crippled Children's Service. He was Certified in Prosthetics and Orthotics in 1952, and served on the Committee on Examinations, 1958-1959; the Committee on Credentials, 1960-1961; and the Committee on Facilities, 1961-1964.

#### Director: Edward T. Haslam, M.D., New Orleans, Louisiana.

Dr. Haslam, Assistant Professor of Orthopaedic Surgery at Tulane University, was nominated to serve as a Director by the Executive Committee of the American Academy of Orthopaedic Surgeons. He was elected for the 1964-1967 term. A graduate in 1939 of Harvard University Medical School, Dr. Haslam became a Diplomate of the American Board of Orthopaedic Surgery in 1952. In addition to his duties at Tulane, Dr. Haslam is consultant to the Veterans Administration, where he has developed a great interest in the field of prosthetics.

#### Director: Robert G. Thompson, M.D., Chicago, Illinois.

Dr. Thompson, Assistant Professor of Orthopaedic Surgery at Northwestern University Medical School, was elected in 1965 to a three-year term on the nomination of the Executive Committee of the American Academy of Orthopaedic Surgeons. In addition to his teaching program at the Orthotics-Prosthetics Education Program at Northwestern University and at Northwestern Medical School, Dr. Thompson continues his private practice in orthopaedics and is President of the Chicago Orthopaedic Society. He is also a Consultant in Orthopaedic Surgery at the Chicago VA Regional Office and the Rehabilitation Institute of Chicago. He is currently a member of the Board's Committee on Credentials.

#### Director: John A. Metzger, C.O., Long Beach, California.

Mr. Metzger was nominated by the Board of Directors of the American Orthotics and Prosthetics Association, and was elected in 1965 to serve a three-year term as a Director of the American Board for Certification. The son of an orthopaedic surgeon, he developed an early interest in orthotics. He is Owner-Manager of the John A. Metzger Co., Inc., which was founded in 1929. A graduate of Gettysburg Academy, Gettysburg, Pennsylvania, Mr. Metzger has also participated in the University of California, Los Angeles local extension program in orthotics and prosthetics. He was Certified in Orthotics in 1952. At present he is Chairman of the Board's Committee on Credentials.

# Warburton Named Executive Director Of Association and Certification Board



HERBERT B. WARBURTON

The Joint Executive Council has selected Herbert B. Warburton, of Bethesda, Md., as Executive Director of the American Orthotics and Prosthetics Association and the American Board for Certification in Orthotics & Prosthetics, Inc., effective August 1, 1966.

As a member of the Delaware Bar, Member of the U.S. House of Representatives from Delaware in 1953 and 1954, and state and federal government official, Mr. Warburton has extensive knowledge of the complex interrelationships of industry, politics, and government. Most recently he has been Washington representative and consultant for F. Clifton White and Associates, Inc., public affairs specialist.

A major interest of Mr. Warburton while in the Congress was strengthening of the vocational rehabilitation program, and he worked vigorously with public and private interests to that end. His 1953 testimony before the Senate Labor and Public Welfare Committee evoked commendation from Senators H. Alexander Smith of New Jersey and the late Herbert Lehman of New York. The latter described Mr. Warburton's presentation on the public record as "the most effective testimony I have heard on this subject." Although his primary assignments were on the House Interstate and Foreign Commerce and Public Works Committees, Mr. Warburton was a strong advocate for creation of the Department of Health, Education, and Welfare. His government service has also included numerous federal and state appointments in the executive branch. In 1955, Secretary of Labor James P. Mitchell appointed him Special Assistant for Congressional Relations, in which post he helped the Department improve its relations with the public as well as federal and state agencies. One of his missions resolved a migrant labor dispute between the Department of Labor and California farmers, and avoided involving the Mexican Government.

From late 1957 through 1960 Mr. Warburton was General Counsel of the Post Office Department, administering a staff of 72 who handled the legal problems for a 500,000-man establishment. In addition to basic legal duties, he was a primary spokesman and negotiator for the Postal Service with representatives of other agencies and industry, directed its legislative activities, and helped develop and carry out the Postmaster General's information campaign explaining the Department's policies and programs to the public. Commendation from House Appropriations Sub-Committee Vaughn Gary of Virginia came to him for revising procedures to increase protection to the public in postal controversies, including establishing the Department's first Contract Appeal Board and Judicial Officer, and for improving the legal service's efficiency and prestige with minimum increases in basic costs.

After spending 1961 as vice president of a Washington, D.C., investment firm, Mr. Warburton returned to federal service. For nearly three years he was Special Minority Counsel, Government Operations Committee, investigating the Billie Sol Estes grain storage case with the support of the leaders of both parties in the House of Representatives.

In his Wilmington, Delaware, practice after World War II service, Mr. Warburton specialized in insurance, corporation and real estate law. He served as First Assistant City Solicitor for Wilmington, and Deputy State's Attorney General, and is a past National Chairman, Young Republican National Federation.

A native of Delaware, graduate of the State's university and Dickinson School of Law, Carlisle, Pa., he went on active duty as a reserve first lieutenant the day he completed his bar examinations in 1941. In 1942 Mr. Warburton was admitted to the bar *in absentia*, the first person in his State's history to be so honored. Military service of more than four years in the anti-aircraft artillery and military intelligence included, in addition to field duty, Intelligence Officer (G-2), Staff of the Commanding General, Anti-Aircraft Artillery School (in which capacity he also directed its public relations and information activities and the Anti-aircraft Command's publications and visual aid functions), Commanding Officer of the Counterintelligence School Enlisted Students Battalion, and student at the Command and General Staff School.

Mr. and Mrs. (Elizabeth) Warburton, residents of Maryland since 1961, live at 8500 Beech Tree Road, Bethesda.

# Lee Nattress Accepts Post With Orthopaedic Surgeons

On April 1, 1966, LeRoy Wm. Nattress, Jr., assumed the position of full-time consultant to the American Board of Orthopaedic Surgery (AB-OS), after serving in this capacity on a part-time basis since 1959.

Mr. Nattress was Executive Director of the American Board for Certification in Orthotics and Prosthetics, Inc. from July 1960 until his resignation from that office on March 31, 1966. He had earlier served as Assistant Executive Director and Examinations Director for the Certification Board. He was a co-author in 1956 of course books in above-knee prosthetics published by UCLA, and has been a frequent contributor to the Orthopedic and Prosthetic Appliance Journal, the Mark of Merit, and Facility Facts. Mr. and Mrs. Nattress and their three small children plan to make their home in Chicago.

Mr. Nattress received a B.A. degree from Hope College, Holland, Michigan; an M.A. in education (counseling and guidance) from the University of California, Los Angeles; and is currently a candidate for the Doctor of Education degree at American University, Washington, D.C.

In his new position, Mr. Nattress is establishing an office of research in medical education for orthopaedic surgeons. He also will continue his work with the American Academy of Orthopaedic Surgeons in developing new evaluation techniques in cooperation with the Committee on Graduate Education and its subcommittee on Examinations and Evaluation which, each year, administers an In-Training Examination to all orthopaedic residents in the United States, Mr. Nattress served as a consultant in the establishment of this examination in 1963.

In accepting this position with ABOS, Mr. Nattress is undertaking a pioneer activity. To date, nine universities have established offices of research in medical education; however, ABOS is the first of the nineteen medical specialty boards to become involved, in this way, in medical education. One reason for the orthopaedic surgeons' interest in education is that 60 percent of the residents now in training are in non-universityaffiliated centers. This percentage is expected to increase and, therefore, if the training of orthopaedic surgeons is to be maintained at an effective level, the non-university programs must keep abreast of the university programs in the methods and techniques of education.

In establishing this office, the American Board of Orthopaedic Surgery is further demonstrating its longstanding concern for determining competency in orthopaedic surgeons. Due to this concern, ABOS became involved in a research program with the University of Illinois' Center for the Study of Medical Education, in which the certification process and manpower needs in orthopaedic surgery are being investigated. Mr. Nattress is working closely with the University of Illinois on this project which was initiated in 1964 and is to be completed in 1968.

