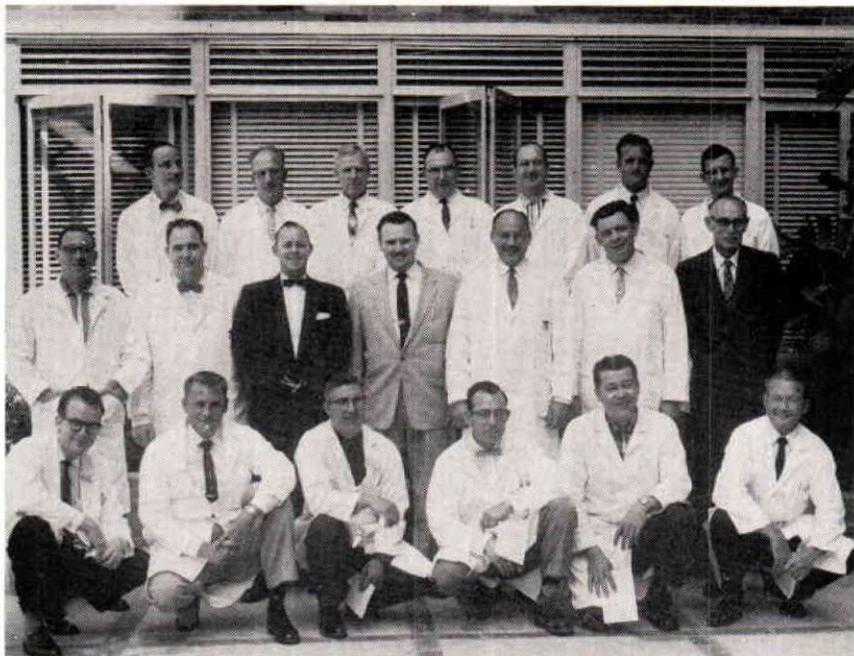


Functional Bracing of the Upper Extremities—Pilot Class at UCLA

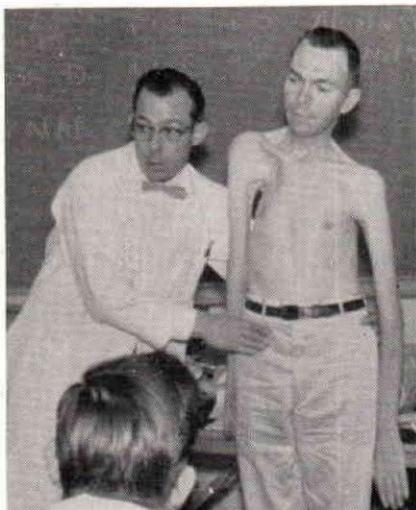


PIONEERS IN FUNCTIONAL BRACING—Students and instructors of the Pilot Class in Functional Bracing of the Upper Extremities given at U.C.L.A. Medical School April 7-23, L. to R., front row, LeRoy Nattress, U.C.L.A.; Roy Snelson, Instructor, Clyde Peach, Pope Foundation, Kankakee, Ill.; George Robinson, Instructor, U.C.L.A., (Robin-Aids); Larry Czap, University of Michigan, Ann Arbor; Dr. Miles H. Anderson, Director, Prosthetics Education, U.C.L.A.; Second Row, Arnold Viner, U.C.L.A.; Jack Conry, Instructor, Jerry Leavy, Instructor, U.C.L.A. (Hosmer Co.); Wesley Prout, Engineer, Hosmer Co.; Frank Harmon, Atlanta, Ga.; William Tosberg, Institute for Physical Medicine and Rehabilitation, N.Y.C.; Walter Stauffer, Edmonton, Canada; Third Row; John Bray and Fred Sanders of U.C.L.A.; Paul Shipp, Nashville, Tenn.; Bert Titus, Duke University, Durham, N. C.; Stephen Hall, Institute for the Crippled and Disabled, N.Y.C., Frank Jones, Georgia Warm Springs Foundation; Edward Thompson, Cleveland, Ohio.

The completion of the "Pilot Class" in "Functional Bracing of the Upper Extremities" at the University of California, Los Angeles, Medical School marks a historical event in the field of orthotics, as this is the first time an educational program has been offered by a medical school for the benefit of those engaged in the fabrication and fitting of braces.

