SEPTEMBER, 1954

The journal of the Limb and Brace profession

Orthopedic and Prosthetic Appliance Journal

Forearm Flexion Device

Leg Braces—Time, Cost Studies

Apprenticeship Standards

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

DATES TO REMEMBER — 1954-55

What • When • Where

SEPTEMBER

24	FIRST OALMA GOLF TOURNAMENT	*Northfield, N. J. Atlantic City County Club*
24-25	EXAMINATION FOR PROSTHETISTS AND ORTHOTISTS — Conducted by the American Board for Certification	*Philadelphia, Penna.*
26-30	NATIONAL ASSEMBLY OF THE LIMB AND BRACE PROFESSION	*Atlantic City, N. J. Chalfonte-Haddon Hall.*

OCTOBER

3-9	NATIONAL—"EMPLOY THE PHYSICALLY HANDICAPPED" WEEK	
11	UPPER EXTREMITY PROSTHETICS TRAINING COURSE — 11th Section opens (Concludes November 19)	*University of California, Los Angeles*
24-27	NATIONAL REHABILITATION ASSOCIATION—Annual Conference	*Baltimore, Md.*

NOVEMBER

3-5	NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND— ADULTS, Annual Meeting	*Boston, Mass.*

1955

JANUARY

29	AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS—Annual Meeting	*Los Angeles, Calif. Statler Hotel*

MARCH

12-14	REGION IX, OALMA—SOCIETY OF ORTHOTISTS AND PROSTHETISTS—Scientific Assembly	*Los Angeles, Calif.*

APRIL

29-30	TECHNICAL SEMINAR — Sponsored by MOALMA	*New York City Roosevelt Hotel*

Orthopedic and Prosthetic Appliance Journal

(Title registered U. S. Patent Office)

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LESTER A. SMITH
Editor

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NATIONAL ASSEMBLY OPENS

Record Attendance Foreseen

The 1954 National Assembly opens Sunday, September 26, in Atlantic City, New Jersey, dedicated to professional advancement in the limb and brace field.

For four days, orthotists and prosthetists of the United States and Canada will listen to experts on a wide range of topics and will "talk out" among themselves the ways and means of achieving the highest service to the handicapped.

Dr. John Young

Charles O. Bechtol, M.D.

Heavy Registration

Advance registrations at the Chalfonte-Haddon Hall headquarters on the famed Boardwalk and at OALMA's office in Washington indicate the largest attendance in history. That means in the neighborhood of 300 limb and brace technicians and delegates from related fields will be on hand when registration opens September 26.

Dr. Bechtol to Teach

Dr. Charles O. Bechtol, formerly of Oakland, is the latest addition to the faculty of the Assembly's instructional courses. Dr. Bechtol, who has just assumed the chair of orthopedic surgery at Yale University, will give the course in *Anatomy for the Orthotist-Prosthetist.* Chester Nelson, teacher of the class in *Harnessing*, will be assisted by Robert J. Pursley, Lt., U.S.A., an expert technician from the Army Prosthetics Research Laboratory. Dr. John L. Young of Mellon Institute will give the course in *Plastics.*

"Curtain-Raisers"

Visitors to the Assembly will be able to take in two pre-Assembly events of unusual interest:

1. The first OALMA Golf Tournament is scheduled for Friday, September 24 at the Atlantic City Country Club.

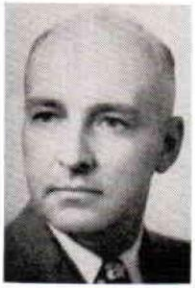
2. Assembly-goers will have an opportunity to "break bread" with the large class of candidates for Certification who are taking the examination in Philadelphia September 24. The class of candidates will meet at dinner that evening in the Drake Hotel, 1512 Spruce Street in downtown Philadelphia, to celebrate the first day of the examination schedule. President D. A. McKeever of the Certification Board and other leaders of this movement for higher standards, will address the candidates.

Carlton Fillauer, Program Chairman for this year's meeting received a last-minute report on Assembly details while on a tour of brace shops in Germany. Pointing with pride to the wide scope of the technical sessions, he announced these additions to the speakers' roll:

Dr. Tom Outland, Chief Surgeon of Pennsylvania's State Hospital for Crippled Children will report on "Tibial Torsion."

Dr. T. Campbell Thompson, President of the Academy of Orthopaedic Surgeons, will be guest speaker at the Certification Luncheon.

Anthony Staros, Chief of the VA's Prosthetic Testing Laboratory, will take part in the September 28 session on leg braces.



To: YOU

From:

OALMA's PRESIDENT

This is my last opportunity to provide this column. Just about a month now a new President of OALMA will step into office. I hope he will have as much pleasure and satisfaction from serving during the coming 12 months that I have had during the past two years. There has been nothing like it in my experience!

I would like to take this opportunity to thank all of you for your support during that time. I particularly want to thank my fellow officers, committee members and chairmen for their unselfish contributions.

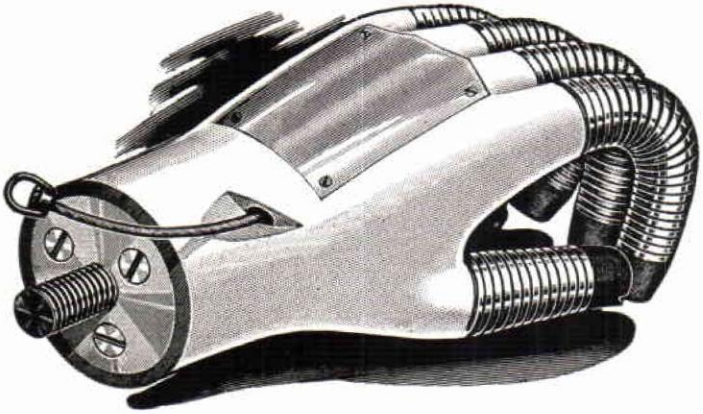
I was fortunate in taking over as President following Lu Trautman. Lu and the officers serving with him had brought our Association to a new peak of activity. Our headquarters staff had been strengthened, the Journal was growing in size and standing and our Association finances revealed a modest but definite balance.

This growth has been continued. Our National Assemblies are now professional meetings of high caliber. Membership continues to increase. There is growing recognition throughout the country that "Membership in OALMA is the hallmark of a successful establishment."

We have had our problems but for the most part they have been "growing pains." My successor as President will also have problems; but he will have the support of a devoted headquarters staff and a loyal membership. I will be proud and happy to be a member of the backfield rooting for him and OALMA!

Lu J. Fawver

SEE THE NEW LOCKGRIP HANDS



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

WITH naturally shaped and molded rubber finger tips.

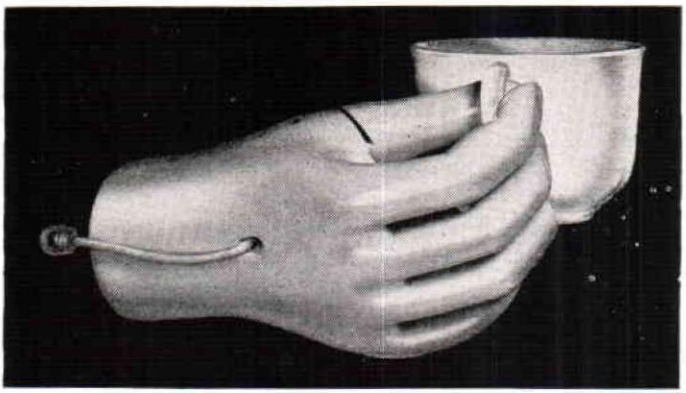
WITH Finer gauged and stronger flat finger spring wire, adding to the jointed fingers flexibility.

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

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

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

LOCKING



SNAP THUMB

D. B. BECKER CO.

152 WEST STEVENS STREET **ST. PAUL, MINNESOTA**

The President of the Certification Board Reports

If all goes well, this Journal will be in your hands before we gather at the National Assembly. I want to urge each and every one of you therefore, even at this late date, to attend the National Meeting of your Certification Assembly.

At our Assembly we are going to tell you in as complete detail as we can the progress made by the Board and the requirements that now exist for new certifees, both individual and facilities. We will also discuss the new approved material available for training study.

As part of that I'd like to tell you a little about what has gone into the examination being conducted in Philadelphia the Friday and Saturday before the Assembly.

This year we decided that only one examination would be held. Therefore, during almost the entire year a review has been going on of the examination questions by educators, leaders of our industry, skilled prosthetists and orthotists and others. Out of that has come one of the most comprehensive, complete, extensive and I think, intelligent sets of questions that any profession has ever posed itself.

For the last several months the Washington staff with the committee of our Board has been planning when and how to actually conduct the examination itself. There have been meetings between the firms located in Philadelphia and those interested. A great deal of preliminary work has been done in setting up the physical facilities to enable fifty people to take the examination.

Each application has been carefully screened and references have been checked and double checked. Everything reasonably possible has been done to assure satisfactory applicants.

It would be an interesting experience for all of us to take the current examination as compared with the original examination. It shows remarkable progress. Even more important to me, however, is the fact that information to enable all of us to study and improve our experience and knowledge is now currently available.

Since this is also the end of my term of office, I'd like to pay tribute to the other members of the Board, particularly to the medical members, who have given so much of their time to forwarding our program.

Your Washington staff is competent, intelligent and I might say, *devoted* to the progress of your Certification movement.

I wish I could also recognize individually the many others who have contributed so much and to whom we also are greatly indebted. During my three years on the Board and the last term as your President, I have seen the enthusiasm and hard work of all of you to make Certification a living, vital program.

I know it will continue to progress in the years ahead.

Dan McKeever

THE OBSERVER'S COLUMN

Should a High School education be a requirement for Certification?

I understand our Certification Board now requires a High School education if you want to be certified. I learned it from a fellow who said it didn't make sense to him. He said that education couldn't make a good limb fitter.

Well, I got to thinking about that. Then, I heard on the radio a commercial that comes on everyday in our town. It's an ad for a barber shop. They advertise cheaper rates than others. Some people might think that their work would, therefore, likely be sloppy. So, every commercial ends up with a strong statement that every one of their barbers is "a graduate from the — Barber's College." That is their clincher. They want to impress everyone that they do competent work and to prove it they say just one thing every day "Every barber in our shop is a graduate from Barber's College."

Does anyone think that one could learn how to measure, make, fit, adjust an artificial limb in any such casual way? Of course not.

But, someone may say, it takes experience, not schooling to learn our profession. The answer to that is that there isn't a single profession today which does not require both experience and education. And a High School education is about the least we could settle for. Less than that means a definite limitation to ability to study, to attend training schools, to meet the demands of modern business activity.

I asked myself,—which takes more skill? To cut a man's hair, or to fit him with an artificial leg? The question sounds foolish. At least to me it does. I just thought back to when I was a lad on a farm. Besides a father there were four of us boys. So I got started cutting their hair and Dad then did mine. He taught me all he knew and I always thought I improved on his methods. Anyway, we all got by and circulated with normal acceptance in that midwestern farm community.

It all ads up to one plain fact so far as I can see. We will never get professional status if we have less regard for education than our barber has.

"Who is the Observer?"

With this issue of the Journal we begin a series of observations by various persons who, from time to time, are heard to comment about some aspect of our people or their activities. So, the observer is not just one person, — he is several! He will not be identified. But it isn't so important to know who wrote the item as to see if what he says makes sense. In any event, the observer is not the Journal Editor.

As readers note these recurring columns we would appreciate your comments. Maybe you can be elected as the observer for a day.