Mr. Nattress has accepted an appointment to teach in the Prosthetic-Orthotic Education Program at Northwestern University and is continuing as a consultant to the Interprovincial Association of Prosthetists and Orthotists of Canada.

# Lever Locking Device

by SFC JAMES P. MURPHY, C.O.\* and EMILIO BACON

Orthopedic Appliance Facility, U.S. Army Tripler General Hospital, Honolulu, Hawaii



\* SFC James P. Murphy, C.O. has recently retired from the United States Army. His last assignment was Chief Orthotist, Tripler Army Medical Center. He has served as Chief Orthotist in many of the largest Medical Centers in the Nation and is now associated with Gaines Orthopedic Appliances, Inc., Denver, Colorado.

On a set of bilateral long leg braces, unlocking four locks becomes quite a problem for the patient.

A lever unlocking system was developed by the authors that allows the patient to unlock both sets of drop locks with a simple lever attached to the proximal end of the lateral upright on the long leg brace with a cable attached to the locks.

We used the Pope Brace Company's Bale Lock uprights because of their adaptability to this system. We discarded the bale on the lock and retained the lock and return spring. On the screw that the springs fasten to on the lock, an "eye" was also applied. The cable housing was fixed to the brace by three aluminum "keepers" (1 double and 2 single). The cable and housing are the type used in Below Elbow Controls on Prostheses. The ends of the cable were soldered to the eye with silver solder.

The lever is an adaptation of the type used on the Army Aluminum leg brace. It is riveted to the upright, and a screw was located on the upright to stop the lever in the locked position.

To operate the locks the patient merely pushes forward on the lever, raising both locks and simultaneously flexing the knees. Upon extension the locks are pulled into the locked position by the return springs. The proximal ends of the lower uprights are rounded off, so that the locks travel a shorter distance.

## TO PRESENT ASSEMBLY PROGRAM

A program on *Plastisol Coatings and Application Techniques* will be presented on Tuesday morning, October 18 by two representatives (see below) from the University of Michigan Medical Center. Research work on the new brace covering material is being carried out under a grant from the Vocational Rehabilitation Administration and the Sister Elizabeth Kenny Foundation.



DAVID H. HARDEN, Assistant Professor of Mechanical Engineering, Wayne State U., Detroit.

RICHARD D. KOCH, Research Orthotist, U. of Michigan Medical Center, Ann Arbor.
# Fabrication of Fin Prostheses For Bilateral Amputee

## By HOWARD V. MOONEY, C.P.

Boston Artificial Limb Co. Burlington, Massachusetts

In the late spring of 1966, Richard Landry, a bilateral lower extremity amputee, was measured at Boston Artificial Limb Company for new prostheses. Dick lost his legs in a train accident 18 years ago at the age of six. In spite of an above-knee amputation of his right leg, and a below-knee amputation of his left, he has not let this handicap keep him from performing both usual and unusual activities.

We were quite amazed, however, when this amputee informed us that he had taken up scuba diving. He reported that he had difficulty in keeping the swim fins on his stumps when trying to swim fast, and that the fact that the swim fins were attached at different levels caused some directional deviations. He asked if there was anything that could be done to overcome these two problems.

After discussing the matter with our staff, we decided that we would fabricate two plastic appliances which would encompass the stumps and equalize their length. The swim fins could be easily attached to these appliances. We took casts of the stumps over his diving suit, did the usual cast work, added an extension to the above-knee side to make it equal in length to the below-knee side, and then did the laminating.

The resulting appliances had the appearance of pylons, and we decided that Dick could use them as such to walk to the water's edge. The swim fins were fastened to adaptors which were attached to the pylons by means of nylon pins inserted through nylon bushings in the ends of the pylons. Dick



FIG. 1-RICHARD LANDRY

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can thus ambulate on dry land as required, and then attach the swim fins easily for his diving and swimming maneuvers.

Although it is doubtful that there are many bilateral amputees who are also scuba divers, we feel that this story points up the fact that there are probably very few activities which are impossible to the handicapped person who has motivation, coordination, and imagination.

Richard Landry is the type of person who is so busy doing things that he has no time to find out that, according to Hoyle, he can't do them. Would that more amputees were of his calibre.





FIGURE 2—The appliances with swim fins detached

FIGURE 3—Dick walking on the solid ends of the pylons





FIGURES 4 & 5-The appliances, showing attachment of fins

# A Guide for the Management of The Child Amputee

EDITOR'S NOTE: The following article, prepared by the Committee for the Care of the Handicapped Child of the American Academy of Orthopaedic Surgeons, is here reprinted with the permission of the Academy because of its importance to all those concerned with this field: the surgeon, physician and rehabilitation official, as well as the prosthetist and orthotist.

## FOREWORD

In the total care of children with musculoskeletal handicaps there are many considerations that determine whether or not they will achieve maximum function, both medically and as a member of the community. It is the responsibility of the orthopaedic surgeon to evaluate the basic medical problem, plan a realistic therapy program and serve as a strong member of the team caring for the child.

In this concept there is the need to first establish a careful diagnosis and evolve an individual therapy program geared to the child's actual abilities, constantly to reevaluate and reestablish the therapy plan and goals, and finally to set realistic goals. The American Academy of Orthopaedic Surgeons, through its Committee for the Care of the Handicapped Child has outlined in this Guide its expression of the minimum professional requirements for this type of approach.

It must be realized that no absolute or arbitrary standards are possible. There are many differences in local and state methods of caring for the handicapped child, availability of facilities and personnel, individual philosophies of approach, and personal differences in the needs of children with the same diagnosis. It is suggested therefore that this Guide might serve as an expression of the minimum essential needs upon which can be built a realistic program for the child amputee. With the leadership of interested orthopaedic surgeons, and other medical and paramedical personnel, and with careful planning and cooperation by state and local community educational, social and therapy services, many of the constantly changing needs of these children can be fulfilled.

Committee for the Care of the Handicapped Child

Robert W. Bailey, M.D. Burr H. Curtis, M.D. Charles H. Frantz, M.D. George R. Miller, M.D. Lawrence Noall, M.D. Robert Perlman, M.D. Warren G. Stamp, M.D. Robert S. Siffert, M.D., Chairman

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## A GUIDE FOR THE MANAGEMENT OF THE CHILD AMPUTEE

#### I-Introduction

During the past decade, significant progress has been made in developing total care techniques for the child amputee. Medical contributions have resulted from the development and application of engineering and prosthetic principles, better understanding of biomechanics and growth and development, evolution of orthopaedic surgical procedures and rehabilitation techniques. Co-ordination of these medical advances with social, vocational, education, psychological, community and administrative efforts have led to the development of a "team approach" to the child amputee.

Child amputee centers have been established throughout the country, and individual experiences have been shared by constant exchange of information. Groups involved, (e.g., Advisory Committee to the Children's Bureau, The Children's Bureau, and State Director of Crippled Children's Programs, etc.) have worked closely with orthopaedic surgeons towards this goal of improved services for the child amputee.

Sufficient time has elapsed and experience gained to warrant analysis of these services that have been found to be basic and essential for the coordinated care of the child amputee. This guide, therefore, outlines practical recommendations of the American Academy of Orthopaedic Surgeons, and represents goals toward which existing child amputee services might aspire, and which new centers might employ in developing facilities for the child with this type of handicap.

## II—Classification

The juvenile amputee may be classified into three major groups:

- A. Post-surgical amputee
- B. Congenital amputee (terminal transverse deficiencies)
- C. Children with anomalous extremities, either single or multiple, who are rehabilitated with prosthetic devices either with or without surgery.

## III-Recommended Standards

Recommended standards are described for two main categories of facilities for care of the child amputee; namely, the Crippled Children's Clinic and the Child Amputee Center.