The purpose of the "Pilot Class" was to bring in a group of experts in the field of orthotics and have them take the course in a "trial run" so that any inaccuracies and errors could be spotted and corrected. The students in the "Pilot Class" were largely from polio respiratory centers where they had considerable experience in upper extremities paralytic cases, since functional arm braces and splints are used chiefly on patients suffering from various degrees of paralysis of the hands and arms. The members of this first class were: *John J. Bray*, U.C.L.A. Medical Center, Los Angeles; *Lawrence Czap*, University Hospital, Ann Arbor, Mich.; *Stephen Hall*, Institute for Crippled and Disabled, New York City, N. Y.; *W. Frank Harmon*, Atlanta Brace Shop, Atlanta, Georgia; *Frank R. Jones*, Georgia Warm Springs Foundation, Warm Springs, Georgia; *Clyde E. Peach*, Pope Brace Division, Kankakee, Ill.; *Fred*

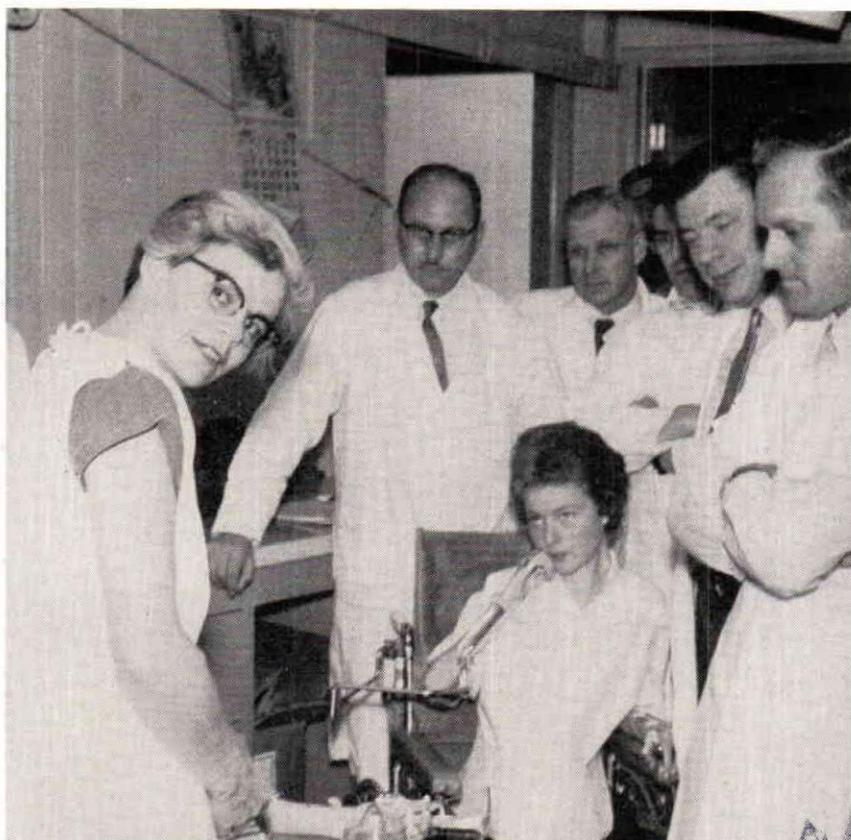
Instructor George Robinson explains the method of analyzing the patient's functional losses as a means for determining the type of functional arm brace to fit him with. The patient, Mr. Kenneth Musselman, offered a number of problems to challenge the students.



J. Sanders, U.C.L.A. Medical Center, Los Angeles; *Paul B. Shipp*, Mid-South Brace Shop, Nashville, Tenn.; *Walter Stauffer*, Edmonton Artificial Limb Co., Edmonton, Canada; *Edward L. Thompson*, Cuyahoga County Hospital, Cleveland, Ohio; *Bert R. Titus*, Duke University, Durham, N. C.; and *William A. Tosberg*, Institute of Physical Medicine and Rehabilitation, New York, N. Y.



Ed Thompson and Clyde Peach (at right) fit bilateral shoulder suspension hoops on patient Mrs. Vivian Ross as part of their instruction in the orthotics laboratory.



Dr. Jacquelin Perry, Orthopedist at Rancho Los Amigos Hospital Respiratory Center, demonstrates the usefulness of a ball-bearing feeder for a patient with severely involved upper extremities. Left to Right, Frank Harmon, Paul Shipp, Clyde Peach, William Tosberg, Frank Jones.

The class started April 7 and was completed April 23, a total of fifteen days. The work was divided into four sections: *functional hand splints, feeders, special assistive devices, and functional arm braces*. The material on splints, feeders, and special assistive devices was taught by Roy Snelson, Chief, Orthotics Department, Rancho Los Amigos Hospital, and a member of the instructional staff in the Prosthetics Education Program at U.C.L.A. Medical School. He was assisted by Jack Conry, orthotist at Rancho Los Amigos Hospital, and formerly of Georgia Warm Springs Foundation. Functional arm bracing was taught by George Robinson, of "Robin Aids Co.", also a member of the instructional staff for the Prosthetics Education Program at U.C.L.A.