Forearm Flexion Device Controlled by Hip Motor

by T. Campbell Thompson, M.D.; Francis J. Fadden, Jr., M.D.
Daniel Strulowitz, Physical Therapist; Daniel Ahern, Certified Orthotist;
Arthur A. Beitman, Certified Orthotist

Many people fail to understand that the loss of the upper extremities in poliomyelitis is more frustrating, and a greater hardship, than the loss of the lower extremities. The legs can be braced and they can afford the needed support for locomotion. However, the upper extremities when paralyzed cannot be so readily assisted because of their function of fine movement and dexterity. Therefore, in considering the patient's total happiness and ability to function in daily living, more mechanical aid must be given to a flail upper extremity as a result of poliomyelitis.

Faced with a poliomyelitis patient with almost complete paralysis of both upper extremities, except for a potential functional right hand, it became apparent that in order to use this hand some special type of apparatus must be devised to assist the patient in placing the hand where she desired. Considering the child's age, which at the time was seven years, date of onset (October, 1951), and the many frustrations encountered by this young child because of her inability to help herself, a team composed of doctors, physical therapist and orthotists was formed to formulate the apparatus.

The lower extremities and the trunk of the patient were not involved except for slight weakness in the erector spinae muscles of the cervical area. The patient had been under treatment at Children's County Home, Westfield, New Jersey (a rehabilitation center for poliomyelitis cases) since her admission in June of 1952, with improvement of muscle power. However, this improvement was not great enough to be considered functional. With the possibility of the left shoulder as a motor removed, we selected hip flexion and extension as our motor and locking movements. This selection was based upon the strength of the muscles on a 1 Repetition maximum basis and 10 Repetition maximum and the range of motion desired. Construction of the actual apparatus was started in September, 1953, when the locking mechanism first became available. The child's

Fig. No. 1 Hip flexion on the left, produces elbow flexion on the right.

*This Report was presented at the Medical and Technical Assembly, Metropolitan Orthopedic Appliance and Limb Mfrs. Assn., New York City, May 1, 1954.

Fig. No. 2. Hip extension locks and unlocks brace.

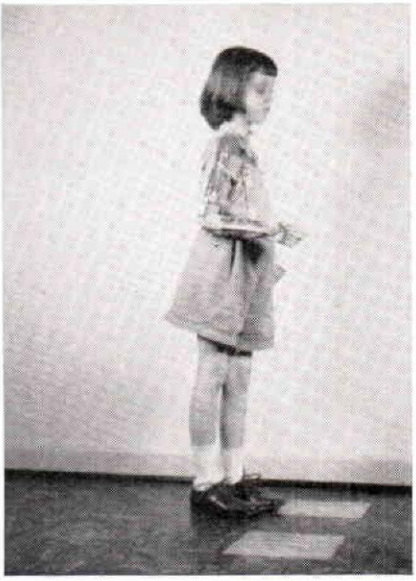


Fig. No. 3. Brace locked at 90° elbow flexion, position No. 4

cooperation and acceptance of the device made its construction simpler.

The component parts of the braces are as follows:

Shoulder cap and part of humeral section molded of leather and celastic over plaster of paris cast.

Elbow joints are active or positive locking type. Lock can be installed on lateral or medial side.

Control is of dual type.

Joints may be made as long as desired with half band and, if necessary, a full cuff.

The control cable 3/64 and cable housing is fastened to end of forearm with an anchor at end, leather lift loop installed about 1¾ inches below center of elbow and 1¼ inches from center of the lateral side of joint.

Retainer plates are riveted to humeral section and shoulder cap at direct line of pull.

Retainers are so placed on cable housing to come into proper place with retainer plates.

Hanger and clamp for hanger are fastened to upper end of cable for harness and control straps.

The shoulder cap is held on with either 1 inch or 1½ inch webbing of any kind of material.

Leg straps are made of 1 inch vinyon or similar material with buckle on end for adjustment.

Special hand brace to hold the hand in dorsal flexion and prevent ulnar deviation, yet permit ulnar flexion, and wrist flexion.

The teaching of the child to work the device, considering her age, was remarkable with her speed of adaptation. The apparatus is operated by flexing the left hip which produces flexion of the right elbow. (fig. No. 1) The range of motion that can be obtained is from 15° to 120°. The brace can be locked by extending the left hip, which releases the plunger into any of the five openings at the joint. (Fig. No. 2) Hip extension also releases the plunger to unlock the elbow.

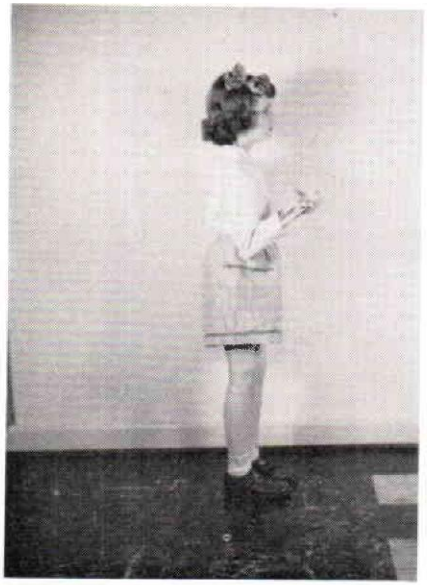


Fig. No. 4. Brace locked in position No. 5, under blouse.

Fig. No. 5. Patient opening door.

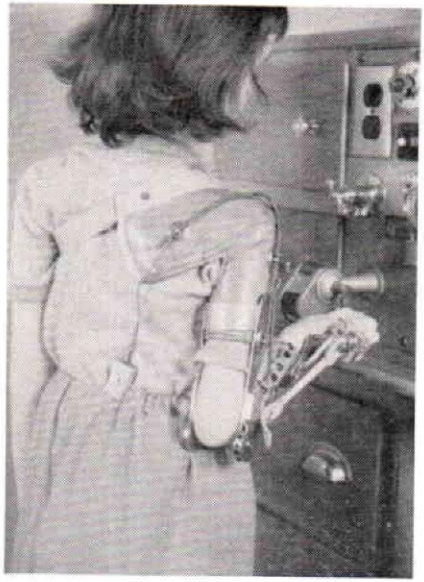


Fig. No. 6. Patient practicing operating pencil sharpener.

Fig. No. 7. Patient opens drawers with brace locked in position No. 5.

The brace can be locked in the following five positions:

Position No. 1	15°	21½	inches.
Position No. 2	30°	24	inches.
Position No. 3	60°	27	inches.
Position No. 4	90°	31	inches. (Fig. No. 3)
Position No. 5	120°	34	inches.

The inches are measured from the head of the first metacarpal to the floor.

This is very important because as the child grows the mechanical joint range of 105° will remain the same. However, because of her body growth, the hand will be placed higher, in relationship of things she can reach; therefore making the apparatus much more purposeful.

The brace weighs 1½ lbs. and can be worn under clothing for cosmetic effect. (Fig. No. 4)

Some of the activities of daily living which the apparatus enables the patient to perform are as follows: 1. Opening door (Fig. No. 5). 2. Working pencil sharpener (Fig. No. 6). 3. Opening drawer (Fig. No. 7). Activity number 1 shows patient moving left hip to obtain position of hand. Activities numbers 2 and 3 show patient with elbow locked and just placing hand. Thus the patient can keep the joint locked for a period of time and work at a certain height. Also, it enables her to carry an object by keeping the elbow locked.

The brace can easily be adjusted as the patient grows. It is comfortable because of its light weight. With the development of our particular apparatus, we hope we have helped this child in her total rehabilitation.

There are still many problems that remain unsolved. There seems to be a need for more work in the field of mechanical aids for flail upper extremities.

"What's New(s)"

• It has been announced by the Advisory Committee on Artificial Limbs that an autumn session of the Upper-Extremity Prosthetics Training Course will be offered at the University of California, Los Angeles. Dates for this session, the eleventh to be held, are October 11 through November 19, and attendance times will follow the pattern established in former schools: 6 weeks for prosthetists, beginning October 11; 3 weeks for therapists, beginning November 2; 1 week for physicians, beginning November 15. First priority will be given to those prosthetists, therapists, and physicians located in areas already covered by the Upper-Extremity Field Study being conducted by New York University but who to date have been unable to avail themselves of these courses. If sufficient demand exists, clinic teams from areas not already covered will be offered courses at a later date.

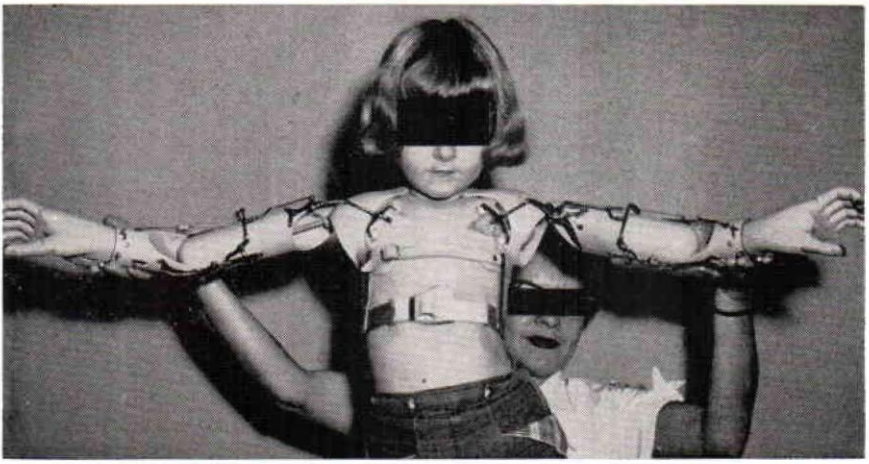
• Randolph N. Witt is co-author with Dr. Duane A. Schramm, M.D., of an article, "Assistive Apparatus for the Paralytic Hand," which appeared in "The American Journal of Occupational Therapy." Mr. Witt is a certified orthotist at the Gonzales Warm Springs Foundation Hospital, Gonzales, Texas.

• The firm of Chester B. Winn, Inc., of Buffalo has purchased the assets of James Beck & Co. of the same city and is operating it as a branch facility. The Beck Co. had been operated as a partnership by Rupert Tiebold, Jr., and George Dillon.

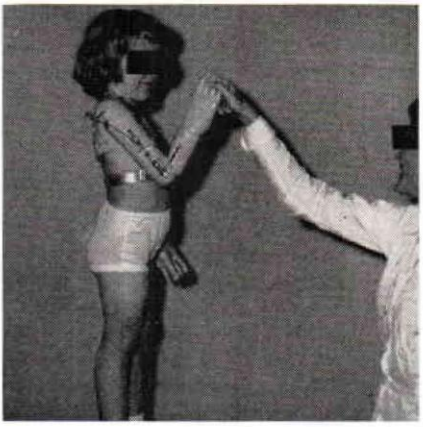
• A new service to the individual brace shop is offered by William Wagenseil in his newly developed brace parts made of stainless steel. Each part has been tested for tensile strength and is precision-made, saving time and money for the local firm. A catalogue and price list may be obtained from Wagenseil Brace Parts, Inc., 115 So. Portland Avenue, Brooklyn 17, N. Y.

Cineplastic All-Purpose Artificial Arms Co., Inc.

508 JEFFERSON STREET, CARLSTADT, NEW JERSEY



Our new design of mechanical shoulder joint for
Disarticulation—movable in three directions: Abduction—Flexion—Adduction



MANUFACTURERS OF
CINEPLASTIC
PROSTHESIS

ORTHOPEDIC LEG BRACES:

Analyses of Fabrication Methods

ANTHONY STAROS

Chief, Prosthetic Testing and Development Laboratory, Prosthetic and Sensory Aids Service, Veterans Administration

The Prosthetic Testing and Development Laboratory has been conducting systematic studies of orthopedic bracing for a period of four years. These studies are chiefly analyses of leg brace designs. From such investigations, the Laboratory attempts to illustrate structural and functional limitations in present designs and to emphasize advantageous design details. Such investigatory work, besides developing the present brace technology, provides a base for researchers who strive for constant improvement in orthopedic bracing.

