

ORTHOPEDICS

Better Artificial Limbs

Will be the result of research now in progress under the direction of a committee of the National Research Council. Perfect substitutes too much to expect.

► BETTER artificial arms and legs for veterans and civilians can be expected as a result of research now under way in the services and under the direction of a committee of the National Research Council. This much became clear as a Congressional committee on aid to the physically handicapped, under the chairmanship of Rep. Augustine B. Kelley of Pennsylvania, opened hearings.

Veterans or their friends who expect the perfect or ideal in the way of an artificial hand, leg, arm or foot, however, will probably be disappointed.

"Even the best conceivable artificial arm or leg can be but an inadequate substitute for the member it replaces," Dr. Paul E. Klopsteg of Northwestern University, chairman of the National Research Council's committee on prosthetic devices, has already pointed out.

Even after full recovery from an amputation, the muscles are shrunken and have much less power and force than those of the original arm or leg, Dr. Klopsteg explained. His committee is studying devices for supplying external power, including mechanical, electrical, hydraulic and pneumatic.

Army research on the problem of artificial limbs is going forward at its amputation centers. In these, the program coordinates the work of the surgeons and physiotherapists who prepare the stump, the work of the men who fit the devices, of those who train amputees to use the devices, and the development and standardization of the artificial arms and legs and hands.

The Army has about 14,000 major amputation casualties. These include cases ranging from loss of all fingers of one hand or half of one foot to the loss of both arms above the elbow. This last is one of the most serious of all. Fortunately it is a rare occurrence. Only four Army veterans have this disability.

Standardization of parts is one of the projects the Army has been working on, in cooperation with the National Bureau of Standards and artificial limb manufacturers. This has already been accomplished for the foot and ankle and it is hoped standards for knees will be completed shortly.

Setting standards for the best possible knee, ankle or other part was somewhat handicapped in Army centers by the fact that, naturally enough, every time a new device was being tried, all the amputees wanted to try it. This made scientific comparisons difficult. Making changes was also difficult, with as many as 1,600 amputees in Army hospitals at one time. One hospital had 400 amputation patients in one month.

The biggest difficulty seems to be with artificial hands.

"You cannot replace the normal hand," Col. Leonard P. Peterson, of the Surgeon General's Office in the War Department stated.

At the same time he said that the present artificial hand is not as good as it should be. One difficulty in constructing hands is that the more that is put in for improving appearance and increasing the usefulness of the hand, the heavier it becomes. The higher the amputation, the less likely the amputee is to wear an artificial hand and arm and the less likely he is to get good out of one.

Legs can be made to approach the normal leg much more closely. The Army is now fitting metal legs at one center, plastic ones at another and fiber ones at five centers. Study of the results will perhaps show which is best, although there may always be individual variations in the needs of different amputees.

Even with a good artificial leg, best results will not be obtained unless the wearer learns how to use it, and the same of course is true of hands and arms.

This and the proper treatment of the stump are two points on which veterans may have the edge over civilian amputees, since the Army gives much attention to both points.

Search for the best ways of "bonding" parts of the prosthesis, for example the calf to the ankle joint, is also under way at Army centers.

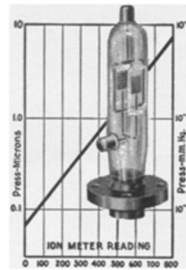
While many veterans and their friends may be dissatisfied with the artificial arms and legs now being supplied by the Army, Col. Petersen pointed out that the Army only has the problem during war and that amputees only started coming in a year and a half ago.

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Most cabbage seed used in the United States is obtained from plants grown on the Pacific coast because that area is better suited for cabbage seed production.

Tropical cyclones on the Gulf and Atlantic coasts are called hurricanes; in the South Pacific and the Indian ocean, cyclones; in the Philippine-Japan region, typhoons, and on the northwestern Australian coast, willy-willies.

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