The instructional manual used in the course was written and illustrated by Dr. Miles H. Anderson, Director of the Prosthetics Education Program at U.C.L.A. The manual has 480 pages and 1057 illustrations, and explains the principles of operation of each of the devices in addition to showing step-by-step exactly how they are fabricated and fitted. The manual is available to anyone interested in obtaining a copy, and may be ordered from Charles C. Thomas Publishers, Springfield, Illinois, under the title "Functional Bracing of the Upper Extremities".



Instructor Roy Snelson demonstrates the proper technique for adjusting a ballbearing feeder. Left to Right: Clyde Peach, Larry Czup, Frank Jones; Walter Stauffer, William Tosberg, Stephen Hall.

Classes to be Available

When the "Pilot Class" students completed their evaluation of the course, it was revised and corrected into the version that will be used when offered for regular enrollees in September. The first such class will start September 10 and be completed September 26. Others will follow on November 5 to 21, February 4 to 20 (1959), and April 8 to 24 (1959).

During the last week of each of these courses, concurrent sessions for therapists and doctors will be offered, following the same "clinic team pattern" established by the U.C.L.A. Prosthetics Education Program when it was started in 1952 with the "arm schools". The emphasis in the doctor-therapist classes will be on evaluation of the patient's condition, prescription of the correct device, how to train the patient to use the device, re-evaluation, and principles of operation of the various devices available. The fact that functional splints and arm braces are very useful for patients suffering from paralysis caused by spinal cord lesion, hemiplegia, brachial plexus injury,

arthrogryposis, muscular atrophies and dystrophies, and post-traumatic conditions, as well as post-poliomyelitis paralysis, will be stressed in the classes for physicians. In addition, excellent material will be offered on the relationship between surgical procedures and the use of splinting and bracing.

When more physicians understand the many uses of these versatile devices other than for post-polio cases, they will find more occasions to prescribe them. However, it will do no good for physicians to prescribe them if no one is available to fill the prescription, which certainly points up the importance of the team as a whole. Also, the availability of the services of occupational and physical therapists means the difference between success and failure, as the patients must be carefully trained or they will refuse to wear a splint or brace. Because it has been found that the therapists fill an important role on the team, every course given at U.C.L.A. for prosthetists or orthotists has always been accompanied by related courses for the other members of the group.

Lectures, Demonstrations, and Laboratories Used

Several subjects in the pilot course followed the same general pattern, lecture, demonstration, and laboratory practice. Taught in this manner were: How to: Make and Fit the Basic Opponens Hand Splint with Spring Swivel Thumb; Make a First Dorsal Interosseus Assist; Make and Fit the Lumbrical Bar; Make and Fit a Dynamic Finger Flexion Assist; Make a Long Opponens Hand Splint with "C" Bar and Thumb Interphalangeal Assist; Make an Interphalangeal Extension Assist with Metacarpophalangeal Extension Stop; Install and Adjust a Ball-Bearing Feeder; Make an Action Wrist with Dorsiflexion Assist; Make and Fit the Adjustable Metacarpophalangeal Flexion Control; Make and Fit a Flexor Hinge Splint—Wrist Driven; Make the Splint Portion of the Flexor Hinge Splint, Wrist-Driven, and Assemble the Splint; Make a Flexor Hinge Splint, Shoulder-Driven, with Pressure Relief Control; Fit the Cable-Controlled Hook, including Wrist Splints; Fit Straight Shoulder Suspension Hoop and Forearm Cuff Elbow Flexion Assist; Assemble and Fit the Axillary Shoulder Suspension Hoop and the Abduction



Frank Harmon and Paul Shipp restored to Kenneth Musselman much of the arm function he lost through paralysis, by fitting a functional arm brace.



Bert Titus of Duke University is convinced by Glenn Sallows that useful function can be restored to a marked degree in a completely flail arm through the use of a functional arm brace and reciprocator assembly



William Tosberg successfully fitted Clyde Cole with a functional arm brace that made it possible for him to get his hand to his mouth for the first time since he sustained an injury that paralyzed his arm. Tosberg applied upper-extremities prosthetics harnessing principles in providing Cole with a functional brace.