Studies of brace designs encompass the problems of fabrication methodology. The fabrication procedure for an orthopedic leg brace depends, to a great extent, on the choice of constituent materials and components. There are many combinations of materials and parts which can be utilized; therefore, there are many fabrication methods. Rather than attacking the problems of each and every method of fabrication, it is sound procedure for a research and development laboratory to analyze the general management treatment of fabrication needs. Results of such an evaluation are contained in these three Laboratory reports:

(1) Prosthetic Testing and Development Laboratory, Special Report 18-3, *Analysis of Orthopedic Leg Brace Fabrication*, October 1, 1953.

(2) Prosthetic Testing and Development Laboratory, Special Report 18-31, *Time Required to Fabricate a Leg Brace Using Prefabricated, Mass-Produced Parts*, October 15, 1953.

(3) Prosthetic Testing and Development Laboratory, Special Report 18-32, *Cost Analysis of Leg Brace Fabrication*, October 19, 1953.

This article summarizes the procedures and the findings of these three reports.

Evaluation Procedure

As a beginning, one fabrication method was selected for analysis: a method requiring fabrication of a "typical" ischial weight-bearing, leg-thigh brace with bilateral bail lever lock knee joints. In this typical fabrication, all components (except standardized parts such as screws, rivets, etc.) were constructed utilizing medium carbon steel. (These studies did not include the required leather work and plating.) But in performing the analysis, cognizance was made of an alternate fabrication method—one utilizing prefabricated, mass-produced parts. Consideration was also given to possibilities of work division among two or more technicians. In the final analysis, cost comparisons were made.

These investigations were carried out consecutively:

Step 1. Utilizing one skilled orthotist, the operations required to fabricate the "typical" brace including operations required to make all components, were timed and analyzed. (Report 18-3)

Step 2. The overall time required to fabricate a duplicate "typical" leg brace (in which prefabricated, mass-produced parts were utilized) was measured. (Report 18-31)

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

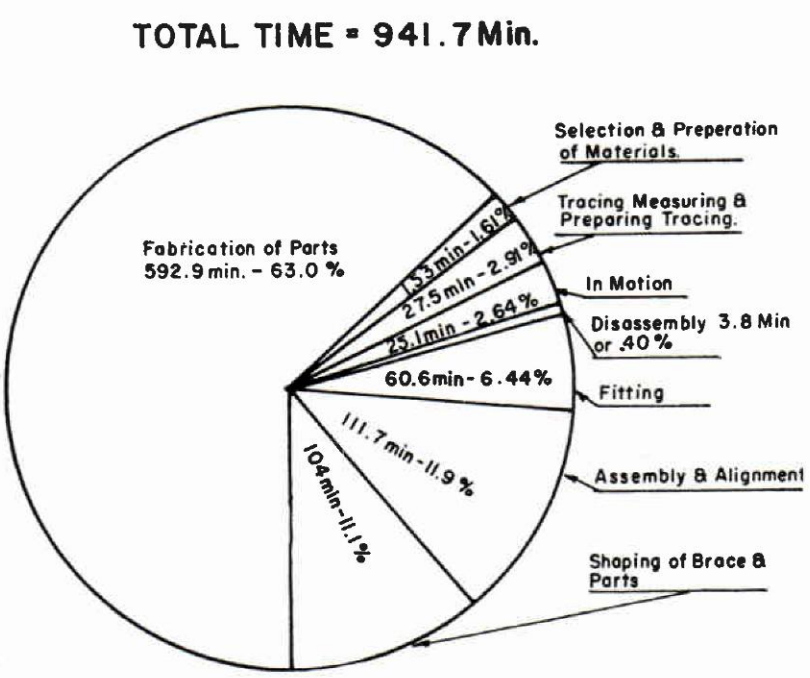


Figure 1. Graph of Operation Types Showing Time Consumed on each (in minutes and in percentage of total consumed time.)

Step 3. Cost analyses of six fabrication methods were developed for the "typical" brace. (Report 18-32)

Findings of Step 1:

a) The operations required for a bracefitter or bracemaker to fabricate a leg brace can be grouped by operation-types. (See Figure I.)

b) The largest *number* of operations are those of the "in motion" type.

c) The most time consuming operation-type is "fabrication of parts." (Approximately 9 hours and 53 minutes out of a total of approximately 15 hours and 42 minutes, as shown in Figure I.)

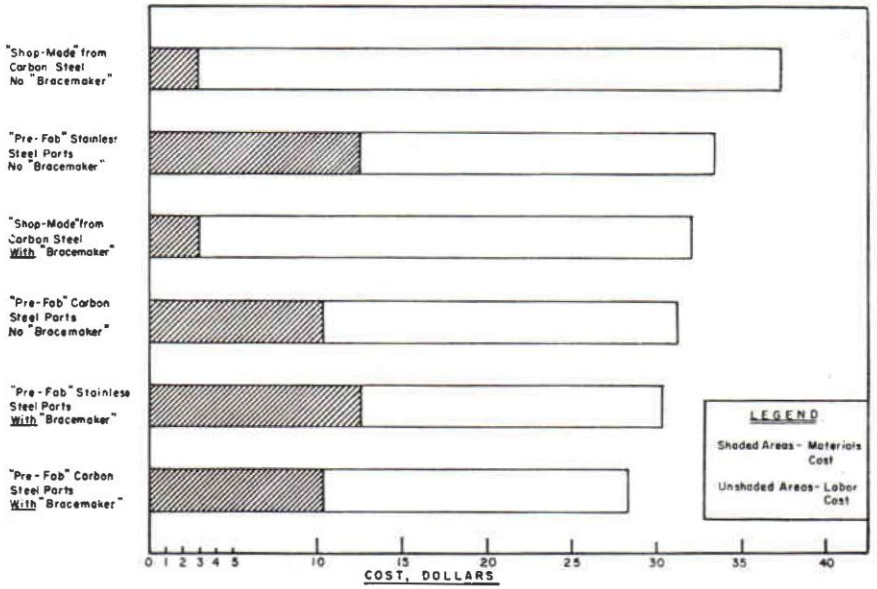
d) A large percentage (over 27%) of the time needed for parts fabrication is consumed by two simple and routine operations: the cutting of parts and the grinding and bevelling of parts.

e) A large part (over 60%) of the time needed in parts fabrication probably would not be necessary if prefabricated, mass-produced parts were used. The amount of machinery and equipment needed for leg brace fabrication using prefabricated, mass-produced parts would be considerably less than that needed for fabrication using "shop-made" parts.

f) Each of the many operations requires different degrees of fabricating skill. Two levels of skill seem indicated as with a classification differentiation between bracemakers and bracefitters.

As shown in (e) above, over 60% of parts fabrication time can probably be eliminated by using prefabricated parts. This means that about 6 hours of the total 9 hours and 53 minutes needed for parts construction would be unnecessary. The time required for the entire fabrication was

FIGURE 2.
CHART OF LEG BRACE FABRICATION COSTS



15 hours and 42 minutes. Subtracting the estimated 6 hour saving from the time for complete fabrication would reduce the overall fabrication time, when using prefabricated parts, to an *estimated* time slightly over 9½ hours.

Findings of Step 2:

a) The time, as measured, for fabrication of a similar "typical" brace (as in Step 1) but with the use of prefabricated parts was 9 hours and 40 minutes.

b) The proximity of this *measured* time to the *estimated* time tended to substantiate the operation by operation classifications made in Step 1.

Findings of Step 3:

Figure 2, *Chart of Leg Brace Fabrication Costs*, shows the six methods for which analyses of approximate expenditures were made. These analyses were developed after making a work division as suggested by finding (f) of Step 1 (above). In three of the six methods, a bracefitter has the assistance of a lower level technician or bracemaker: in the other three, the fitter has no assistance. Assumptions were made regarding the magnitude of labor rates, and no consideration was given to fringe expenses and to overhead and sales costs.

a) As is shown in Figure 2, the "team-effort" with work division between bracefitter and bracemaker decreases the overall cost of leg brace fabrication.

b) The use of prefabricated components, chiefly by lowering labor costs, results in a leg brace of lower overall fabrication cost.

From these findings, it is possible to make certain conclusions. If a suitable leg brace can be obtained using existing prefabricated, mass-produced components, the use of such a method seems indicated. However, it must be ascertained that the prefabricated parts are of equivalent quality to parts which can be self-produced. Present Laboratory studies of such quality indicate, in general, that currently available mass-produced components are being made

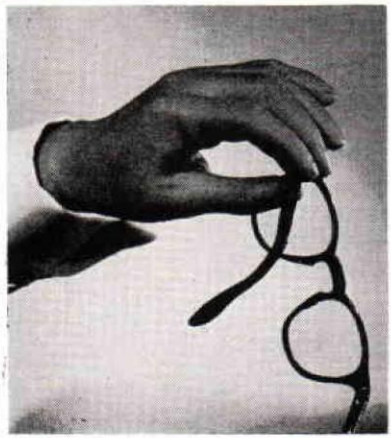
with satisfactory designs and quality control. Of course there are defects in some designs. Nevertheless, most of these commercially produced components are at least equivalent in quality and function to the shop-made components already examined by the Laboratory. (Prosthetic Testing and Development Laboratory, Interim Report 18-2, *General Leg Brace Investigations*, September 1, 1952.) In most cases, braces made using prefabricated parts can be fitted and adjusted adequately. The prefabricated components have the possible advantage of interchangeability of constituent parts for repair replacements.

When using either prefabricated parts or shop-made parts, however, it seems sound management procedure to divide the required tasks between lower level technicians and the more highly skilled bracefitters. The steps which necessarily require the skill and judgment of the certified orthotist can be separated from these tasks which can be performed adequately by a man with less ability. The lower level technician, as a matter of fact, is aided by templates, guide lines, and jigs.

The skilled orthotist who has obtained a professional knowledge of anatomy, of pathological conditions and their requirements in appliances, and of engineering principles underlying his occupation may thus be free to assume a more professional role in the field. He may then devote an increasing amount of time to meetings; prescription team groups; to the more demanding steps in the fabrication procedure such as tracing, measuring, and fitting; to the training and supervision of the younger, less skilled workers; to participation in clinic team evaluation of the final product; and to the study of new developments. All these responsibilities demand and can justify the steadily increasing professional level and technical competence of orthotists.

The reports summarized in the foregoing discussion may serve other purposes. The detailed listing of the operations required to make a leg-thigh brace may provide a basis for further education and research. For one, the enumeration of the operations can be used as a guide in teaching the steps required to make this particular type of appliance. As pointed out previously, there are variations in the procedure depending on the type of brace being fabricated. However, templates, tracings, and jigs have general utility; the description of their use may offer an educational aid. It is possible that the operations, individually, and the sequences of operation groupings may be further studied, using industrial engineering techniques. Finally, it would be possible to publish a simple, industrial engineering handbook of basic principles which can be utilized to assist the management of prosthetic and orthopedic shops.

The Prosthetic Testing and Development Laboratory under the Research and Development Division, Prosthetic and Sensory Aids Service of the Veterans Administration is responsible for research and development efforts contributing to the constant improvement in prosthetic and orthopedic technology. Through testing, materials analyses, design, studies of fabrication methods, and other techniques of research and development engineering, the Laboratory provides data of assistance to Veterans Administration groups, commercial suppliers and manufacturers, and professional groups who are involved in the production, prescription, and fitting of prosthetic and orthopedic devices. By means of reports and personal consultations, these findings are made available to all interested groups.



