

## Translation and Abstract Service

This issue of the *Orthopedic and Prosthetic Appliance Journal* is the third to bring to readers translations of foreign orthopedic and prosthetic articles. Reader reaction has been most favorable to this translation service.

Chairman William A. Tosberg, of the Abstract and Translation Committee, and the *Journal* editors, would like to take this opportunity to express their appreciation to the Association members who have devoted their time and energies to preparing these articles: Laurence Porten, C.P.O. (whose second translation appears below), Siegfried Jesswein, C.P.O., and Siegfried Paul, C.P.O.

Readers as well as the editors are much in the debt of the members listed above. Chairman Tosberg has expressed this appreciation for all of the translators in writing about the December *Journal* in particular:

"I also think that Mr. Siegfried W. Paul should be congratulated on the excellent translation of the article by Mr. Habermann. Translation of such material is very difficult and Mr. Paul must have spent many hours in the wording of this article. I have seen articles of mine translated into another language, and some of them I just could not recognize because they were translated by the book and not by people who knew the material. This one, however, actually translates not only the language but also the contents of Mr. Habermann's very informative paper."

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### Providing Double Below Knee Amputees With Fin-Prostheses \*

By HEINRICH WALB

[Translated by LAURENCE PORTEN, C.P.O., O.M.M., F.S.O.P.]

To avoid any mistake, it is pointed out that this type of fin-prosthesis is not a technical novelty. It has been described in a book by Hans Lorenzen, *Sport and Play*. However, the idea had been discarded because "on land there is no need for it," and in the water, a single amputee can still swim satisfactorily without any gadget. If this holds true for single B/K amputees, then it is almost a logical assumption that hands should be kept off Bilateral B/K amputees in providing them such prostheses.

However, the wish and intuition of an obstinate and stubborn double amputee induced us to experiment with fin prostheses, and the result was so gratifying that we feel compelled to report it.

The surprise effect was that the double amputee not only could swim unrestricted by his handicap, but, as the illustrations clearly show, also could

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stand and walk on the fin prostheses. When only half submerged in the water, the buoyancy of the prostheses created a very favorable situation.

The good results in the swimming pool were surpassed when the amputee used the prostheses on the sandy beach and in the water of the Italian Adriatic Coast. In half deep water he experienced an excellent stance and feeling of safety, and in the deeper and more agitated water he developed a high sense of security which was not inferior to that of a healthy person.

The fins also provided him with protection against sand, shells or stones, which his stumps could not have done. The short trip from the cabin or beach chair to the water is accomplished with the help of water-tight knee gliders, as seen in Figure 1. Although the steps in the swimming pool were anything but ideal for the amputee, he had no difficulty whatsoever getting into the water.



**FIGURE 1—The amputee with the attached fin-prostheses and the previously mentioned knee-gliders.**



**FIGURE 2—Water contact after descending steps.**



**FIGURE 3—Demonstrates the stability and good balance obtained by slightly touching the pool rail with one hand.**

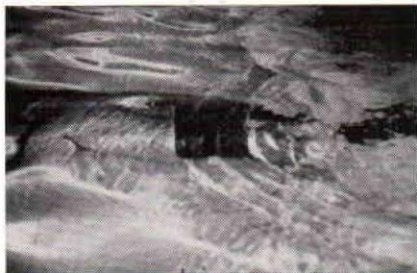


**FIGURE 4—The prostheses submerged in water with clearly visible knee parts.**





**FIGURE 5**—The quick and forceful start from the pool steps.



**FIGURE 6**—Gives a good impression of the safe and elegant swim style of the bilateral amputee.



**FIGURE 7**—Demonstrates the good balance and security when leaving the pool.



**FIGURE 8**—Both prostheses shown in action from the back, when leaving the pool.

The fabrication of the fin-prosthesis is no problem if one knows the technique of the plastic lamination process. The stump sockets are made from thermoplastic material such as we use in the U.S.A. Pressure spots can be easily adjusted. The socket borders on the condyles are made very high to allow the knee and patella section to be free, and to ease the water flow. Furthermore, this helps the dorsal blockage and avoids overstretching.