### A. The Crippled Children's Clinic Caring for the Child Amputee

These children do not present unusual fitting and training problems (i.e., a below knee amputee) and can be cared for in conjunction with other orthopaedically handicapped children provided that the clinic is staffed with personnel trained and qualified in child amputee care.

The Crippled Children's Clinic team should consist of a clinic chief or director, a pediatrician, physical therapist and/or occupational therapist, prosthetist, and additional paramedical and ancillary personnel customary in the area in which the clinic is located.

- 1. The clinic chief or director should be Board Certified or Part II eligible for the American Board of Orthopaedic Surgery.
- 2. Members of the occupational therapy team should be registered with the American Occupational Therapy Association. Members of the

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physical therapy team should be graduates of an accredited school of physical therapy and registered.

- 3. The clinic chief or director and members of occupational therapy and/or physical therapy teams must have a knowledgeable interest in the field of prosthetics. It is desirable that they have attended some of the post-graduate courses offered in prosthetics education.\*
- 4. There should be available the services of a prosthetist certified by the American Board for Certification in Orthotics and Prosthetics.
- 5. There should be available the facilities for frequent, well supervised out-patient training and in-patient care when required.
- 6. In conjunction with the clinic, adequate consultation serivces should be available by qualified physicians in the various medical and surgical specialties. These specialists should be encouraged to attend regular team evaluation conferences to obtain the benefit of coordinated discussion and thinking in the total care of the patient. When possible, inclusion of a physician trained in physical medicine is to be encouraged.
- 7. Close liaison should be maintained with the child's own physician in planning and executing a projected treatment regime. He should be invited, where possible, to attend the clinic sessions and participate in the discussions. When it is not possible for the child's own physician to be in attendance at such clinics, it is essential that a resume of the treatment program be sent to the physician for his information, and his recommendation should be solicited.
- 8. It should be pointed out that because of the problems of longitudinal and circumferential growth of the extremities in children, it is necessary that juvenile amputees be seen not less frequently than three to four months.
- 9. Careful unit charts should be maintained and include the entire medical and paramedical record of the child.
- 10. There should be an efficient follow-up technique to prevent broken appointments and permit proper continuity of the child's care.

## B. The Child Amputee Center

Children with anomalous extremities, either single or multiple, and forequarter, hindquarter, shoulder disarticulation and/or hip disarticulation amputations, present very highly specialized problems and are best managed in a child amputee center where there is a well organized team devoting itself specifically to those complicated problems.

As a result of years of experience and public educational efforts, congenital limb abnormalities are more and more being treated by prosthetic substitution (with or without surgical conversion), rather than by classic orthopaedic reconstruction and/or bracing. Any clinic responsible for managing this group of patients successfully (see III above) must have more highly trained personnel, more specialized physical facilities and closer teamwork. This group of patients is expensive to care for, and in developing and expanding services, realistic budgeting of funds, well-trained personnel and adequate facilities must be available. (For example, at Mary Free Bed Amputee Center, in 137 lower extremity anomalies, it was necessary to do

<sup>\*</sup>For example, Prosthetic Educational Programs such as those conducted at the University of California Medical School in Los Angeles, the Northwestern School of Medicine Program in prosthetic education, or the New York University programs in prosthetic education.

surgical conversion to develop a more satisfactory stump in 57% of the cases, while contrarily, in 108 upper extremity limb deficiencies, surgical conversion was required in only 15%.) In order that this group of children be protected from unnecessary surgical procedures, highly-trained, knowl-adgeable and mature orthopaedic surgeons must function as clinic chiefs or directors. The chief must be surrounded by equally knowledgeable mem-' bers of the team.

- 1. The basic minimum for this team should be the clinic chief or director, a pediatrician, a physical and/or occupational therapist, a medical social worker and a prosthetist. Better services can be attained by the addition of other medical and paramedical personnel to this basic minimum staff:
  - a. Child psychiatrist
  - b. Rehabilitation nurse
  - c. Vocational counselor

The basic minimum team members must be qualified as follows:

- a. A mature orthopaedic surgeon certified by the American Board of Orthopaedic Surgery with special interest and knowledge in the problems of the juvenile amputee.
- b. The physical therapist should be a graduate of an accredited school of physical therapy. The occupational therapist should be registered with the American Occupational Therapy Association. Both should have background experience in physical and occupational therapy as related to children, and have successfully completed the upper and lower extremity prosthetic courses above mentioned.
- c. A qualified medical social worker.
- d. A prosthetist who has been certified in prosthetics by the American Board of Certification in Prosthetics and Orthotics.
- e. Consultation should be available by qualified specialists when indicated, and these consultants should be available to participate in conferences and team evaluations of the children.
- 2. The clinic should be operated in close physical proximity to the area in which in-patient training is offered these children. No other category of crippled children should be serviced at the Child Amputee sessions. It is essential that all members of the clinic team attend the full clinic session including the clinic conferences and evaluations. The Child Amputee Clinics should meet not less than once a month, preferably once every two weeks if the caseload demands. Facilities must be so arranged that follow-up visits can be made as frequently as the specific case requires, and not less than every three months. Facilities for in-patient training and occasionally in-patient surgical treatment are important for certain patients in this group, when their problems are sufficiently complex so that successful outpatient training is not feasible. During in-patient training periods. it is occasionally desirable for a parent to attend training sessions. Provision of living quarters for parents in proximity to the training areas are desirable.
- 3. Records of these patients must be detailed, and must include a complete pediatric survey, x-rays, necessary laboratory details, and consultations when indicated. This group has genetic implications because of the high percentage of congenital anomalies. Unless de-

tailed records are kept, the genetic implications cannot be further investigated. Because of the incidence of visceral abnormalities, other laboratory investigations are more frequent.

- a. Photographic records of the patients with congenital anomalies are particularly desirable. Where possible, motion pictures more accurately record progress and are to be encouarged.
- b. Many of the complex amputee problems in children cannot be resolved satisfactorily with our current prosthetic armamentarium. Therefore, in the organization and development of this type of highly specialized clinic, it is essential to include provision for a prosthetic fabrication, research and development section.
- 4. An efficient follow-up technique for these children is necessary to prevent broken appointments and permit continuity of care.

In view of the complexity of operation of a Child Amputee Clinic, the highly trained and specialized personnel, the special physical facilities needed for training, examination and prosthetic fabrication and research, it is desirable that this type of clinic be established on an area basis. The Child Amputee Clinic should provide not only service to the child amputee and offer a means of research and development in prosthetics and various genetic implications mentioned above, but should serve as an educational and training opportunity for medical and paramedical individuals. Participation in such clinics by physician-residents in training in special areas such as orthopaedic surgery, pediatrics, and physical medicine should be encouraged since it is from these sources that future clinic teams will be developed. Similarly, students in training in physical and occupational therapy, together with those in the school of social work, should also be given this educational experience, since in the future, they may become members in other amputee clinics.

## The Swim-Waukee Brace

By SIEGFRIED W. JESSWEIN, C.P.O. Birmingham, Michigan

The child wearing a Milwaukee brace has many of his normal activities at least partially curtailed. In the hot months of summer the desire to partake in water sports can not be adequately satisfied. Although most children are given about one (1) hour a day of swimming without the brace this does not seem very much for the active child. Particularly since she must don her brace immediately upon leaving the water. Naturally, other water sports such as water skiing are out of the question. Thus it seemed proper to design a brace allowing the child more privileges; a brace which is waterproof and so constructed and fitted to give the same amount of correction as the conventional apparatus; a brace which can be worn comfortably in as well as out of the water; hence, the Swim-Waukee brace.

Some of the materials used to construct the brace have not been in long use in orthotics. Namely, Orthoplast, a vinyl in sheet form, and Medical Silastic.\* Others such as SS, dural, and nylon are of course well known.