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The President's Committee on Employment of the Physically Handicapped

This

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ORTHOPEDIC APPLIANCE & LIMB MANUFACTURERS ASSOCIATION

in grateful appreciation for service in behalf of our physically handicapped fellow citizens

Melvin J. Maas
By the Chairman

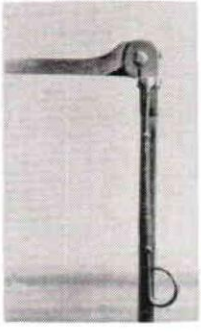
July 15, 1954
Washington

This Citation has been given to OALMA because of its fine exhibit on our work for the Orthopedically Handicapped. This exhibit was shown in Washington last April and is available for loan.

"What's New(s)"

Technical Reports (Editor's Note): With this issue we are starting a column devoted to brief technical reports submitted by readers. These will include suggestions on materials, shop techniques, labor-saving methods and management procedures. You are invited to submit contributions for this column.

There has been a need for some type of knee lock with simplicity of design and having the stability of the ring or drop lock without the disadvantage of the prong or ear which extends and is very hard on clothing. So I have designed the type of lock shown in the photograph. There are no extensions; and a slot is cut on a taper to secure the joint with handle and spring for automatic locking. This type of lock has helped on clothing problems considerably, although it does not completely eliminate them.



The uprights on these braces are made of 24 ST3 Dural and the joint on lock plate is made of K Monel .079 and Rockwell 30-40C temper for durability and strength.

RANDOLPH N. WITT,
Certified Orthotist
Gonzales Warm
Springs Foundation,
Gonzales, Texas

SIMPLE ?

COMPLEX ?

THE LAST WORD .....

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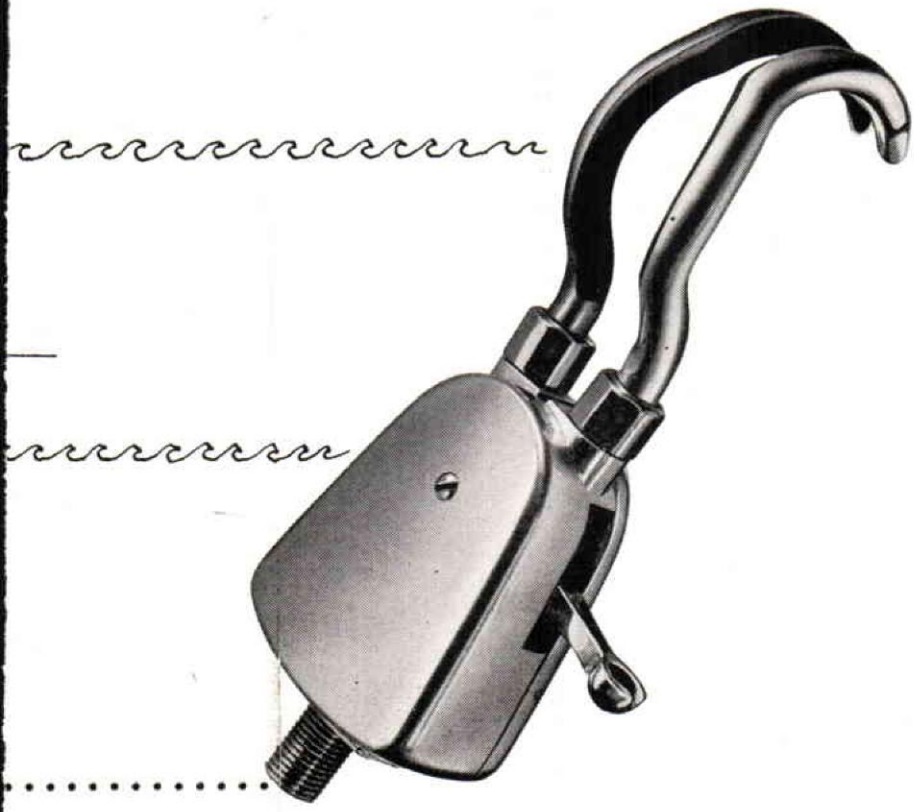
CATALOG NO. 2001 . . . . . LEFT HAND

123 E. MONTECITO AV



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Apprenticeship Standards and Certification; A Report With the Offical Text of the Standards

by McCARTHY HANGER, JR.

Chairman, OALMA Education Committee

The American Board for Certification of the Prosthetic and Orthopedic Appliance Industry, Inc., has decided that after January 1, 1955, all apprentices who desire to become eligible to stand for examination as a Certified Prosthetist, Certified Orthotist or Certified Prosthetist and Orthotist, must be trained in accordance with the "Apprenticeship Standards for Prosthetists and Orthotists," or its equivalent. Therefore, not only new apprentices, but also those who have completed partially a term of apprenticeship leading toward the examination for Certification, must be enrolled in the prescribed program.

Apprentice Prosthetists and Orthotists who start their training after January 1, 1955 must complete the entire program as set forth in the "Apprenticeship Standards" or its equivalent. Apprentices who started their training prior to Jan. 1, 1955 will be required to complete only so much of the prescribed program as is reasonable giving due consideration to the amount of time already spent in the craft, school courses previously completed, and all other pertinent factors.

These Apprenticeship Standards were formally approved in October 1952 by the Federal Bureau of Apprenticeship. They represent a major step forward in the educational program of the Orthopedic Appliance and Limb Manufacturers Association.

The story of the careful planning and hard work which resulted in these detailed provisions have been described in an article published in the June 1953 issue of this Journal and need not be repeated here.

Enrolling Your Students

Detailed arrangements are being worked out for persons who wish to enroll under this apprenticeship Program. Since these will vary in the individual cases, the Applicant should communicate with OALMA headquarters—336Washington Bldg., Washington, D. C., for the latest rulings on the training.

It is hoped to develop local education committees in those communities where there are several apprentices in training. These local committees will receive reports and complete records on each apprentice. Where it is not feasible to establish a local committee, this recording will be performed by the national headquarters of OALMA.

Related academic training forms an important part of the educational program. At present this includes the 17 courses with the approximate number of hours for each course as listed in Table I. The subject matter of these courses is now under review by the OALMA Educational Committee and will be incorporated in an article scheduled for the December issue of this Journal.

The formal text of the Standards as approved by the U. S. Department of Labor, Bureau of Apprenticeship, is included in this article for the convenience of apprentices and those who will be supervising their training. The Department of Labor has given these approved Standards the code number "OLMA-nj-#1." This is for convenience in corresponding with cooperating state apprenticeship agencies and other officials.

CONTENTS

Orthopedic Technician

Apprenticeship Standards for Prosthetists and Orthotists

Part I Apprenticeship Standards

Part II Related Training

Part III Report Forms

Developed by the Advisory Committee on Educational Standards of The American Board for Certification of the Prosthetic and Orthopedic Appliance Industry, Incorporated and the Educational Committee of the Orthopedic Appliance and Limb Manufacturers Association.

In Cooperation with the
Bureau of Apprenticeship
U. S. Department of Labor

PREFACE

One of the first projects of the American Board for Certification of the Prosthetic and Orthopedic Appliance Industry was the establishment of an improved Education Program. In 1949, the Board requested Dr. George H. Young, Assistant Director of the Mellon Institute of Industrial Research in Pittsburgh, to establish a committee to advise on educational standards for the training of those who wish to become Certified Prosthetists and Orthotists. It was to make any other recommendations it saw fit on the educational needs of the industry.

The committee was established on October 28, 1949. Members are: Dr. George H. Young, Chairman; Dr. Harold E. Weaver, Senior Fellow at Mellon Institute, Secretary; Mr. W. L. Cooper, Area Coordinator of Trade and Industrial Education, Department of Public Instruction, The Commonwealth of Pennsylvania, of Pittsburgh; Dr. Ward Darley, Dean, Department of Medicine, University of Colorado Medical Center, Denver; Professor K. L. Holderman, Director of Engineering Extension, Pennsylvania State College, State College, Pennsylvania; Dr. C. P. Scott, Associate Professor of Vocational Education, University of Pittsburgh at Pittsburgh; and Mr. R. H. Wilson, Director of Apprenticeship, Department of Labor and Industry, Commonwealth of Virginia at Richmond.

The committee reported its recommendations, which were accepted by the Board, on March 3, 1951.

The Education Committee of the Orthopedic Appliance and Limb Manufacturers' Association, under the chairmanship of McCarthy Hanger, Jr., then undertook the task of developing on the job training schedules and course materials for related training, to meet the adopted standards for apprenticeship training. This committee had as members Messrs. Lee J. Fawver, Herman C. Hittenberger, Mrs. Adele Tenenbaum, Robert C. Gruman and Harvey G. Lanham. Others who have assisted in preparation of the course material and counseled with the committee are: Drs. T. Campbell Thompson, Clinton L. Compere and Robert Mazet, Jr., of the Certification Board; and Drs. Otakar Machek and D. Elliott O'Reilly of St. Louis; Messrs. Milburn J. Benjamin, D. Wilmore Bremer, Karl W. Buschenfeldt, Michael P. Cestaro, Chester B. Haddan, Glenn E. Jackson, Daniel A. McKeever, David E. Stolpe, Howard R. Thranhardt, and Lucius Trautman, of the industry.

Officials of the Bureau of Apprenticeship, particularly Mr. Carl B. Madson, have been most helpful in the general preparation of these standards. These standards have been registered by the Bureau of Apprenticeship as incorporating the basic Standards of the Federal Committee on Apprenticeship and have been assigned the code number OLMA —nj-#1.

The Education Committee wishes to acknowledge the assistance and cooperation of all of these people without whom the preparation of these standards would have been impossible.

Purpose

The Prosthetic and Orthopedic Appliances Industry is dedicated to the rehabilitation of the handicapped, and united in its desire constantly to improve its service. Therefore, the industry recognizes the urgent need to elevate its standards of training and to bring forth a new and ever increasing group of well trained technicians.

With these purposes in mind, the Advisory Committee on Educational Standards of the American Board for Certification of the Prosthetic and Orthopedic Appliances Industry, Inc., and the Education Committee of the Orthopedic Appliance and Limb Manufacturers Association, in cooperation with the Bureau of Apprenticeship, have developed these Standards of Apprenticeship, which are hereby established as the national standard in the industry for the training necessary to meet the minimum requirements for examination for Prosthetists and Orthotists, as prescribed by the American Board for Certification of the Prosthetic and Orthopedic Appliances Industry, Inc.

Definition of Terms

As used herein:

"*Apprentice*" means a person at least 18 years of age who is engaged in learning the craft of prosthetist, orthotist or prosthetist and orthotist in accordance with these Standards.

"*Employer*" means the firm, person, corporation or facility by whom the apprentice is employed.

"*Agreement*" means the written apprenticeship agreement between the apprentice and the employer in which agreement the terms and conditions of the apprenticeship shall be set forth.

"*Registration Agency*" means a State Apprenticeship Council or if no such Council exists, the Bureau of Apprenticeship, U. S. Department of Labor.

"*Standards*" means this entire document including these definitions.

Apprenticeship Standards

1. *Qualifications for Apprentices*

Applicants for apprenticeship not heretofore connected with the craft must be at least 18 years of age and must have a high school education or its equivalent. Exceptions may be made for those who have been engaged in the craft or who have unusual qualifications.

2. *Term of Apprenticeship*

The term of apprenticeship shall be as stipulated for each classification included in these Standards. When the apprentice has had previous experience in the craft or has had experience applicable to the craft, such experience may be evaluated and credit may be granted towards the completion of apprenticeship.

