

SUMMARY OF ACTIVITIES OF THE COMMITTEE ON PROSTHETICS RESEARCH AND DEVELOPMENT FOR THE PERIOD JULY 1 TO DECEMBER 31, 1971

During the period July 1 to December 31, 1971, the Committee on Prosthetics Research and Development continued a broad program of activities to stimulate and coordinate research in the fields of prosthetics, orthotics and sensory aids. The Committee's endeavors were effected through the parent committee, five standing subcommittees (Fundamental Studies, Design and Development, Evaluation, Sensory Aids, and Child Prosthetics Problems), and an active and productive program of workshops. Events occurring during the reporting period were:

Subcommittee on Fundamental Studies

Panel on Locomotion and Gait Studies

The Panel on Locomotion and Gait Studies held a series of meetings involving representatives of laboratories engaged in these activities to standardize data-collection procedures so that results obtained in different laboratories may be compared.

Subcommittee on Sensory Aids

Conference on the Long Cane

A Conference on the Long Cane was held in Washington, D.C., September 10-11, 1971. Although the "long cane" has been used for more than 25 years, its use involves subtle training and intricate design. The Washington conference marked the first time that attention had been directed to the achievement of standardization in these factors. A report is in preparation.

Conference on Evaluation of Sensory Aids for the Visually Handicapped

A Conference on Evaluation of Sensory Aids for the Visually Handicapped was held in Washington, D.C., November 11 and 12, 1971. An attempt was made to develop standard protocols which could be applied to the appraisal of various devices for the blind now emerging from the research and development program. A comprehensive report is in preparation.

Subcommittee on Design and Development

Several workshops on diverse subject areas were held under the aegis of the Subcommittee on Design and Development.

Workshop on Structural Internal Protheses

A steering committee to plan a Workshop on Structural Internal Protheses met in Annapolis, Maryland, on August 2, 1971. This workshop is planned to be held at the University of Virginia in Charlottesville, April 13-15, 1972.

Workshop on Upper-Extremity Orthotics

A Workshop on Upper-Extremity Orthotics was held in Hot Springs National Park, Arkansas, October 3-5, 1971. This workshop, which was only the second held on the subject of upper-extremity orthotics, placed a major emphasis on the management of patients with arthritis of the hands and arms. A report is being prepared.

Workshop on Upper-Extremity Prosthetics

A Workshop on Upper-Extremity Prosthetics was held at Northwestern University, Chicago, Illinois, October 25-27, 1971. At this workshop a comprehensive review of the field was undertaken to determine the current status of treatment procedures and research efforts. A report is in preparation.

Workshop on Spinal Orthotics

A Workshop on Spinal Orthotics, sponsored jointly by CPRD and the American Academy of Orthopaedic Surgeons, was held in Washington, D.C., October 28-29, 1971. In this workshop a number of areas requiring attention by research groups were identified.

Subcommittee on Evaluation

The 13th meeting of the Subcommittee on Evaluation was held in Washington, D.C., August 5-6, 1971, to review the results of the clinical evaluation program involving four lower-extremity orthoses. A report of the evaluation results, with specific recommendations regarding the readiness of the devices tested, for inclusion in the educational programs, has been prepared and distributed.

Comparative Evaluation of Below-Knee Orthoses

As an outcome of activities by the Workshop Panel on Lower-Extremity Orthotics, a biomechanical analysis and comparative study was undertaken on twelve below-knee orthoses whose primary function is to correct the drop-foot condition associated with hemiplegia and other diseases causing partial paralysis of the foot and ankle. The study is being conducted at Moss Rehabilitation Hospital, Philadelphia. Data gathering and analysis of results continued throughout the reporting period.

Clinical Evaluation of a Comprehensive Approach to the Treatment of Below-Knee Orthotic Patients

On October 20, 1971, Subcommittee on Evaluation members met with New York University faculty and Moss Rehabilitation Hospital personnel in Philadelphia, to discuss plans for a pilot course in selected foot/ankle orthoses. A subsequent meeting was held on November 29, 1971, also at Moss Rehabilitation Hospital, to finalize plans for the course, planned for January 10-14, 1972, at New York University. The study will include the use of new technical analysis forms and revised nomenclature and prescription procedures as well as the VAPC posterior-clip, IRM spiral, and TIRR orthoses. The objective is to evaluate a comprehensive approach to the treatment of patients requiring below-knee orthoses rather than to evaluate devices alone.

Ljubljana Functional Electrical Peroneal Brace

Four institutions with large case loads of hemiplegic patients are participating in a clinical applications study of the Ljubljana Functional Electrical Peroneal Brace. Fitting and data gathering have continued throughout the reporting period under the supervision of the Staff Surgeon.