To secure the prostheses to the legs, the Otto Bock Knee Bandage, which is similar to our PTB knee strap, is fastened by means of studs. The fins are the regular type used by skin divers. The heel parts are cut in the middle and the fins pulled tight to the socket ends. The shorter the distance between fins and stump-ends, the more easily they will work. If the lengths of the stumps differ, an equal length of the prostheses and fins should be maintained to effect balance in standing and walking.

The tips of the fins point slightly to the outside—like the normal foot position—and upwards.

After the temporary line-up, a trial swim should be arranged. The patient can still decide on the final line-up.

To finish the prostheses, the hollow space between fins and sockets should be filled with pedilon foam, and finally the fins are fastened by means of rivets or screws.

The author suggests using 2 layers of perlon stockinet, 1 layer of fibre glass and, as overall cover, 2 layers of Helanca stockinet. To secure a perfect union, about  $\frac{1}{2}$  to  $\frac{3}{4}$  inches of the fins should be moulded into the final plastic cover, and a small hole should be drilled to be used as an air and water expiration outlet.

In summary, it can be stated that the amputee with the fin-prostheses can swim faster than a normal average swimmer, and in semi-deep water walks better than he would with artificial limbs on land. The leg muscles are better trained and the thigh muscles especially have a chance to relax from the strangulation of the limbs. No disadvantages have been found from soaking and floating the stumps, even after a few hours of walking and swimming in the water. However, the advantage of giving double amputees a chance to swim and enjoy water sport again is well worth the expenditure since it will raise his spirits, health and well-being.

*Note by the translator:* If German material is not available—except through the Otto Bock Firm in Minneapolis—then it is suggested to use all the necessary materials which are known in U.S.A. for laminating purposes.

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## 1966 REGIONAL MEETINGS AND DIRECTORS OF THE ASSOCIATION

The eleven men whose pictures appear on the cover of this issue of the *Journal* are the Regional Directors of the American Orthotics and Prosthetics Association who direct the Association's affairs and plan the yearly meetings in each area of the country.

Two of these meetings have already been held. Director **William A. McElduff** of **Region IV** presided at the February meeting in Orlando, Florida; and Director **Charles Kymes, C.P.**, of **Region VIII** directed the March meeting at Dallas.

Regional Directors and meeting dates and sites for the other nine regions follow:

**Region I, Director John Glancy, C.O.**, of Boston. Meets April 21-22, at the Charter House, Cambridge, Massachusetts.

**Region II, Director Benedict Pecorella, C.P.O.**, of Buffalo, New York. Meets May 13 at the Americana Hotel, New York City.

**Region III, Director Rudi Bindi, C.O.**, Baltimore, Md. Meets April 23-24, at the Lycoming Hotel, Williamsport, Pa.

**Region V, Director Cletus E. Iler** of Saginaw, Michigan. Meets June 3-5, at the Pontchartrain Hotel in Detroit, Michigan.

**Region VI, Director John A. DeBender, C.O.**, Chicago, Illinois. Meets June 24-26, at O'Hare Inn, DesPlaines, Illinois.

**Region VII, Director Everett F. Haines, C.P.**, Des Moines, Iowa. Meets April 15-16, at Johnny & Kay's Motor Inn, Des Moines, Iowa.

**Region IX, Director Leroy E. Noble, C.O.**, Whittier, California. Meets May 13-15, at the Newporter Inn, Newport Beach, California.

**Region X, Director Earl Cummings, C.P.**, Sacramento, California. Meets May 21-22, at the Sacramento Inn, Sacramento.

**Region XI, Director William L. Bartels, C.O.**, Portland, Oregon. Meets June 16-19, at Seattle, Washington.