3. *Apprenticeship Agreement*

The apprentice and his parent or guardian (when he is a minor) shall be required to sign an agreement which shall also be signed by the employer. The employer shall furnish information as to the agreement when requested by the Registration Agency. Each agreement entered into under these Standards shall contain a statement making the terms and conditions of the Standards a part of the agreement.

The apprentice and his parent or guardian entering into an agreement shall be furnished with and be given an opportunity to read the Standards. (See Sample agreement on page 40).

4. *Related Training*

Apprentices will be required to take related courses, when available, for 144 classroom hours per year, for the first four years of training, which is superimposed on four years of high school level education or approved equivalent. The basic distribution of these 576 classroom hours shall meet the standard shown in Table No. I, which is a minimum. The hourly distribution which each training center will find feasible and practical, locally, may vary somewhat from the suggested hours indicated. The time spent in related training shall not be considered as hours of work unless the apprentice is required to take these courses during regular working hours.

5. *Apprentice Wages*

The apprentice shall receive a progressively increasing schedule of wages over the period of apprenticeship which shall average not less than 50 per cent of the rate paid certified prosthetists and/or orthotists during the same period. In no case shall the starting rate of the apprentice be less than that customarily paid in the firm and in the community in the same classification.

6. *Supervision and Records*

Adequate supervision of the apprentice shall be provided and progress records shall be maintained by the employer.*

7. *Certificate*

Upon satisfactory completion of the apprenticeship, the employer shall recommend to the Registration Agency that the apprentice be issued a Certificate of Completion of Apprenticeship.

8. *Consultants*

It is suggested that a representative of the Bureau of Appenticeship or a representative of a State Apprenticeship Council or some other qualified person be requested to act as consultant on problems of apprenticeship training (without vote).

9. *Ratio*

The ratio of apprentices shall be determined by the shop facilities available for acquiring the necessary experience on the job and local opportunities available for future employment in the crafts covered by these standards.

10. *Work Experience*

During the term of apprenticeship, the apprentice shall be given an opportunity to work in all phases of the craft in accordance with the following schedule of work processes for each classification.

These processes need not be followed in the exact order as listed, nor continuously on each process. However, the apprentice should receive as near as possible the amount of time listed on each process.

The apprentice shall receive instruction in the practices of all aspects of safety that pertain to the operation of any machine or work of a hazardous nature both on the job and in conjunction with his related training.

Term Of Apprenticeship For A Prosthetist—8000 Hours (4 Years)

Schedule of Work Processes for a Prosthetist

I. INTRODUCTION

A. The science and mechanics as applied to prosthetic appliance building regardless of material used. 160 Hrs.
1. Wood; 2. Fibre; 3. Metal 4. Plywood; 5. Plastic.

B. Shop orientation 160 Hrs.
1. Location of all machinery; 2. Care of equipment; 3. Location of all electrical switches. 4. Location of all safety devices; 5. General plant operation.

C. Operation of all major equipment 160 Hrs.
1. Lathes; 2. Drill; 3. Grinders; 4. Buffers; 5. Sanders; 6. Band Saw; 7. Sewing machines; 8. Welding equipment; 9. Shears.

D. Location of all material 20 Hrs.
1. Stockpiles; 2. Prefabricated parts and sub-assemblies.

E. Hand Tool Instruction (Care and maintenance of such) 160 Hrs.
1. Pulling and carving; 2. Chisels; 3. Punches; 4. Mallets; 5. Hammers; 6. Drawing knives; 7. Spoke shaves; 8. Rivet sets; 9. Rivet mandrels; 10. Dies; 11. Taps; 12. Reamers; 13. Hacksaws; 14. Files; 15. Aligning tools; 16. Bending irons; 17. Bending jigs; 18. Shoe knives; 19. Awls; 20. Scissors.

II SHOP WORK

A. Leather and webbing fabrication 640 Hrs.
1. Functions and purposes of all material; 2. Types of material; 3. Patterns and designs for correct fit; 4. Selection of types; 5. Application of leather to casts; 6. Prefabricated parts; 7. Making and fitting suspenders; 8. Making and fitting of belts; 9. Making and fitting B/K corsets; 10. Felt padding; 11. Leather finishes; 12. Plastics.

B. Prosthetic appliance fabrication 160 Hrs.
1. Foot making
a. Selection of materials; b. Shaping; c. Applying felt toe; d. Applying hinge toe; e. Applying rubber sole; f. Mortising for ankle joint; g. Drilling for bumpers; h. Recessing for bottom of shin.

2. B/K Setups **480 Hrs.**
a. Selection of material. (1. Wood; 2. Fibre; 3. Metal; 4. Plastic; 5. Plywood.) b. Cutting to length; c. Alignment stability; d. Selection of proper foot size; e. Mechanical alignment; f. Pulling socket to requirements.

3. A/K Setups **640 Hrs.**
a. Selection of material. (1. Wood; 2. Fibre; 3. Metal; 4. Plastic 5. Plywood.) b. Cutting to length; c. Alignment stability; d. Selection of proper foot size; e. Mechanical alignment; f. Selection of knee and size; g. Selection of hardware and installation; h. Shape as required.

4. Knee Bearing, Symes, Hip Disarticulation & Chopart setups **480 Hrs.**
a. Selection of material. (1. Wood; 2. Metal; 3. Leather; 4. Plastic). b. Fabricate into the most practical application; c. Prepare socket from casts; d. Alignment stability; e.Mechanical alignment.

5. Shaping and finishing **640 Hrs.**
a. Shape to measurements; b. Dove tailing; c. Remove excess material on inside; d. Fitting of knee on A/K; e. Riveting of hardware; f. Sanding for rawhide; g. Apply rawhide; h. Sanding for enamel; i. Apply enamel. (1. Types of enamel; 2. Types of fillers).

6. Assembling **120 Hrs.**
1. Attach foot to shin and upholster as required; 2. Apply grease in correct amount; 3. Assemble joints if B/K; 4. Assemble socket if A/K; 5. Attach all leather parts; 6. Select proper friction of knee if A/K; 7. Select proper tension on check string if B/K; 8. Prepare for shipment; 9. Inspect.

III FITTING

A. Measuring techniques 640 Hrs.
1. Taking of measurements; 2. Filling out charts; 3. Template and pattern making; 4. Making and spotting casts; 5. Factors determining styles. (a. Age; b. Social status; c. Duration of use; d. Cosmetic needs). 6. Interpretation of prescriptions and consultation with attending physician.

B. Fitting techniques, using modern methods 1280 Hrs.
1. BK limb fitting.
a. Alignment; b. Pulling sockets; c. Shapes and contours of stumps; d. Anatomy; e. Therapy; f. Posture and Gait training.

2. AK limb fitting. 1280 Hrs.
a. Alignment; b. Pulling sockets; c. Shapes and contours of stumps; d. Anatomy; e. Therapy; f. Posture and Gait training.

3. Knee Bearing, Symes, Hip Disarticulation, and Chopart Appliance Fitting. 980 Hrs.
a. Alignment; b. Pulling sockets; c. Shapes and contours of stumps; d. Anatomy; e. Therapy; f. Posture and gait training.

TOTAL ..... 8000 Hrs.

Term Of Apprenticeship For An Orthotist—8000 Hours (4 Years)

Schedule of Work Processes for an Orthotist

I. INTRODUCTION

A. Mechanics as applied to orthopedic appliances. 160 Hrs.

B. Shop Orientation:
1. Location of machinery, equipment, supplies, prefabricated parts; 2. Layout of benches and tools.

C. Tool Instruction:
1. Operation of all major equipment: Drillpresses, Lathe, Grinders, Buffers, Sanders, Forge, Welding, Brazing, Soldering, Sewing machines, Bandsaw, Shears, Shoe machinery. 2. Bench (Hand) Tools: Dies, Taps, Reamers, Hacksaws, Files, Aligning tools, Bendings irons, Bending jigs, Skivers, Awls, Scissors, Knives, Edgers, Punches, Riveting sets.

II. ORTHOPEDIC METAL FABRICATION

A. Back Braces. 1,000 Hrs.
1.Functions: Corrective and supportive; 2. Three point system of pressure; 3. Types: Full length: Spinal Taylor, Lennox, Baker, Milwaukee, Arnold, Scoliosis. Short: Chair back, Bracket, McAusland, Goldthwaite, Jordan. Pelvic Supports: Hessing, straight band, hinged. 4. Designs and patterns of various types; 5. Modifications; 6. Selection of materials; 7. Cutting and shaping; 8. Drilling, riveting, and welding; 9. Assembling.

B. Lower Extremity Appliances 1,000 Hrs.
1. Functions; 2. Types: a. Full Length leg braces, Hip joints and locks, Proximal supports, half Thomas Ring, flat band, Hessing hip, Calland seat. b. Short leg braces: Double bar, single bar, posterior rod uprights, night braces, plates attached to shoes, patented ankle joint action. 3. Selections of materials; 4. Cutting and shaping uprights and bands; 5. Drilling and riveting; 6. Assembly; 7. Plumb line-weight-bearing center; 8. Joints coincident with natural axes and alignment.

C. Upper Extremity Appliances 640 Hrs.
1. Functions, immobilization; 2. 2.Types: Finger Splints: Finger cots, active spring splints. Wrist: Cockup, Bunnell splints. Arm Braces: Abduction splints. 3. Designs of various types; 4. Modification; 5. Selection of material; 6. Cutting and shaping; 7. Drilling, riveting and welding; 8. Assembly.

D. Miscellaneous Appliances. 360 Hrs.
1. Types: Dennis Browne, Hip Abduction, Bowleg and Knock knee, Night Splints, Cervical Supports; 2. Functions and designs; 3. Selection of materials, cutting and shaping; 4. Assembly; 5. Orthopedic belts—narrow and wide.

III LEATHER TECHNIQUE 960 Hrs.

A. Functions and purposes of leather.

B. Patterns and designs for various braces.

C. Harnessing technique: Placement of buckles and straps.

D. Selection of type of leathers and identification of grades.

E. Application of leather to casts: Liners and molding leather.

F. Cutting patterns on hides according to stretch and weight.

G. Felt padding.

H. Accessories on braces: T-Straps, knee caps.

I. Leather appliances: Body Jackets, Collars, Wristlets and Ankle Supports, Methods of reinforcement.

J. Celastic; Its uses, functions and application.

K. Leather finish; Nylon liquid.

L. Plastics (C8) Resin; Covers (yard goods).

IV SHOE MODIFICATIONS 480 Hrs.

A. Lifts (extensions): Minor elevations, addition of leather, Cork and wood elevations.
B. Sole alterations: Wedges, phalanges, metatarsal bars.
C. Heel alterations: Wedges, phalanges, Thomas and Risser Heels.
D. Upper shoe alterations: Counter work, extended lacings.
E. Attachment to braces.

V ARCH SUPPORTS 320 Hrs.

A. Functions.
B. Types.
C. Selection of Materials: Plastic, leather, felt, cork, rubber, metal.
D. Designs and patterns of various types.
E. Cutting and shaping.
F. Fabrication.
G. Assembly and finishing.

VI. PRACTICAL APPLICATION 3,080 Hrs.

A. Types of orthopedic appliances: Indications and limitations.
B. Pre-requisites: Comfortable, cosmetic, Light but strong, Simple in construction and ideas.
C. Factors determining styles: Age: (Infant, adolescent, adult, aged.) Social Status: Occupation, Suportive or corrective, Duration of use.
D. Interpretation of Prescription and consultation with attending physician.
E. Measuring Techniques: 1. Plaster of Paris: Temporary jacket or splint, Negative mold and positive model; 2. Materials (Bandages, splints, stockinette.) 3. Tools (Stryker saw, gigli saw, knife strips, plaster jack, carving tools.) 4. Marking (Bony prominences, cross marks.) 5. Foot casts; 6. Postions: Natural, corrected.
F. Fitting and adjusting all orthopedic appliances.
G. Delivery: Instructions in care and intelligent use by patient.
H. Referral to attending physician.
I. Estimating cost of new appliance.