To construct the pelvic girdle Orthoplast was chosen for reasons of lightness, strength, good appearance, ease of molding, and relative low cost.



Ready for a cool and refreshing dip.

\* Orthoplast, as offered by the Johnson & Johnson Co., and 385 Medical Silastic as offered by the Dow Corning Co.

At first laminating of the girdle with Polyester resin was considered. However, time consuming laminating procedure, extra weight, and the extreme care of cast preparation were much too disadvantageous to the Orthoplast. (In fact, the girdle was formed in less than 20 minutes).

Since nothing but the material was changed, the measuring, casting, and preparation of the cast remained identical to formerly advocated methods. Due to the relative inflexibility of the material it was necessary to mold the girdle in halves to be hinged in front. The hinges and tongue on the inside were made of polyethelene and riveted to the Orthoplast.

In order to allow maximum freedom of movement of the shoulder girdle (necessary for swimming), to minimize bulk of the superstructure, and to allow easy doning of the appliance, the metal framework was considerably changed.\*\* The anterior bar is quite conventional. However, in addition to the standard hinge, the crest bands, as they are fastened to the hinge, are allowed to pivot; otherwise the girdle can not be easily opened. The crest bands were made of  $\frac{1}{8}$ " x  $\frac{1}{2}$ " SS. The single duralumin posterior bar was made so that it forked out and split just above the upper border of the girdle and connected by a knurled knob. This arrangement allows for opening of the girdle. Stabilization of the frame was achieved by a semi-dural neck ring, rigidly connected, and by the usual fastening of the crest bands to the framework. An additional velcro strap toward the bottom of the girdle helped to maintain a good closure.

All corrective pads were also made of Orthoplast. These were cut to proper size and directly molded on the patient. No padding was used on the dorsal pad and axillary sling. To lend additional strength to the sling and to prevent its distortion it was lightly reinforced with SS. All straps were fashioned of 1" nylon webbing. The cushion for the lumbar pad, chin



Note pivot and hinge arrangement.

Note forked closing arrangement and semi neck ring.

\*\* It should be mentioned that this writer for reasons of cosmesis contours the superstructure much more closely to the body than generally advocated.

and occipital piece were made of 385 Medical Silastic. It was first molded into  $\frac{1}{4}$ " thick steets and then glued to the respective pads. (A special Dow Corning bonding agent is required). This type of padding is absolutely waterproof, and from past experiences in other applications, its life is indefinite.

The particular patient shown in the accompanying photographs headed for the lake immediately following receipt of the Swim-Waukee brace. A week later she was seen at the clinic. She had received her first and conventional Milwaukee brace in March 1966. Both were present and X-rays taken with both. These indicated that correction in both was identical. The patient confessed that during this first week she had worn her new brace almost entirely.

The patient's reaction to this brace was favorable. The points favored were: 1. Lightness. The brace with pads weighed 41/4 lbs— vs. the 61/4 of the conventional brace. 2. Coolness. Although Orthoplast is not porous, the perforation of the girdle probably accounted for this reaction. 3. Greater comfort—particularly during rest. The posterior single bar is less of a hindrance in the recumbent position as well as its closeness to the body. Also, the rather large occipital piece exerts pressure more evenly over a greater area. 4. Better cosmesis. Due to the close contouring of the superstructure and the singly located posterior bar it permits a more normal fit of clothes. (It should be noted, though, that sufficient clearance is given so



Dressed, many of the projections of the regular Milwaukee brace are absent.

as not to interfere with exercising within the brace).

Although this brace as described above was primarily built to increase the patients' realm of athletic activities, particularly watersports, its many favorable points warrant wider application. From the hygienic viewpoint the brace is unexcelled—it is totally washable.

One word of caution, however, is indicated. Due to the low melting point of Orthoplast the girdle should not be exposed to excessive heat (temperatures over 130 degrees F.). For forming it is softened in just below boiling water. Conversely, extreme cold should also be avoided. The material becomes more rigid and subject to breakage. Generally, when the brace is worn the body temperature maintains the material slightly flexible—not enough, however, to induce changes in shape.

In conclusion it might be correct to say that the Swim-Waukee brace increases the acceptance of this type of appliance because it is a more tolerable apparatus and its usage is not restricted to terrestrial activities.

## **Treatment of Tennis Elbow\***

## Use of a Special Brace

## by FREDERIC W. ILFELD, M.D., and STEPHEN M. FIELD, M.D.

Division of Surgery, and the Cedars-Sinai Medical Research Institute The Cedars-Sinai Medical Center, Los Angeles

Tennis elbow or humeral epicondylitis is a minor ailment, but to a tennis player, a golfer, a gardener, or a skier, it can be a threat to his way of life. The entity is therefore worthy of prevention and teatment. This is a report on the study of 174 patients with epicondylitis of the elbow, with special reference to the effective treatment by an elbow brace.

Although tennis elbow was first described by Runge<sup>1</sup> in 1873, almost 100 years ago, and its bibliography is long,<sup>2</sup> there is still no unanimity as to cause or treatment.

The literature relates tennis elbow to local trauma, contusion, or sprain,<sup>2</sup> soft-tissue calcification,<sup>3</sup> bursitis,<sup>4</sup> radiohumeral synovitis,<sup>5</sup> tear of the extensor carpi radialis brevis muscle,<sup>6</sup> avulsion of the tendon origin,<sup>7</sup> displacement of the orbicular ligament on the radial head,<sup>8</sup> or idiopathic spontaneous occurrence.<sup>2</sup>

The disease is thought to be self-limited, generally subsiding in 12 months,<sup>2</sup> yet cases lasting several years are not uncommon. A wide variety of treatment has been advocated, which probably indicates that no one treatment is uniformly effective. For example, where tennis was a causitive factor, professionals advise the use of a lighter or heavier racquet handle, or a narrower or thicker grip (P. Segura and P. Gonzales, personal communication, Nov. 11, 1964). Other reported methods of therapy include rest,<sup>9</sup> a cock-up splint,<sup>7</sup> manipulation,<sup>6, 10, 11</sup> roentgenotherapy,<sup>3, 12, 13</sup> ultrasound,<sup>14</sup> injection of hydrocortisone,<sup>2, 15</sup> and open operation.<sup>16</sup>

Surgical procedures include division of the tendinous origin from the lateral epicondyle excision of bursa or calcific deposits, division of the common extensor origin and the orbicular ligament, or lengthening of the extensor carpi radialis longus tendon.

## Anatomy

The elbow is a hinge joint, the articular surfaces of which are connected by a capsule supported by medial or ulnar and lateral or radial ligaments. The annular ligament encircles the head of the radius holding it in contact with the radial notch of the ulna. The extensor muscles of the forearm (Fig. 1) are anchored to the lateral humeral epicondyle, the most frequent site of pain. The joint is thus dependent on ligamentous structures for stability and is especially vulnerable to lateral and rotary strains. It is also affected by diseases or injuries involving locally the articular cartilage, the muscles, ligaments, and joint synovia, as well as disease or injuries of the wrist, shoulder, and neck.

\* Reprinted from The Journal of the American Medical Association, January 10, 1966, Vol. 195, pp. 67-70. Copyright 1966, by American Medical Association.

## Diagnosis

The diagnosis of epicondylitis or tennis elbow is made on the complaints of pain in the medial or lateral sides of the elbow, especially on making a fist, shaking hands, lifting a weight with the hand in supination, or resisting dorsiflexion of the wrist.

On examination there is localized tenderness over the lateral or medial epicondyles or the radiohumeral joint, usually over the orbicular ligament. There is discomfort on shaking hands or making a fist and on resisting dorsiflexion of the wrist. Lifting a weight is apt to be painful.



FIG. 1—The extensor muscles illustrating anchorage to the lateral epicondyle.

The pain is a steady, dull, ache in the elbow. It is worse on exertion such as gardening, housework, writing, typing, carpentering, or even holding the leash of a dog. It may be so severe as to disable a carpenter, typist, stenographer, plumber, or housekeeper, and it may interfere with sleep.