Outrigger; Fit a Shoulder Rotation Stabilizer, Shoulder and Elbow Flexion Assists with Locking Elbow on a By-Pass Shoulder Suspension Hoop; Fit the Shoulder Rotation Stabilizer, Free Elbow, Shoulder and Elbow Flexion Assists with Forearm Cuff; and Fit a Shoulder Supported Functional Arm Brace.

Anatomy Related to Corrective Devices

In addition to the "How to Do It" variety of subjects, the following studies were covered: Functional Anatomy of the Hand; Hand Measurements, Use of Hand Measurement Data Sheet; Functional Hand Splints and Attachments, Nomenclature, Application, Description, Indications, Contraindications; Review and Critique of Patients and their Splints, Discussion of Various Applications for them other than Polio, Discussion of Proper Splint for Each Patient's Needs; Review of Hand Splint and Feeder Patients at Rancho, Analysis of Needs of Each Patient, Discussion of Proper Equipment for Each Patient; Special Assistive Devices, Suspension Type Feeders, with Lecture and Demonstration; Application of Outside Power Sources to Activate Flexor Hinge Splints, Carbon Dioxide Gas and Artificial Muscle, with Lecture, Demonstration, and Film; Biomechanics of Splints, Feeders and Functional Arm Braces; Kinesiology of the Hand and Wrist; Functional Anatomy of the Arm and Shoulder; Review of Names and General Function and Uses of Each Type of Functional Arm Brace; Analysis of Patients (Measurements, Strength, Range of Motion, and Determination of Device Needed); and Leg Reciprocator and Control Cable Operation of Forearm Cuff Type Elbow Flexion Assist.

Discussions, Reviews, and Practice

With most of these courses, there were opportunities for laboratory practice. One session was devoted to final fitting of patients with equipment they would keep and wear. There were many opportunities for discussion, review, and for covering questions related to the entire program, as well as clinic team procedures and practice in clinic team prescriptions.

An example of one day's schedule in the course is given to show the way the lectures and lab practices were, and will be, related as the school continues.

Saturday, Sept. 20, 1958 Functional Bracing of the Upper Extremities

8:00 A.M.	How to Fit the Cable-Controlled Hook, including Wrist Splints, Lecture & Demonstration.
10:00 A.M.	Lab Practice: Fit Cable-Controlled Hook with Wrist Splints.
Noon	Luncheon
1:00 P.M.	Lab Practice: Complete Cable-Controlled Hook and Wrist Splints
2:00 P.M.	Summary: Review and Discussion of Cable-Controlled Hook
2:30 P.M.	How to Fit Straight Shoulder Suspension Hoop and Forearm Cuff Elbow Flexion Assist, Lecture & Demonstration.
3:30 P.M.	Lab Practice: Fit Straight Shoulder Suspension Hoop and Forearm Cuff Elbow Flexion Assist
4:30 P.M.	Summary: Review and Discussion of Cases Fitted.

The Prosthetics Education Program at U.C.L.A. is supported by funds granted by the U.S. Office of Vocational Rehabilitation, directed by Miss Mary Switzer. A limited amount of money is granted for traineeships to help defray the cost to the student of travel, expenses, and tuition in attending the courses. Traineeship application forms may be obtained from U.C.L.A. on request.

Last year all the U.C.L.A. classes in prosthetics for prosthetists, therapists and doctors were filled many weeks ahead, and because of this many who applied late were disappointed. It is strongly recommended that applications for enrollment be sent in early to assure places in the classes.

Review of the Text:

FUNCTIONAL BRACING OF THE UPPER EXTREMITIES

Written and illustrated by Miles H. Anderson, Ed.D., Director, Prosthetics Education Project, School of Medicine, University of California, Los Angeles. Edited by Raymond E. Sollars, Assistant Director of the Project.

Published by Charles C. Thomas, Springfield, Illinois, 1958. \$9.50. 463 pages. 1,070 illustrations.

Reviewed by Bert R. Titus, C.P. and O., Director of the prosthetic and orthopedic facility, Duke University Medical Center.

This excellently edited and well illustrated manual was prepared to give detailed step by step instruction on how to fabricate and fit a score of different braces and self help devices.

The book is divided into seven sections; starting with the anatomy of the hand, the arm and the shoulder. The bones, the joints, the muscles and their movements are clearly illustrated. Specifications of all materials, parts, tools, and equipment to make the assistive hand splints and devices are included in the text.

The information in the section on biomechanics can be applied to all types of bracing.

The A. J. Hosmer Corporation is manufacturing the parts for the functional arm braces and supplying them in complete kits or individual parts. The application and fitting technique of each brace or combination of parts are fully described.

I feel that this book would be one of the most useful reference books in the library of every facility.