TOTAL .....8000 HRS.

Term Of Apprenticeship For A Prosthetist and Orthotist—10,000 Hours (5 years)

Schedule of Work Processes for a Prothetist and Orthotist

NOTE: This schedule is intended for an apprentice prosthetist and orthotist employed in a limb and brace shop. Different schedules will be furnished for experienced prosthetists who desire a term of apprenticeship as an orthotist and for experienced orthotists who desire a term of apprenticeship as a prosthetist.

I. INTRODUCTION

A. The science and mechanics as applied to prosthetic and orthopedic appliance building regardless of material used. 160 Hrs.
1. Wood; 2. Fibre; 3. Metal; 4. Plywood; 5. Plastic.

B. Shop orientation. 160 Hrs.
1. Location of all machinery; 2. Care of equipment; 3. Location of all electrical switches; 4. Location of all safety devices; 5. General plant operation.

C. Operation of all major equipment. 160 Hrs.
1. Lathes; 2. Drill presses; 3. Grinders; 4. Buffers; 5. Sanders; 6. Forges; 7. Band saw; 8. Shears; 9. Shoe machinery; 10. Sewing machines; 11. Welding equipment.

D. Hand tool instruction (Use, care and maintenance of such). 160 Hrs.
1. Pulling and carving; 2. Chisels; 3. Punches; 4. Mallets; 5. Hammers; 6. Drawing knives; 7. Spoke shaves; 8. Rivet sets; 9. Rivet mandrels; 10. Leather skivers; 11. Dies; 12. Taps; 13. Reamers; 14. Hacksaws; 15. Files; 16. Aligning tools; 17. Bending irons; 18. Bending jigs; 19. Shoe knives; 20. Awls; 21. Scissors; 22. Punches.

II SHOP WORK

A. Leather, cloth, and webbing fabrication. 700 Hrs.
1. Functions and purposes of all material; 2. Types of material; 3. Patterns and designs for correct fit; 4. Slection of types and identification of goods; 5. Application of leather to casts; 6. Accessories on braces and limbs; 7. Prefabricated parts; 8. Making and fitting suspenders; 9. Making and fitting belts; 10. Making and fitting B/K corsets; 11. Felt padding; 12. Celastic; 13. Leather finishes; 14. Plastics; 15. Leather appliances: (a. Body jackets, b. Collars, c. Wristlets, d. Ankle supports, e. Knee braces).

B. Orthopedic metal fabrication. 860 Hrs.
1. Back braces.
a. Functions, corrective and supporortive, b. Three point system of pressure, c. Types: Full length—(Spinal Taylor, Lennox, Baker, Milwaukee, Arnold, Scoliosis) Short—(Chair Back, Bracket, McAusland, Goldthwaite, Jordan.) Pelvic supports—(Hessing, Straight Band, Hinged.) d. Designs and patterns of various types; e. Modifications; f. Selections of materials; g. Cutting and shaping; h. Drilling, riveting and welding; i. Assembling.

2. Lower extremity appliances. 860 Hrs.
a. Functions; by Types: Full length leg braces—(Hip joint and locks, Proximal supports, half Thomas ring, Flat band, Hessing hip, Calland seat.) Short leg braces (Double bag, single bar, posterior and uprights, night braces, plates attached to shoes, patented ankle joint action) c. Plumb line—weight bearing center; d. Joints coincident with natural axes and alignment.

3. Upper extremity appliances. 440 Hrs.
a. Functions; b. Types (Arm

braces, Abduction splints, Wrist braces, Cockup, Bunnell splints, Finger splints, inactive and active spring.) c. Modification.

4. Miscellaneous appliances. 320 Hrs.
a. Types (Dennis Browne, Hip abduction, Bowleg and Knock knee, Night splints, Cervical supports) b. Modification; c. Orthopedic belts.

C. Shoe modifications. 480 Hrs.
1. Extensions (Minor elevations, addition of leather, cork, and wood elevation); 2. Sole alterations (Wedges, phalanges, metatarsal bars); 3. Heel alterations (Wedges, phalanges, Thomas and Risser Heels); 4. Upper shoe alterations: (Counter work, extended lactings); 5. Attachments to braces.

D. Arch supports. 320 Hrs.
1. Functions; 2. Types; 3. Selection of materials; 4. Design; 5. Cutting and shaping; 6. Assembly and finishing.

E. Prosthetic appliance fabrication. 160 Hrs.
1. Foot making.
a. Selection of materials; b. Shaping; c. Applying felt toe; d. Applying hinge toe; e. Applying rubber sole; f. Mortising for ankle joint; g. Drilling for bumpers; h. Recessing for bottom of shin.

2. B/K Setups. 320 Hrs.
a. Selection of materials; b. Cut to length; c. Select proper size foot; d. Alignment; e. Adjust alignment stability; f. Pull socket as indicated.

3. A/K Setups. 320 Hrs.
a. Selection of materials; b. Cut to length; c. Select proper size foot; d. Alignment; e. Adjust alignment stability; f. Install hardware; g. Recess for knee; h. Shape as required.

4. Knee bearing, Symes, Hip Disarticulation, and Chopart Setups. 320 Hrs.
a. Selection of materials; b. Prepare sockets from casts; c. Alignment; d. Adjust alignment stability; e. Install hardware.

5. Shaping and finishing. 320 Hrs.
a. Shape to measurements; b. Dove-tailing; c. Remove excess material on inside; d. Fitting of knee on A/K; e. Riveting of hardware; f. Sand for rawhide; g. Apply rawhide; h. Sand for enamel; i. Apply enamel (1. Types of enamel; 2. Types of fillers).

6. Assembling. 120 Hrs.
a. Attach foot to shin and upholster as required; b. Apply grease in correct amount; c. Assemble joints if B/K; d. Assemble socket if A/K; e. Attach all leather parts; f. Select proper friction for knee if A/K; g. Select proper tension on check string if B/K; h. Prepare for shipment; i. Inspect.

TABLE I.

Course	*Total Hours*
Functional Anatomy for Orthopedic Trainees	144
Sketching and Plan Reading, Pattern Making and Principles of Alignment	36
Welding	36
Heat Treating and Forging	36
Elementary Mechanics and Mathematics	36
Applied or Business Psychology	36
Elements of Bookkeeping	36
Plastics	18
Leather and Textiles	18
Professional Relationships	18
Public Speaking	36
Gait and Posture Training	18
Techniques of Physical Therapy and Rehabilitation	18
Tool Care and Usage	18
Business English	36
Sketching and Drawing: the Human Form	18
Business Economics	18
Total Hours in Course	576

APPRENTICESHIP AGREEMENT

Between Apprentice and Employer

Veteran: Yes ..... No .....
V. A. No. .....
P. L. 16 ..... P. L. 346 .....
Married ..... Single .....
Number of dependents .....

THIS AGREEMENT, entered into this ..... day of ....., 19....., between

....., hereinafter termed the EMPLOYER, and
(Name of employer)

....., born ....., hereinafter
(Name of apprentice) (Month) (Day) (Year)

termed the APPRENTICE, and (if a minor), ...,
(Name of parent or guardian)

hereinafter referred to as the GUARDIAN.

WITNESSETH THAT: The EMPLOYER agrees to employ and train the APPRENTICE, and the APPRENTICE agrees to apply himself diligently and faithfully to the work of the trade named herein during the period of apprenticeship, in accordance with the terms and conditions of the .....,
(Name of Apprenticeship Standards)

incorporated in and made a part of this agreement; or, as covered by the terms and conditions on the reverse side of this agreement.

Trade ..... Term of apprenticeship .....
(Hours or years)

Credit for previous trade training or experience ..... Apprenticeship remaining .....
(Hours or years) (Hours or years)

Explanation, if any, of credit granted: .....

This agreement may be canceled at any time by either party thereto, by filing notice of such cancellation and the reason therefor with the Registration Agency named below.

IN WITNESS WHEREOF, the parties hereunto set their hands and seals:

..... (SEAL) ..... (SEAL)
(Apprentice) (Name of employer-company)

....
(Address) (Address)

..... (SEAL) ..... (SEAL)
(Parent or guardian) (Authorized official)

Approved by ..... Joint Apprenticeship Committee, on

Date ..... by ..... (SEAL)
(Chairman or secretary)

Registered by ....., on
(Name of Registration Agency)

Date ..... by ..... (SEAL)

.....
(Title)

Sample of Apprenticeship Agreement 16—57399-1

III FITTING

A. Measuring techniques—Prosthetic and Orthopedic. 620 Hrs.
1. Taking of measurements; 2. Filling out charts; 3. Template and pattern making; 4. Making and spotting cast; 5. Factors determining styles: (a. Age; b. Social status; c. Supportive or correctice; d. Duration of use; e. Cosmetic needs); 6. Interpretation of prescriptions and consultation with attending physician.

B. Fitting techniques, using modern methods. 800 Hrs.
1. BK limb fitting.
a. Alignment; b. Pulling sockets; c. Shapes and contours of stumps; d. Anatomy; e. Therapy; f. Posture and Gait training.

2. AK limb fitting. 800 Hrs.
a. Alignment; b. Pulling sockets; c. Shapes and contours of stumps; d. Anatomy; e. Therapy; f. Posture and gait training.

3. Knee Bearing, Symes, Hip Disarticulation; and Chopart Appliance Fitting. 480 Hrs.
a. Alignment; b. Pulling sockets; c. Shapes and contours of stumps; d. Anatomy; e. Therapy; f. Posture and gait training.

4. Orthopedic Appliances, All Types. 1,120 Hrs.
a. Fitting and adjusting.

TOTAL ..... 10,000 HRS.

OFFICIAL APPROVAL

Approved for the Advisory Committee on Educational Standards of the American Board for Certification of the Prosthetic and Orthopedic Appliances Industry, Incorporated and the Education Committee of the Orthopedic Appliance and Limb Manufacturers Association on the 6 day of October 1952.

By George H. Young, Chairman, Advisory Committee on Educational Standards, A.B.C.

By McCarthy Hanger, Jr., Chairman, Education Committee, O.A,L.M.A.

Registered as incorporating the basic Standards of the Federal Committee on Apprenticeship, Bureau of Apprenticeship U. S. Department of Labor. Date October 7, 1952. W. F. Patterson, Director Bureau of Apprenticeship.

"What's New(s)"

• BEN PECORELLA sends us word of a useful device made by Paul A. Dunn, Jr., of Kenmore, N. Y. This is a set of drive controls for the Chevrolet and Ford motor cars which are especially designed for the convenience of handicapped persons. These controls have been approved by the New York State Motor Bureau.

• CARL MCCLUGGAGE is the new Manager of Snell's Limb and Brace, Inc., of Memphis, Tenn., replacing John Welch. Mr. McCluggage was formerly stationed in Nashville as an assistant to Ralph Snell.

• Members of REGION VII, OF OALMA made a special gift to the Children's Welfare Fund at the Gillette State Hospital for Crippled Children, the scene of their meeting last April. Miss Jean D. Conklin, Admin. istrator of the hospital, in a note to Robert C. Gruman, President of the Regional Council, wrote: "We appreciate your kindness and thoughtfulness, and hope once again in the future to have the pleasure of entertaining Region VII, Orthopedic Appliance and Limb Manufacturers Association."