### **Composition of Series**

In our series of 174 patients, there were 103 men and 71 women. Four patients were under 20 years of age, 31 between 20 and 30 years, and 139 were over 40 years of age. (The majority of patients are over 40 years of age.) The right elbow was involved in 124 patients, the left in 39, and both in 11; the lateral epicondyle was involved in 146, medial epicondyle in 19, and both medial and lateral epicondyles in 8.

The etiological factors are listed in Table 1. Direct trauma, tennis, and golf were the most frequent causes of epicondylitis of the elbow. One

Etiology	Incidence	Etiology	Incidence
Trauma	51	Swimming	1
Tennis		Piano	1
Golf		Weight lifting	2
Gardening		Shooting craps	1
Bowling		Unknown	

TABLE 1

CAUSATIVE FACTORS IN TENNIS ELBOW (HUMERAL EPICONDYLITIS)





FIG. 2—Calcification lateral to radiohumeral joint. Symptoms were relieved by two injections of hydrocortisone.

FIG. 3—Bone fragment near medial epicondyle of humerus. Symptoms were relieved by excision and brace.

woman who spent six hours in Las Vegas shooting craps developed a lateral epicondylitis. In almost one third of the patients there was no evident causative factor.

The duration of symptoms was under one month in 63 patients, between one and six months in 70, and over six months in 30.

X-ray film studies were done on 45 patients with positive findings in 11 patients, such as calcification in nine (Fig. 2), a questionable lateral spur in one, and a bone fragment in one (Fig. 3). X-ray films in the last patient, a physician, showed a medial bone fragment. Excision, followed by use of the brace, resulted in a cure.

## Treatment

Miscellaneous.—Treatment in our patients was varied. Six were given local massage, with relief obtained in only one case; manipulation of the elbow gave poor results in eight patients. Five patients received x-ray therapy, all with poor results. Six patients had ultrasonic treatment with poor results in all instances. Three patients had elevated blood uric acid levels of 9.5, 6.1, and 9.7 mg/100 cc, respectively, but only the last responded to colchicine therapy. One patient obtained relief by holding 2-lb. weights at the level of the shoulder and letting the hands and weights fall down suddenly to snap the elbows. One patient obtained relief by taking hot showers. Several were personally instructed in the proper way to hit a tennis ball. One patient is now receiving local applications of dimethyl sulfoxide with apparent relief. Only five have had surgery.

Steroid Therapy.—Most of our patients were treated by injecting the tender area with 15 to 25 mg of hydrocortisone, diluted with 3 to 4 cc of 1% lidocaine (Xylocaine) hydrochloride.<sup>2</sup> If one injection failed to relieve the pain, a second, a third, and occasionally more were given. A disadvantage of this method is the occasional severe pain after the injection.

In Table 2 the results of local treatment with steroid injections are listed. When one or two injections failed to relieve the pain, the efficacy of further injections became progressively less.

One patient was examined recently after 25 to 30 cortisone injections, which he had been given by another physician without relief. He was anxious to play golf and tennis; he was given a brace which enabled him to return to his games.

Treatment With a Brace.—When such conservative measures fail or when the patient does not wish to try drug injection treatment, a special brace is prescribed (Fig. 4). The brace is designed to support the elbow joint laterally, to prevent complete extension, and to limit forearm rotary motion. It is made of elastic material so woven that on flexion the crease is horizontally placed, and posteriorly the weave over the olecranon is longitudinal. Lateral metal strips with a hinge-stop support the elbow, preventing extension of the elbow beyond 160°. This light flexion of the elbow seems to relax the muscles and lessen the strain on the elbow joint. Posterior laces allow for easy fitting. A modification of the first brace substitutes cross-straps for the lateral stops to limit extension (Fig. 5). Upper and lower elastic straps adjust the circumference of the brace. Although more cumbersome, this crossing of the straps seems to be a better way of limiting elbow flexion and forearm rotation.

As an added bonus, the brace tends to improve the patient's tennis or golf technique by using the arm as a single unit. The added weight encourages the follow through after the ball is stroked. The brace is worn during the sport or, in the case of a carpenter or gardener, during the day at work. Most patients have been able to return to their sport with the help of the brace, with good results in 24, fair in 4, and poor in 8. Most of the patients with poor results complained that the brace was cumbersome and a bother to wear.





FIG. 4—Tennis elbow brace. Posterior laces allow for easy fitting. Lateral metal strips with a hinge-stop support elbow and prevent extension of elbow beyond 160°.

FIG. 5—Adjustable cross straps limit extension of elbow and forearm supination and pronation. Note upper and lower straps for better fitting.

CASE 1.—A 37-year-old man, a tennis player, developed pain in the outer side of the right elbow. For three months he was given therapy elsewhere with heat, untrasound, and whirlpool, without relief. Two injections of hydrocortisone diluted with lidocaine hydrochloride and a wrist band did not help. A brace was prescribed. This gave him immediate and lasting relief of pain and has enabled him to play tennis regularly.

CASE 2.—A 47-year-old woman complained of pain on the lateral side of the right elbow of six months' duration, probably from gardening. One injection of hydrocortisone helped temporarily. The elbow brace immediately releived pain and has been worn while gardening and carrying water cans. After using the brace for eight weeks it was discarded. Follow-up reports two years later revealed no recurrence of symptoms.

CASE 3.—A 64-year-old golfer, unrelieved by three injections of cortisone and discontinuing golf for six months, was relieved by wearing the brace. Discontinuance of the use of the brace on three occasions was followed by recurrence of pain, which was promptly again relieved by wearing the brace. After using the brace for six weeks on the last occasion, recurrence of pain has not recurred in nine months.

CASE 4.—A 54-year-old physician, 11 years ago, developed lateral right epicondylitis. Hydrocortisone injections and x-ray therapy failed to relieve the pain. For five years the patient has successfully worn an elbow brace only while playing tennis. Without the brace the pain recurs and he is unable to play tennis.

Number of Patients	Number of Injections	Result		
		Relief	Failure	Unknown
64	1	46	13	5
20	2	10	9	1
18	3	5	11	2
28	Over 3	8	19	1

TABLE 2

RESULTS OF STEROID THERAPY FOR TENNIS ELBOW (HUMERAL EPICONDYLITIS)

## Conclusion

Epicondylitis of the elbow can cause serious disability. It occurs one and a half times more frequently in men, four times more commonly in individuals over 40 years of age, involves the right elbow three times as often as the left, and the lateral epicondyle seven times as often as the medial epicondyle. It is usually traumatic in origin but can occur spontaneously. Symptoms are often relieved by local injections of hydrocortisone diluted with lidocaine hydrochloride. A brace that limits extension and forearm rotary motion and supports the elbow gave relief in 80% of cases in which other conservative methods of treatment had failed.

The brace in Fig. 4 is made by M. J. Benjamin Co., Los Angeles, and the brace in Fig. 5 is made by Lerman & Son, Beverly Hills, California.

Generic and Trade Names of Drug-Lidocaine hydrochloride-Xylocaine Hydrochloride.

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# The Role of Prosthetic and Orthotic Rehabilitation in Sierra Leone

## By A. H. MUSTAPHA

Sierra Leone, West Africa

The Limb Fitting Service established about five years ago is a governmental institution in the Ministry of Health and the only limb and orthopaedic workshop in the country. It is located in the Murray Town Hospital (a Convalescent Hospital) which is about three and a half miles from the centre of Freetown, Capital of Sierra Leone. The centre was established by a Sierra Leonean limb fitter who is now in charge of the unit. The centre serves the entire population of about two and a half million, scattered over an area of about 28,000 square miles. Through the assistance of the Ministry of Social Welfare, Mission Hospitals and voluntary organizations like the Sierra Leone Red Cross Society, disabled people travel with less difficulty from the North, South and Eastern Provinces to reach the centre where their hopes for a physical restoration become a reality.