Subcommittee on Child Prosthetics Problems

Symposium on Selected Lower-Limb Anomalies

Four papers on the surgical-prosthetic management of children with congenital lower-limb deficiencies were published as a monograph in August 1971. An initial printing of 1500 copies was quickly exhausted, and an additional 1000 copies have been printed.

Symposium on the Treatment of the Child With an Acquired Amputation

Fourteen papers on "The Treatment of the Child With an Acquired Amputation," which had been presented at the 1970 meeting of Child Amputee Clinic Chiefs, have been collected, edited, and prepared for publication. It is expected that this monograph will be printed and distributed prior to the time this report is printed.

Inter-Clinic Information Bulletin

The Assistant Executive Director continued to serve as editor of the publication INTER-CLINIC INFORMATION BULLETIN which is published in cooperation with New York University. Approximately 3000 copies of this Bulletin are distributed monthly to physicians, prosthetists, therapists, and others interested in the care of the child amputee.

Special Meetings and Activities

Rehabilitation Engineering Centers

The Executive Director and members of CPRD participated in meet-

ings of the Rehabilitation Engineering Advisory Committee of the Social and Rehabilitation Service, September 13, 1971.

The Chairman and Executive Director of CPRD met with personnel at the Rehabilitation Engineering Center at Temple University, August 3, 1971, to discuss the program at that center.

Conference on Nomenclature for Prosthetics and Orthotics

The Executive Director, the Assistant Executive Director, and the Vice-Chairman of CPRD participated in the Conference on Nomenclature for Prosthetics and Orthotics, sponsored by the Committee on Prosthetic-Orthotic Education and held in Washington, D.C., September 9-11, 1971.

Veterans Administration Seminars

The Staff Engineer and the Executive Director served as members of the faculty at the VA-sponsored Seminar in Prosthetics and Orthotics held in Houston, Texas, September 21-23, 1971. The Staff Engineer was also a faculty member at the VA-sponsored Training Program in Prosthetics, Orthotics, and Sensory Aids, held in San Juan, Puerto Rico, November 1-5, 1971.

Artificial Limbs

One issue of ARTIFICIAL LIMBS was published during the reporting period, the Autumn 1971 issue being distributed in December. Material for the Spring 1972 issue is in hand and in a well-advanced state of preparation.

American Academy of Orthopaedic Surgeons (AAOS)

The staff continued to maintain strong relationships with the American Academy of Orthopaedic Surgeons through its Committee on Prosthetics and Orthotics, Committee on Biomechanics, and Committee on Rehabilitation. Assistance is being provided the Academy in the preparation of a new textbook on orthotics and in the development of a means for the graphical representation of neuromuscular deficiencies.

American Orthotic and Prosthetic Association (AOPA, ABC, AAOP)

Close liaison was maintained with the American Orthotic and Prosthetic Association (AOPA), the American Board for Certification (ABC), and the newly formed American Academy of Orthotics and Prosthetics (AAOP) by personal contact and by staff participation in various association activities. The Executive Director, the Assistant Executive Director, and the Staff Surgeon presented papers at the Annual Assembly of the Association, October 31-November 4, 1971, in Las Vegas, Nevada.

COPE and UCOPE

The Assistant Executive Director continued to act as Secretary for both the Conference on Orthotics-Prosthetics Education (COPE) and the

University Council on Orthotics-Prosthetics Education (UCOPE). A combined meeting of the two groups was held in Washington, D.C., November 18, 1971, and served as a vehicle for the transmission of recommendations by CPRD for the inclusion of significant new items in the educational programs.

Postgraduate Course in Lower-Extremity Prosthetics and Orthotics

A postgraduate seminar on "Recent Developments in Prosthetics-Orthotics and Fracture-Bracing" was held December 10-12, 1971, at the Americana Hotel in Miami Beach, Florida. The School of Medicine of the University of Miami conducted the seminar co-sponsored by the Committee on Prosthetics Research and Development and the Veterans Administration. Papers were presented by the Executive Director.

International Activities

The Staff Engineer and Mr. Howard Thranhardt of CPRD conducted a two-week course in upper-extremity prosthetics in Poznan, Poland, from May 28-June 10, 1971.

The Staff Engineer presented a paper on "Research in Limb Prosthetics and Orthotics in the U.S." at the Second Nordic Meeting on Medical and Biological Engineering in Oslo, Norway, June 16-19, 1971.

The Executive Director, Staff Surgeon and Staff Engineer participated in a conference on The Advance in Orthotics, held at the University of Dundee, Scotland, June 21-25, 1971.

The Staff Engineer attended the Fourth International Seminar of the British Council for Rehabilitation of the Disabled, held in Edinburgh, Scotland, June 27-July 3, 1971.