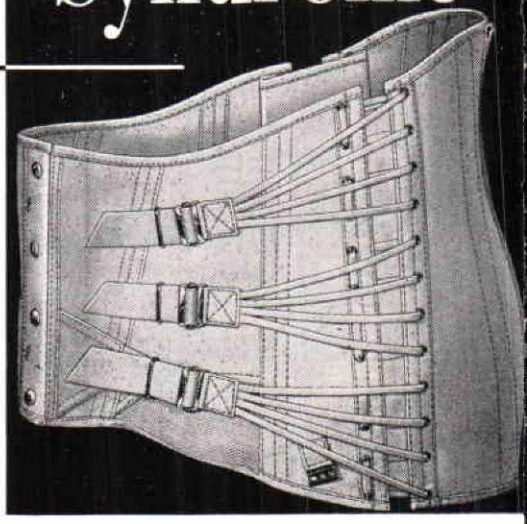
• The JAMESTOWN ORTHOPEDIC APPLIANCES facility has occupied new and enlarged quarters at 417 Prendergast Avenue, Jamestown, New York.

especially developed for

Low-Back Syndrome

by

TRUFORM



MODEL 430 EHS

- Lumbo-sacral support incorporating traction and two-semi rigid steels. Three pull straps control traction; upper straps control lumbar region support, lower strap (attached to uplift panels in front) controls traction through trochanter area, increases lower abdominal support.

The complete line of TRUFORM Anatomical Supports includes a wide selection of lumbo-sacral garments. TRUFORM Lumbo-Sacral Supports are designed, under professional supervision, for a variety of conditions generally characterized by low back pain. Such TRUFORM supports are generally used for mild lordosis or spondylolisthesis and all provide effective fixation of the lower spine, varying in degree according to the depth of the garment.

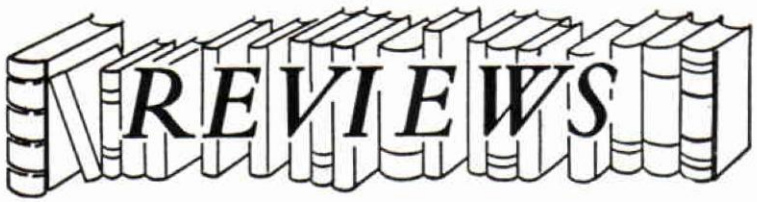
These and other TRUFORM supports are available only through *ethical surgical or prosthetic supply houses or orthopedic dealers.* Thus you are assured of professionally correct fitting by a trained technician.

For descriptions and illustrations of the complete TRUFORM line write for the TRUFORM Red Book, the profusely illustrated catalog which will serve as a valuable reference.

TRUFORM ***anatomical supports***

3960 Rosslyn Drive, Cincinnati 9, Ohio

TRUFORM The Professional Line ORTHOPEDIC SUPPORTS



VOLUME X, 1953 OF THE AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS INSTRUCTIONAL COURSE LECTURES
Edited by Charles N. Pease, M.D.
Published by J. W. Edwards, Ann Arbor, Michigan, 1953. 349 p. $10.00.
Reviewed by Vernon Murka, Fidelity Orthopedic, Dayton, Ohio.

It has been years since a book with such valuable information for the prosthetist and orthotist has come to my desk. The problems, complications and complicated surgical techniques of the orthopedic surgeon are written and illustrated in a manner and language which we of the industry can understand. All the nineteen Instructional Course Lectures are extremely interesting but one of the more impressive lectures is "Management of Lesions of the Lumbrosacral Spine," by Dr. Paul C. Williams. His description of balance and posture as related to the lumbrosacral spine together with illustrations of correct and incorrect postures of the human body while reclining, sleeping and working is of primary importance.

As orthotists we are of course vitally interested in the lectures "Medullary Nailing of the Femur and Fractures of the Hip Joints," written by Dr. Dana M. Street and Dr. Austin T. Moore respectively. The most important lectures, however, from our point of view are the chapters 12 and 15 which cover braces and upper extremity prostheses, written by such authorities as Dr. Rufus Alldredge, Dr. Winthrop Phelps, Dr. Atha Thomas and others. Information contained in these articles is so important to every prosthetist and orthotist that all of us should be thoroughly familiar with them.

Another valuable aspect of Volume X is the fact that it stresses cooperation between the Orthopedic Surgeon and the Orthotist and Prosthetist. In fact I believe it is a big step forward on the road to the final team work which is so necessary in the successful rehabilitation of the patient.

TRANSACTIONS OF THE INSTITUTE OF BRITISH SURGICAL TECHNICIANS, INC.
(Issued May, 1953)
Reviewed by David E. Stolpe, Consultant on Examinations to the American Board for Certification.

"To accord and maintain a professional status to those engaged in the Surgical Instrument and Appliance Industry"—that is the purpose for which the Institute of British Surgical Technicians was founded.

This organization functions under an imposing array of honorary officers, most of whom are well known physicians and surgeons who work with the Council of Twenty-six Members, and Committees on Education, Ethics, Election, Dental Education, and Finance.

All candidates for admission to the Institute must be British and must subscribe to the Ethical Code current for the time being. The Institute issues Certificates of Membership which are the property of the Institute and not of the Member named therein. The holder of a Certificate, on ceasing to be a member, returns the Certificate to the Institute.

Our British contemporaries stress Ethics, Conduct and Education as a necessary complement to the service required by the team approach, and that closer cooperation between doctor and surgical technician demands

higher ethical and educational standards than have been observed heretofore.

Ethical Code

A surgical technician is one who, in conjunction with the surgical and medical profession, designs and produces the tools, instruments and appliances required by them in their profession, and for the use of their patients. When supplying appliances his position is one of direct collaboration with the profession from whom the technician will receive instructions as to what is required for the benefit of the patient.

The technician must at no time assume the status of one having surgical or medical knowledge, and it therefore follows he must not advertise he is in a position to cure any human failing or physical ill. It is especially forbidden that the technician should in any way proclaim, or let it be understood he can cure failings such as Deafness, Hernia, Blindness, Paralysis, etc., or any ailments in connection with the sexual system.

His constant endeavor must be to use his experience, skills and mechanical knowledge in the construction and application of appliances for the relief of human ailments and suffering in collaboration with the surgical and medical profession. In all cases, when supplying a new appliance, he should have the direct order form, or the subsequent approval of, the patient's medical attendant, institution or society. The responsibility of informing that medical attendant, institution or society, will rest with the surgical technician.

The Ethical Code duly signed must accompany the Application for Membership. In addition every Member is required to observe and be bound by the following Regulations:

Rules of Conduct

He shall not combine his occupation either directly or indirectly with treatment; nor designate any Premises as a Clinic, or use any similar name which may mislead or give the impression that it is a centre for treatment.

He shall not discuss or recommend any Drug, Proprietary or Patent Medicine; and shall not claim, either verbally, by signs or advertisements, to heal or cure the condition of any patient.

The practice of itinerant salesmen calling upon members of the public (unless at the express wish of the individual or his medical adviser) is not permissible.

The sale of Appliances for the Deaf shall comply with the Regulations adopted from time to time by the Medical Committee of the National Institute for the Deaf, and Hearing Committee of the Medical Research Council.

The diplomas granted by the Institute are personal to the recipient and the letters of designation must only be used by him in association with his name.

He shall only advertise in a manner which conforms to the ethical standard of the Council of the Institute.

He shall not take part in any Exhibition, etc., other than those of a medical, surgical or national character or one having the approval of a local Medical Association.

He shall act in all professional matters strictly in a fiduciary manner with regard to any Clients, and his charges to such Clients shall constitute his only remuneration in connection with such work.

He shall not solicit work, either directly or by an agent, in any manner which the Council shall from time to time consider professionally improper, nor shall he pay, by secret commission or otherwise, any person who may introduce Clients to him.

Any alleged breach of these regulations shall be treated as provided for in the Articles of Association . . .

In addition to the above the Candidates are instructed to study carefully

certain of the General Rules, among which are the following:

A Member is not to sell Surgical Instruments or Appliances, for personal use, to a patient except on the recommendation or approval of a Registered Medical Practitioner.

A Member shall not publish any advertisement unfair to fellow-craftsmen, misleading to the public, or derogatory to the Institute or to the profession of the Surgical Technician.

A Member shall cultivate the spirit and practice of association and co-operation with all those in the profession, and is expected to utilize his knowledge, skill and acquirements, for the benefit of the profession and of the general public.

He shall be loyal to his fellow Surgical Technicians; criticism of the technique of others is therefore most emphatically forbidden.

Education—The Vice Chairman of the Council points out that no longer is a smattering of knowledge satisfactory in the Surgical Instrument and Surgical Appliance Industry.

Appliance Fitters will be required to understand thoroughly elementary anatomy and physiology of the human frame to which they are fitting their appliances. Also they must understand the language of the medical profession, and have some knowledge of the technique of the various surgical operations.

Essential, too, is a certain knowledge of mathematics, English, physics, metallurgy and other elementary sciences which are employed in the Craft.

To accomplish this the Institute has developed an Education Scheme which is divided into three courses. The following partial list of subjects shows how comprehensive these courses are:

Anatomy, Physiology, General and Special Pathology, Medicine, Principles of Surgery and Surgical Instruments, general appreciation of English (expression of ideas, writing reports, etc.), Mathematics, Calculation, Mensuration, Chemistry, Metallurgy, Laboratory Work, Engineering Drawing, Tool Design, Moulding, Mechanics and Properties of Matter, Heat, Light, Sound, Magnetism and Electricity, Workshop Techniques and Workshop Mechanics, Practical Work and Demonstrations.

Lectures delivered at the 15th and 16th Annual General Meetings are recorded, the titles of which reveal the broad scope which they embraced:

"Orthopedic Appliances and Apparatus"—with illustrations.

"The Investigation of a Urological Case."

"Some Present-Day Problems in the Treatment of Varicose Veins."

"Science in Crime Detection."

"The Surgery of Cataract."

"Manufacture of Surgical Needles."

"The Prolapsed Disc."

"Thyroid Surgery"—not recorded in Book; copies available.

"Aluminium" — not recorded in Book; copies available.

"Team Work in the Surgery"—not recorded in Book; copies available.

Rules of The Institute are stated in the final pages. These pertain to Qualifications for Membership, Associates, Subscriptions, Admission; also Suspension, Removal and Resignation of Members.

Prize-Giving to Apprentices and Awarding of Certificates is an interesting feature at the Annual General Meetings of the Institute — a Ceremony of Recognition for outstanding accomplishments and work well done.

From the foregoing it should be noted that the Surgical Instrument and the Surgical, Orthopedic and Prosthetic Groups are under one head, and all are combined with the doctors and surgeons. Thus united, there is greater strength, better understanding, and a clearer conception of methods effecting a closer cooperation between these various allied health groups for a superior rehabilitation service.

SUPPLIES SECTION

Index to Advertisements

In Memoriam

NORMAN C. HITCHCOCK, President of the Boston Artificial Limb Company, died August 10 at Biddeford, Maine, at the age of 78. A native of Michigan, Mr. Hitchcock entered the prosthetic field as the New England representative of a Buffalo firm. He organized his own business in 1899 and incorporated it in 1909. Mr. Hitchcock, himself an amputee, had a burning zeal to help other amputees. His company became one of the largest and most respected organizations in the country with an outstanding reputation among orthopedic surgeons. He was a Charter Member of OALMA and one of the first certified Prosthetists in New England. Always interested in helping others, he trained a number of prosthetists who now have their own organizations. During the past two years he had not been actively engaged in the company's operations but had not lost touch with any phase of its program. To him it was not a business but a profession, and he has left that inheritance and tradition for his sons to carry on. Mr. Hitchcock is survived by his wife, Mrs. Maude B. Hitchcock, two sons, William E. and Robert N., a daughter, two brothers and a sister.