It would be worthwhile to mention that before the establishment of the Limb Fitting Centre, the Medical Department often made use of the Nigerian Limb Fitting Service. A Nigerian limb fitter occasionally came to Sierra Leone, collected all relevant information from amputees, and returned to Nigeria where the limbs were manufactured. He therefore started the very important service of prosthetic rehabilitation in Sierra Leone. But he was also confronted with a very important problem—the question of an equipped workshop where technical procedure could be carried out during fitting stages. Despite this difficulty he was able to rehabilitate a large number of amputees and his service was highly appreciated.

The Limb Fitting Centre though in its developing stages yet has demonstrated its ability to cope with the great task of providing an efficient substitute for lost limbs or for impaired function. Willow wood, universally accepted as the best for manufacturing wooden limbs, and metal, leather and plastic are being utilized satisfactorily in manufacturing artificial limbs and orthopaedic appliances. These materials, together with various mechanical components, are imported from the United Kingdom. The actual process of manufacturing prostheses and braces is carried out in the workshop by a few craftscoren handling the side-knife, pulling tool and operating various machines such as the mechanical band saw.

In an attempt to solve the complex problem of human disability we have therefore endeavored to produce all types of limbs for the various levels of amputations of both upper and lower extremities together with the different types of braces. (Because of climatic conditions metal limbs have not been included in our list of production.) The most common wooden

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types in operation presently are the anatomical willow socket and the willow articulated peg leg. There is a basic fee charged for the anatomical type, while the willow peg is issued free by the Ministry of Health to those patients who cannot afford to meet the basic fee. The peg leg is mostly used by watchmen, farmers and some old people. We have relatively few arm amputees and artificial arms are more expensive and are of the conventional type.

The fundamental principles and techniques in limb fitting and bracing in Sierra Leone follow the same pattern as that practiced in Britain but it has been realized that it is unrealistic to try to progress and succeed by pursuing a standard pattern. Therefore, modification and innovation are always present in order to meet local conditions and the limitations and requirements of the individual patient. Preparation of an upper or lower extremity stump for successful fitting of a prosthesis usually follows about 16 weeks after amputation surgery.

During this interim period whilst in hospital, a post operative treatment is carried out, which includes psychological treatment, flexion and abduction exercises of such deformities as ankylosis of proximal joints, and compression bandaging of cases of oedema to facilitate shrinkage when a pylon it not being used. Subsequently the patient is discharged or transferred to a convalescent hospital on crutches. Bilateral amputees, however, are hospitalized till final fitting of prostheses.

Amputees are usually referred to the centre for examination and measurement about 12 weeks after amputation. At this initial stage of the rehabilitation programme more time is spent in winning the confidence of the patient, collecting basic data and analyzing his immediate problems. Other factors that are of particular significance to the limb fitter who is responsible for the design and the construction are the age and sex of the patient, his occupation and general mental and physical state, the condition of the stump and the degree of movement of the remaining joints.

## SUMMARY

The centre caters to all ages and classes of people, whatever their physical handicap. There is nothing like mass production or mass treatment in this avenue of rehabilitation: each case is treated on its merit. Some of the patients are engaged in the various industries and commercial houses and others in the Civil Service. Most of these people have returned to their previous assignments whilst others have received vocational training with a view to replacing them in other employment for which their occupational capacities are best suited.

As the principle of rehabilitation implies the restoration of normal physical functions by physical means in order to achieve personal, social and economic independence, prostheses and various orthopaedic appliances have played an important roles in aiding the disabled in Sierra Leone. This available facility in the field of rehabilitation has played a very important role in the medical and health care services in Sierra Leone. In the future further development of this service will continue to improve the social and economic status of amputees and other disabled persons all over the country.

## The Patella Tendon Bearing (P.T.B.) Socket

The erection of a new building at the beginning of the year has made space available for the installation of a small plastic laboratory. This has resulted in the successful manufacture of the P.T.B. limb in Sierra Leone, an achievement which is one of the most rewarding projects the centre has embarked upon for the year.

#### The Tilting Table (T.T.) Limb

In April, the Tilting Table prosthesis was manufactured and successfully fitted at the Cheshire Home to a boy of 6 who had congenital disarticulation of the hip. This was the second of such prostheses successfully fitted in the centre.

#### The Mobile Limb Fitting Unit

The provision of a Mobile Limb Fitting van for the centre was another forward stride in its development. The mobile van, which was a gift made by the United States Mission in Sierra Leone, has already been proved useful by its frequent tours of the Provinces, extending rehabilitation services to all parts of the country.

## UCLA TESTING "MOONWALKER" FOR CRIPPLED CHILDREN



The Child Amputee Prosthetics Project of the University of California at Los Angeles is currently evaluating an eight-leg walking chair designed to give more mobility to amputee and paraplegic children.

The original concept for the vehicle came from a "Moonwalker" proposed for initial exploration of the moon as part of the Centaur-Surveyor program. It was called to the attention of the UCLA medical personnel by the Technology Utilization Office of NASA. The Moonwalker is operated by a four-way lever which can be adjusted to operate by hand, foot, or in extreme cases, by the chin, using a collar harness.

The vehicle's legs operate as four independent sets of two, allowing it to step over obstacles, and curbs, and travel over rough terrain.

# **Translation and Abstract Service**

Two additional translations of foreign orthopedic and prosthetic articles appear in this issue of the Orthopedic and Prosthetic Appliance Journal.

This translating and abstract service for members and other readers of the *Journal* was authorized by the Directors of the American Orthotics and Prosthetics Association in November, 1965. It provides for summaries of articles from medical periodicals as well as translations. The cooperation of members of the committee makes possible the continuation of this service.

The Abstract and Translation Committee is composed of:

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# Hip Joint with Automatically Activated Stop for the Hip-Disarticulated Amputee\*

## Research Laboratory Report from Orthopaedic University Clinic, Muenster, Germany

PROF. DR. OSCAR HEPP, Director Research by STEFAN BURGER, conducted with support of Federal Ministry for Labor and Social Affairs

> Translated by SIEGFRIED W. PAUL, C.P.O. Newington (Conn.) Hospital for Crippled Children

We reported on the rehabilitation of a polio patient in issue No. 6 of *Orthopaedie Technik*. The stop of the hip joint of this non-conventional design prosthesis stimulated our interest in developing this design to a point where it could be prefabricated.

A hip-disarticulation prosthesis with support of the socket by a movable bar was first fabricated by Mr. Schroder of Bad Pyrmont. His design features attachment of the bar within the knee joint, which is constructed by utilizing prefabricated knee units. The application of this design can be either more, or less difficult—depending upon the type of knee unit.

It was our intention to develop a hip joint which could be readily used

<sup>\*</sup> Translated and reprinted with the permission of the author and publisher from Orthopaedie-Technik, Wiesbaden, Germany, January 1965, pp. 13-14.

with the various types of knee designs, and which allowed for all necessary changes during the fitting process. These adjustment possibilities should exist at any level above-the-knee joint, as well as between hip joint and pelvic socket. The U.S.A. has a hip joint for hip disarticulations which is commercially available. This joint consists of two side bars, an axis with bushings, and a housing with attachment lugs for attaching the joint to the socket. (Illustration No. 1).

The following description represents a combination of these two joint designs. The stop is new and, we believe, improved. This stop is controlled from the socket by the utilization of a cam.