The Chairman, the Executive Director, and the Assistant Executive Director participated in a Conference on International Activities called by the Social and Rehabilitation Service. Plans for a Conference on Research, Evaluation, and Education to be held in either Central Europe or North Africa early in 1972 were discussed. The operation of the prosthetics and orthotics research programs supported by PL 480 funds was also considered.

Site Visits

During the reporting period various members of the staff made on-site visits to the University of Miami; Cybernetics Research Institute, Washington, D.C.; D. T. Watson Home for Crippled Children, Leetsdale, Pennsylvania; and the University of Iowa.

In addition, the Assistant Executive Director made visits to numerous child amputee centers. Some of these centers are already participants in the cooperative research program coordinated by the Subcommittee on Child Prosthetics Problems, and others are prospective participants. Centers visited were: Shriners Hospital for Crippled Children, Springfield,

Massachusetts; Children's Hospital, Boston, Massachusetts; Crippled Children's Hospital, Memphis, Tennessee; University of Texas Medical School, and Santa Rosa Medical Center, Houston, Texas.

Miscellaneous

The staff responded to more than 850 requests for publications and technical information.

MEMBERSHIP
COMMITTEE ON PROSTHETICS RESEARCH
AND DEVELOPMENT
DIVISION OF ENGINEERING—
NATIONAL RESEARCH COUNCIL
NATIONAL ACADEMY OF SCIENCES—
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- James C. Bliss, Ph.D., Manager, Bioinformation Systems Group, Engineering Sciences Laboratory, Stanford Research Institute
- Dudley S. Childress, Ph.D., Director, Prosthetics Research Laboratory, Northwestern University Medical School
- Mary Dorsch, C.P.O., President, Dorsch-United Limb and Brace Company
- Robert E. Fannin, C.P.O., Columbus Orthopaedic Appliance Company
- Sidney Fishman, Ph.D., Coordinator, Prosthetics and Orthotics, New York University Post-Graduate Medical School
- Victor H. Frankel, M.D., Professor of Orthopaedic Surgery and Biomedical Engineering, Case Western Reserve School of Medicine
- Richard Herman, M.D., Director of Research, Krusen Center for Research and Engineering, Moss Rehabilitation Hospital
- Richard E. Hoover, M.D., Assistant Professor of Ophthalmology, The Johns Hopkins University
- Leon M. Kruger, M.D., Department of Orthopedics, Wesson Memorial Hospital
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- Staff: A. Bennett Wilson, Jr., Executive Director
Hector W. Kay, Assistant Executive Director
Maurice A. LeBlanc, C.P., Staff Engineer
E. E. Harris, M.D., Staff Surgeon

PUBLICATIONS

July 1, 1971—December 31, 1971

Annual Summary Report of Activities for Year Ending June 30, 1971

(Report to the Veterans Administration, the Social and Rehabilitation Service, and the Maternal and Child Health Service, from the Committee on Prosthetics Research and Development covering the Fiscal Year 1970-1971.)

Selected Lower Limb Anomalies—Surgical and Prosthetics Management, National Academy of Sciences, Proceedings of a symposium held May 8-9, 1969, under the sponsorship of the Subcommittee on Child Prosthetics Problems.

The Child with an Acquired Amputation, National Academy of Sciences, Proceedings of a symposium held June 9, 1970, under the sponsorship of the Subcommittee on Child Prosthetics Problems. (In preparation.)

Report of First Workshop Panel on Upper-Extremity Orthotics, July 9-10, 1970.

Report of Conference on Cast-Bracing of Fractures, January 17-28, 1971.

Conference on Clinical Aspects of Wheelchairs and Other Mobility Aids, February 2-4, 1971. (In preparation.)

Report of Conference on Cosmesis and Modular Limb Prostheses, March 3-8, 1971.

Report of Twenty-Second Meeting of the Committee on Prosthetics Research and Development, May 17, 1971.

Report of Thirteenth Meeting of Subcommittee on Evaluation, August 5-6, 1971.

Report of Conference on the Long Cane, September 10-11, 1971. (In preparation.)

Report of Second Workshop Panel on Upper-Extremity Orthotics, October 3-5, 1971. (In preparation.)

Report of Ninth Workshop Panel on Upper-Extremity Prosthetics, October 25-27, 1971. (In preparation.)

Report of Conference on Evaluation of Sensory Aids for the Visually Handicapped, November 11-12, 1971. (In preparation.)

Report of Twenty-Third Meeting of the Committee on Prosthetics Research and Development, November 15-16, 1971. (In preparation.)

Artificial Limbs, Vol. 15, No. 2, Autumn 1971.

Inter-Clinic Information Bulletin (Published monthly under the sponsorship of the Subcommittee on Child Prosthetics Problems, 6 issues.)