JAMES M. MCCONNELL, partner in the California Orthopedic Company, died suddenly August 12 at Los Angeles, at the age of 65. Mr. McConnell was born in Brooklyn, N. Y., and had many years of experience in the orthopedic appliance field. He was a member of the Society of Orthotists and Prosthetists. Mr. McConnell is survived by his wife, Mrs. Elva McConnell, a son Ralph, and three grandchildren.

With Complete Confidence

DOCTORS PRESCRIBE . . . DEALERS SELL

Freeman

SURGICAL SUPPORTS

MODEL 422
Sacro-Lumbar Back Support for Men

MODEL 423
Sacro-Lumbar Back Support for Women

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

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

FREEMAN QUALITY FEATURES

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

FREEMAN MANUFACTURING COMPANY, Dept. 809, Sturgis, Michigan

Send me complete literature on Freeman surgical supports ☐. Send on approval, without obligation, a Freeman Sacro-Lumbar Back Support for my inspection ☐.

Men's ☐ Women's ☐ Size_____.

Name_____

Address_____

City_____ State_____

PEL

WALK-AID RAILINGS

Portable • Easily Assembled • Lightweight
9½ feet long • Stationary • Self-Supporting

An entirely self-supporting assembly for home or hospital, new Walk-Aid railings provide maximum safety and stability without additional fixtures or fastening to floor. During the rehabilitation of amputees, paraplegics, polio cases and pre-crutch training of old age hip fracture patients, Walk-Aid railings provide the security necessary to build complete confidence. Unique design and sturdy construction permit railings to be assembled in less than 5 minutes.

Height of Walk-Aid railings can be adjusted from 30½ to 38 inches in 1½-inch increments. Measuring 9½ feet in overall length, individual sections do not exceed 54 inches and occupy minimum storage space when dismantled. Heavy elastic straps hold the various sections together for convenient transporting.

DESIGN PATENT APPLIED FOR

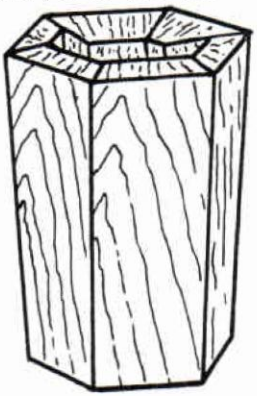
1569-LL

LEIMKUEHLER LIMB CO.

1426 W. THIRD ST. • BLACKSTONE BLDG. • CLEVELAND, OHIO • PHONE: MAin 1-0745

NEW BLOCKS

You can save time and money with these thigh socket blocks. These straight grained, thoroughly dry blocks enable you to pull sockets in half the time.



All blocks 14" long
Wall thickness 1¾"

Size 6	$ 4.35
Size 7	4.90
Size 8	5.50
Size 9	7.25
Size 10	9.60
Size 11	10.25

Size is inches across flats at top

NEW PRICES

Materials for making SEE 8 Orthopedic Appliances

SEE 8 RESIN

¼ Unit **$4.80**
½ Unit **8.85**
1 Unit **15.00**
5 Unit **13.50 (per unit)**
10 Unit **12.00 (per unit)**

1 Unit consists of ½ gallon of 8A and 1 pint 8B

SEE NET

38" wide cloth—1 to 10 yds. **$2.55 yd.**
38" wide cloth—11 to 50 yds. **2.30 yd.**
38" wide cloth—125 yards **1.95 yd.**

P.V.A. SHEETING

40" wide 1 to 5 lineal yds..... **$0.90 yd.**
40" wide 6 to 15 lineal yds.... **.81 yd.**
40" wide 16 to 30 lineal yds. **.73 yd.**
40" wide 31 over..... **.66 yd.**

NEW POWDER

Ampu-Talc—The IDEAL Amputee's Powder
Satin smooth—Ideal for SUCTION SOCKETS
Odorless—No agitating perfumes
Retards perspiration—not medicated
1 pound can—$1.00 Retail

SEE—NET

¾" Wide, roll, 36 yds..... $1.80
1 " Wide, roll, 36 yds..... 2.55
1¼" Wide, roll, 36 yds.....
WHEN AVAILABLE
1½" Wide, roll, 36 yds..... 4.70
3½" Fiberglass Tubing..... $.91 yd.
2½" Nylon Stockinette..... .50 yd.
3½" Nylon Stockinette..... .55 yd.
5½" Nylon Stockinet'e..... .91 yd.

DISTRIBUTORS

MINNEAPOLIS ARTIFICIAL LIMB CO.

410 Portland Avenue, Minneapolis, Minnesota
Prices F.O.B. Minneapolis, Minn.

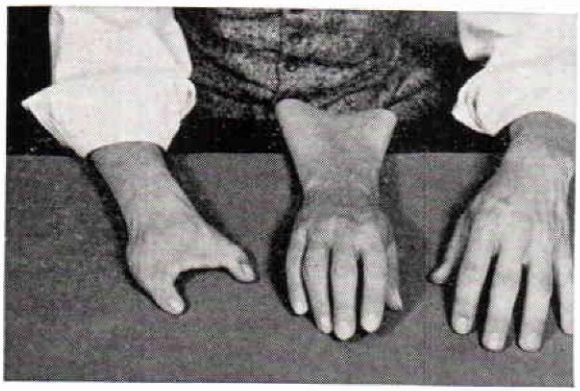
For the Southeast:

SOUTHERN PROSTHETIC SUPPLY CO.

134 Baker Street, N.E., Atlanta, Georgia
Prices F.O.B. Atlanta, Ga.

ANOTHER *Realastic*

PARTIAL HAND RESTORATION



From our Mold SR-3 —for congenital amputation—thumb retains function. from unretouched photographs.

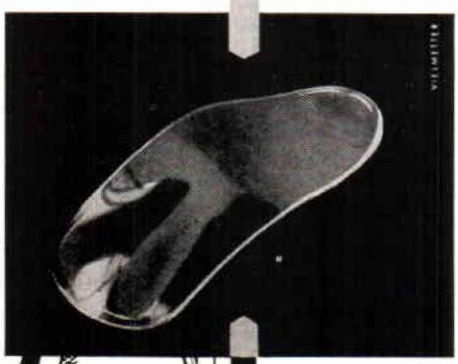
ALSO: gloves for mechanical hands, passive hands, finger restorations — REALASTIC for every type cosmetic prostheses.

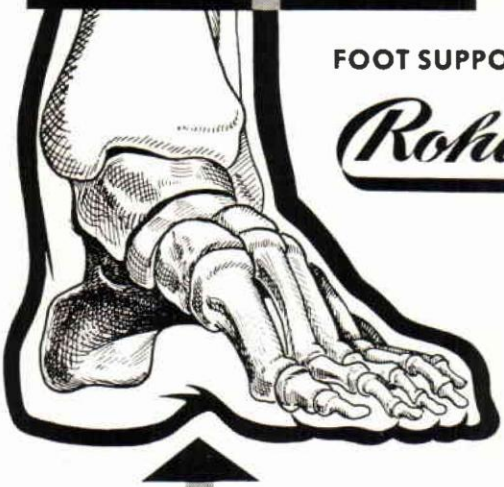
Have You Seen Our "REALASTIC HANDBOOK?"
Send for free P.S. Color Guides and free P.S. "Information Charts."

PROSTHETIC SERVICES OF SAN FRANCISCO

171A JESSIE STREET
SAN FRANCISCO 5, CALIF.
DOUGLAS 2-2865

Realastic
"Looks REAL—It LASTS"
*Trade-Mark





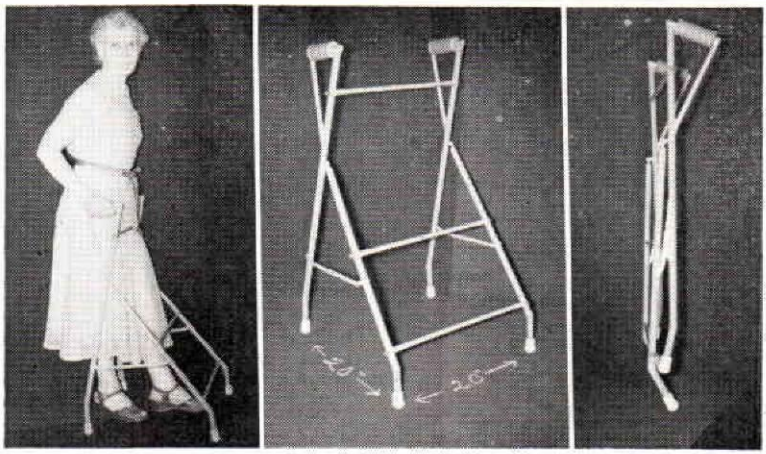
FOOT SUPPORTS made of

Rohadur

Foot troubles can best be cured by foot supports. For successful orthopedic treatment, however, foot supports should meet special requirements. Besides matching smoothly the outer shape of the foot, they must give the foot the particular support so important for the static-mechanical functioning of the foot bones. ROHADUR can be cut and hot shaped very easily. The plastic being tough yet highly elastic activates the foot continuously. It does not tire the foot, stain the stockings or wear out the shoes. Easy to wash, not subject to corrosion by perspiration, will not break. Let your patients enjoy the wonderful feeling walking on supports made of ROHADUR.

Rohadur is a registered trade-mark

RÖHM & HAAS · GMBH · DARMSTADT
WESTERN GERMANY



THE LATEST—

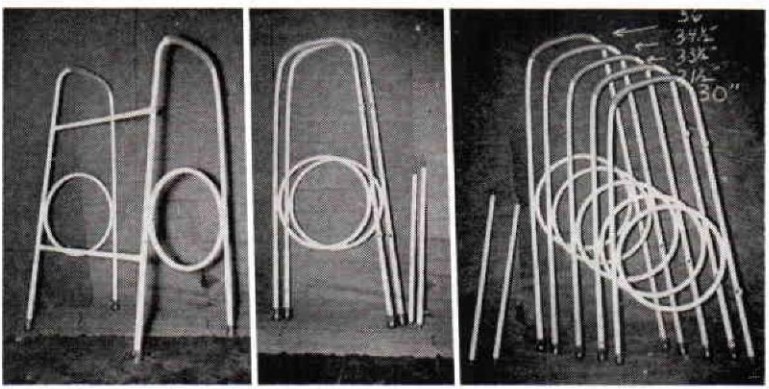
New Improved "Walborn's" Folding Walking Aid

More Floor Coverage—Safer For Patient—Will Not Tip Forward

Large Sponge Latex Handle Grips "Easy on the Hands" — Rubber Feet.
Height—34 inches, Can be cut down to 29 inches — Light Weight—5½ lbs.
Made of Light Weight Air Craft ¾ inch "Steel". All Joints Brazed with Bronze.
No Electric Welded Joints.
Recommended for Patients who are able to be up and around. Easily folded to carry in auto or to store

Manufactured to fill the demands of Orthopedic Surgeons and Hospital Staffs to help convalescent patients.

PRICE $17.95



"Walborn's" Adjustable Height-Walking Aid

Adjusts From 30—31½—33½—34½—36"

Easily adjustable for different height patients—Light Weight—5½ lbs.
Rubber Handle Grips—Rubber Feet.
Shipped Knocked Down—Easily assembled with four screws.

Retail Price $12.50 **Write for quantity price**

Guaranteed "To Give Complete Satisfaction"

WALBORN MFG. CO.

Lock Box No. 67 Phone 32515 140 Gunther Ave.
BELLEVUE, OHIO

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Our Code of Fair Trade Practices

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

It is an unfair trade practice:

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

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

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

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

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

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

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

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

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

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

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

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

(13) To wilfully entice away employees of competitors.

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

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

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

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

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

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

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