FIGURE 1—U.S.A.-made Hip Disarticulation Joint



FIGURE 2—Hip Joint Bushing with Guidance Cam and Attachment Lugs



FIGURE 4—Thigh Section Made of Poplar Wood



FIGURE 3—Hip Joint Axis (16MM Standard Axis)



FIGURE 5-Extension Stop Made of Plastic



FIGURE 6-Stop Tube Made of Plastic



FIGURE 7—Axis of Extension Stop with Guidance Cam for Telescope



FIGURE 8—Guidance Cam with Retriever Spring

Basically, the joint consists of:

A. The hip joint bushing with guidance cam and attachment lugs (Illustration No. 2)

B. The joint axis (16 mm. standard axis) (Illustration No. 3)

C. Attachment bars (standard bars for knee set-up) (Illustration No. 3)

D. Thigh section, made of poplar wood (Illustration No. 4)

E. Extension stop made of plastic (Illustration No. 5)

F. Stop tube made of plastic (Illustration No. 6)

G. Axis of extension stop with guidance cam for the telescope (Illustration No. 7)

H. Guidance lever with retriever spring (Illustration No. 8)

We attached the axis far anteriorly, and close to the anatomical axis of the hip joint, in the desire to keep the thigh section as low and as flat as possible for the greatest comfort in sitting. (Illustration No. 9)

This arrangement foreshortens the stop tube even with minimal hipflexion, and thereby does not support the pelvic socket any longer. In order to maintain the stop tube at equal length at every hip-flexion position, a telescopic construction was utilized. The telescope elongates through the action of a cam, and is retrieved by the pressure of a spring, using the same principle as used in the extension stop. The arrangement of controlled guidance makes failing of the stop impossible. The stop will function even if the spring is broken. In case this should happen the function of the spring would be replaced by the seat of the chair. The stop tube has a rubber



FIGURE 9



FIGURE 10—Thigh Section With Guidance Vector



FIGURE 11—Turning of the Thigh Section on the Lathe



FIGURE 12A—Position During Standing



FIGURE 12B-Position During Sitting

## **Description of the Function**

bumper on its proximal end. This bumper has been tapered and functions as a preliminary stop.

The cam which is attached to the hip joint bushing is pressing on the guidance slide during standing.

The guidance slide in return pivots the stop section around the fixed axis.

This results in moving of the telescope, which is located inside of the top tube, towards the socket.

The motion is activated by the cam which is attached to the axis. (Illustration No. 12A)

The hip joint is now supported and the load lines are in correct axial alignment.

The guidance slide is released during sitting.

The retriever spring presses in the direction of the hip jont and reversing of the above described action is taking place. (Illustration No. 12B) The pictures illustrate the technical details of the design.

A sample construction is available to any manufacturer for guidance in commercial fabrication.

# Fitting of a Unilateral Congenital Deformity of the Lower Extremity\*

by RUDOLF THYS

Hospital Ortopedico Infantil Caracas, Venezuela Director, Dr. Carlos Bustamente B.

Translated by KURT MARSCHALL, C.P. Syracuse, New York

Every congenital deformity presents its own individual problem. The following case was recently fitted with a prosthesis at this hospital.

Figures 1 and 2 show the below-knee portion of the deformed leg in a frontal view. The two illustrations clearly show the static alignment problems present that had to be taken into consideration. In a vertical position of the below-knee segment, the leg indicates an external rotation of the hip joint with the result that the knee joint points in a lateral direction.

Figure 2 shows the position of the knee joint and femur in a normal alignment; however, the below-knee portion of the extremity is then extremely



FIGURE 1

FIGURE 2

\* Translated and reprinted with the permission of the author and publisher from Orthopaedie-Technik, Wiesbaden, Germany, January 1964, pp. 13-14.



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6

abducted. Figure 3 illustrates the extremity from a lateral view with its typical externally rotated position.

These were the main factors that had to be taken into consideration at the time of prosthetic fitting.

After all contours and bony protuberances had been carefully marked, a plaster cast was taken similar to the one for a P.T.B. prosthesis. It was of foremost importance to plan the proper support of the tibial condyles to prevent further external rotation. The prosthesis was to be fitted, if possible,

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without side joints and corset. After the plaster positive was carefully prepared, a socket was fabricated from polyester-resin, without the use of the vacuum system. In the construction of the prosthesis an Otto Bock SACH foot was used.

Figure 4 shows the prosthesis from a frontal view. From this photograph one can see that the patella is almost completely imbedded in the socket and that the tibial condyles are well supported. Thus we were able to eliminate the corset.

Figure 5 shows the alignment of the prosthesis in slight flexion.

Figure 6 illustrates the gait phase.

The donning and holding in place of the prosthesis was accomplished by a posterior opening similar to a Pirogoff prosthesis. The fitting itself was completed without any difficulties.

At a final clinic team meeting with the orthopedic surgeons, it was contemplated to amputate the foot in the near future (about one or two years) and convert the extremity into a well-padded below-knee stump. It was the opinion of the group that the present prosthetic fitting would, over a prolonged period of time, have a detrimental effect on the knee joint. It was felt that fitting with a regular P.T.B. prosthesis after surgical conversion could be carried out better from a standpoint of static alignment and cosmesis.



## "Pennsycare"

## by J. STANLEY SMITH, M.D.

## Medical Director, Office of Public Assistance of the Commonwealth of Pennsylvania

(NOTE: The following article was presented at the 13th Annual Meeting of Region III of the Association and the Pennsylvania Orthopedic and Prosthetic Society at Williamsport, Pa., April 22, 1966.)

Pennsycare, which I have been asked to speak about, is the implementation of Title 19 as put in effect by The Office of Public Assistance of the Department of Public Welfare. The Social Security laws are a collection of titles which have set up categories of persons for whom the Federal Government will supplement with funds the programs set up by the states for their medical care. These categories consist of the aged, the blind, the permanently and totally disabled, and the families of dependent children. Now a new category, that of medical assistance, has been set up under which Pennsylvania has implemented Pennsycare.

There is one category which gets no Federal reimbursement. These are general assistance groups—chronically unemployed, alcoholic, etc., people who depend on public assistance and who accept this as a way of life, so the Government can take care of them. This category consists of 11% of the total public assistance group, but for every one of him, there are ten who deserve public assistance.

Medical care provisions that have evolved under these various titles, as they have been passed and amended, constitute what we now understand as the medical program of the Office of Public Assistance, and these medical programs are now devoted to medical care.

You are familiar with the Kerr-Mills bill for medical care program. Medical Aid to Aged was implemented for hospital care, nursing care of the aged, etc. The Pennsycare is an enlargement of this.

## Services in 18-A

The new medicare law consists of two titles-18 and 19.

18-A Medicare includes compulsory social security—hospital care for the aged. Whether you wish or not to accept it, you are eligible. You do not have to enroll. You have to make application when you are in the hospital. The only ones who are not eligible are aliens who have been in this country less than 5 years, or persons convicted of a crime of sedition.

The services provide in-patient hospital care at a reasonable cost for semi-private care up to 60 days, with an additional 30 days co-insurance at \$10.00 a day. Your spell of illness starts the day you become hospitalized, and ends at the end of the 60th day, following your discharge from the hospital. It provides post-hospital health service and services or care in a skilled nursing home. There are regulations set up which govern care in a skilled nursing home or extended facility. This follows hospital care of 3 days.

Services included are 100 days in an extended care facility with this provision—first 20 days—full pay, following that, co-insurance feature— \$5.00 a day which you must pay for succeeding 80 days in this extended

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care facility. You must have had 3 days hospitalization prior to, and you must be admitted within 14 days. Now this it not stated in the law, but it is implied—you must be admitted for the same thing you were hospitalized for.

You are eligible for post-hospital home health services. These are supplied by Certified Agencies like VNA or PNA, etc. You are eligible for 100 visits per calendar year during your spell of illness. These visits must be used within the calendar year—they cannot be carried over, even though your illness may. You are also eligible for out-patient diagnostic services during each 20 days in a certain spell of illness. This is subject to an initial deduction of \$20.00. All of these are subject to a written certification by a physician stating that these services are necessary. There are utilization committees in hospitals and nursing homes set up to identify and determine the amount of utilization—whether or not this hospitalization was necessary, whether the patient should stay this long, etc.

The law states that appliances (under 18-A) will be provided that are ordinarily provided by the hospitals for their in-patients. If we can include artificial limbs, etc., fine. I doubt that Social Security will concur that this comes under 18-A. A hip prosthesis, that is a prosthetic ball joint that is placed in the hip at the time of an operation—if this has replaced an organ—will be under Act 18-A.

18-B is not Medicare—it is a voluntary insurance plan which has been set up. You have to enroll—the same persons that are eligible in 18-A are eligible in 18-B, except you MUST enroll and must pay, either from your Social Security check, or from your own resources, \$3.00 a month. The \$3.00 is matched by the Government. Social Security is no Insurance Fund it is taken off your pay.

## Services in 18-B

All physician's services and supplies in home, office, hospital, etc., are payable under 18-B. All supplies in his office will be paid for such as diagnostic tests, x-rays, lab fees, radium, isotope treatments, surgical dressings, casts, splints, any supplies a physician may use. Rental of durable equipment which is necessary and not available through community service, such as an iron lung, oxygen tank, etc., is included. Prosthetic devices which replace all or part of an organ, excluding cosmetic surgery, will be paid, but no structures that support teeth or dentures—dentistry is out, except in surgery.

18-B provides that a reasonable charge be paid for the services listed above. The charges will be set up by the carrier. The Secretary of Health, Education, and Welfare shall consider the principles which are generally required by National Organizations, such as AMA, Hospital Association, etc., and shall consider principles which you folks set up. This means that each organization must set up its own recommendations and transmit to the Secretary those principles they favor and for which they stand.

Pennsylvania Blue Shield has been accepted by the Federal Government as the carrier for Pennsylvania under 18-B. There is a contract between the Government and Blue Shield, where Blue Shield will pay for certain services. There is a contract of participation between the physician and Blue Shield under their usual services, but in no way does the contract between Blue Shield and the Federal Government resemble this. There is an implied obligation by the Federal Government through their payment of \$3.00 a month.

There is a contract between the Government and the patient—between the Government and Blue Shield—to provide implementation of this law in the state of Pennsylvania. There is no implied participation between the Government and the physician, nor between Blue Shield and the physician. The fact that he is a participating physician under Blue Shield does not mean that he is a participating physician under Medicare. The role of Blue Shield is as an intermediary between the Government who pays the bill, and the physician who gets the payment for services, and the patient who receives the services.

Payment is made in two ways and Blue Shield decides what the reasonable charge is.

1. You bill the patient directly—when the patient pays—give him a receipted bill. Describe the service you have performed in a way which will allow the carrier to determine the cost or charge which would ordinarily be paid for that service. Then the patient will send to the carrier the receipted bill.

2. Accept assignment from the patient—then you bill Blue Sheld directly. When you receive a check from Blue Shield, you will get back what they consider a reasonable charge (for your service) or brace, or whatever you supplied, less any deductible the patient has not paid, and less that 20% co-insurance.

18-B is set up on a yearly deductible \$50.00 with co-insurance feature of 20%. The Government will pay 80% of the reasonable charge, the patient will pay the remaining 20%.

Deductible in 18-A—hospital—everytime the patient has a spell of illness and goes into the hospital, he must pay \$40.00 deductible.

18-B. He must pay the accumulative \$50.00 deductible for all medical services which are provided under 18-B for 1 year. After he has paid the \$50.00 deductible, then all medical service for which he is eligible under 18-B, will be paid for as 80% of a reasonable charge, determined by the carrier.

Title 18 is a total Federal program. The regulations are written by the Federal Government under Health, Education, and Welfare. The state has nothing to do with it.

## Title 19

Title 19 is a total state program. It is up to the State to set up a medical plan which must be okayed by Health, Education, and Welfare. It is totally state administered and regulated, albeit is financially supported about 54% by the Federal Government.

Title 18 is only for people over 65. Title 19 is for everybody in the State of Pennsylvania, from 1 day up to 100. It is for the dependent, disabled, blind, aged, etc. There are eligibility requirements set up by the State above which we will not provide assistance. It is called those eligible for medical assistance. Who is eligible? There are two terms—The medically indigent and the medically needy.

A medically indigent person is one who now receives aid from the State Department of Welfare, a money grant for food, lodging, clothing, etc.

A medically needy person is one who has sufficient income to pay regular necessities such as food, clothing, etc., but not for illness or hospitalization.

Qualifications for medically needy people are:

1. A single person with an income of less than \$2,000.00 per year (excluding home, personal belongings, car, etc.), and any medical expense incurred in the past 30 days.

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2. Couples with \$2,500.00 yearly incomes and \$750.00 for each additional dependent (excluding home, personal belongings, car, etc.) and medical expenses incurred in the last 30 days.

Under medical assistance, there is no legally responsible person who must support these people other than a spouse, living apart, less than 60 years of age (legally responsible, unless divorced). No lien can be applied against property when applying for medical assistance. No daughter, son, aunt, uncle, etc., etc., can be held responsible.

## **Provisions of Law**

The services for any Federal category must be exactly the same in character, scope, amount, duration, etc., for every other category. For example, we can't do anything for the aged, that we don't do for the children, etc. It must be the same for everybody. We may not provide for persons in the medically needy group any services that we do not also provide for every person in the medically indigent group, but we can provide things for the medically indigent group which we do not necessarily provide for the medically needy.

## What Is Pennsycare?

We have implemented title 19 under Pennsycare since January 1. We are implementing in-patient hospital care for all of our people—under 65, disabled, etc.—in-patient hospital care for 60 days, \$25.00 a day. We have public nursing home care for all of our people.

Public nursing homes are those which are operated by any arm of the Government, either state or local. This is usually a county home. Nonprofit homes, those operated by a church, fraternal organization, are not considered public, but are called non-public.

This care in public homes is for an indefinite period as long as care is needed in contrast with that of 60 days of post-hospital nursing home care which may be either public or non-profit or proprietary.

Nursing service in home—unlimited number of professional nursing calls in home first month—12 calls after, physical therapy, etc., etc. Posthospital nursing home care when discharged from the hospital into a nursing home (public or private), 60 days of nursing home care if admitted within 5 days of discharge from hospital, and in the same condition for which you were hospitalized. Hospital home care in an organized and recognized home care program based in a hospital.

What de we provide for indigent people in addition to these services?

We provide all of the same services that we provide for the medically needy, but we also provide the following:

Indefinite nursing home care in public and non-profit and private nursing homes, physician services in home and office, (do not provide hospital service), dental services, dentures, pharmaceutical services, all prescription drugs (written by a physician) in out-patient clinics or in the doctor's office. Out-patient hospital service for which the hospital is paid the same fee as the physician is paid for a call, out-patient hospital service calls in all hospitals which have regular out-patient services, will be directly paid to the hospital.

We pay for appliances, prostheses, etc., but they must be ordered by a physician and pre-authorized by the Public Assistance office. We also supply x-ray, lab services, etc., which must be authorized.

By the 1st of July, 1967, we MUST do the following:

We must provide physician services in the home, office, nursing home, institutions, and in the hospitals, for all patients under medical assistance.

We now provide physician services for indigents, those receiving money grants, in the home and office. We now must provide physician services for them in the hospital. We must also provide physician services for all persons under medical assistance at home, hospital, office and everywhere.

Out-patient services in the hospital for all medically needy will have to be added. 2,000,000 can qualify. We must provide this service under title 19. Skilled nursing home care, lab tests, x-ray services, etc., must be provided as of July 1, 1967, must pay reasonable cost of hospital. All of these services must be transferred to title 19, by July 1, 1970.

By 1st of July, 1975, we MUST have a full comprehensive medical program for all these people under medical assistance.

We are also mandated to pay the \$40.00 deductible for all persons under medical assistance, if they have a hospital admission. We are also including in the grant \$3.00 for every person over 65 who receives a grant. We are urging them to use this money to enroll in 18-B.

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