SURGERY

Skewers for Broken Bones

Broken thighs can now be fastened together by a rod passed down the marrow. Casts and splints are not needed. Patients get out fast.

➤ BROKEN thigh bones can now be skewered together by a large metal rod passed down the marrow or hollow center of the bone. Casts and splints are not needed and many patients can be up on crutches and out of the hospital in three weeks.

The new technique was developed and used by German doctors on World War II battlefields. Results seen in prisoners of war led to three years of research by the Office of the Surgeon General of the U. S. Army and the American Academy of Orthopaedic Surgeons.

At the meeting of the Academy in Chicago, Dr. Hugh Smith of the Campbell Clinic, Memphis, Tenn., declared that this method "promises to be one of the greatest advances in the treatment of fractures of the long bones, particularly the thigh bones."

The Army became interested in the research because, by standard techniques, a soldier with a fractured thigh bone is a liability for a year, Dr. Smith said. When he finally does return to duty there is some restriction on his ability and assignment.

Transportation of these soldier-patients is also a problem. In an emergency situation, a person in a body cast is practically helpless. Such patients also take up considerable space, an important factor in the transportation of wounded by plane.

The Army also considered the future threat of mass casualties, both civilian and military. Any method that in a few weeks will permit a patient to be up and walking can help considerably to relieve a serious shortage of hospital beds.

In June, 1949, complete sets of specially designed tools and equipment were distributed by the Army to 20 groups of investigators, three in Army general hospitals, two in VA hospitals and 15 civilian groups.

By Nov. 1, 1950, 700 skewers, technically termed medullary pins, had been inserted into thigh bones.

"Based on an experience of some 700 nailings," Dr. Smith said, "we are now well past the test pilot stage."

The study so far has revealed that:

1. The rods do not have a universal application either to all fractures or all bones.

2. The type of fracture, its location and other factors limit its usefulness.

3. The technique is a highly skilled procedure which should be carried out only by skilled surgeons working under ideal hospital conditions.

4. It must be limited to patients whose general condition and resistance are sufficient to justify and withstand a substantial major surgical procedure.

Dr. Smith told the doctors that "the most common error consists of inserting a pin that is either too long, too short, too big, or too small in diameter."

"A short or loose pin," he said, " provides inadequate fixation. Consequently insertion of such rods requires considerable planning before the operation is performed. There is no formula for determining the size of the canal in relation to the length of bone. Generally, young athletes with very large bones usually have rather small canals. Small, elderly women on the contrary may have very large canals. By a special X-ray technique the length and diameter of a canal can be measured to a practical degree of accuracy. From these films, the measurements can be made for the proper pin."

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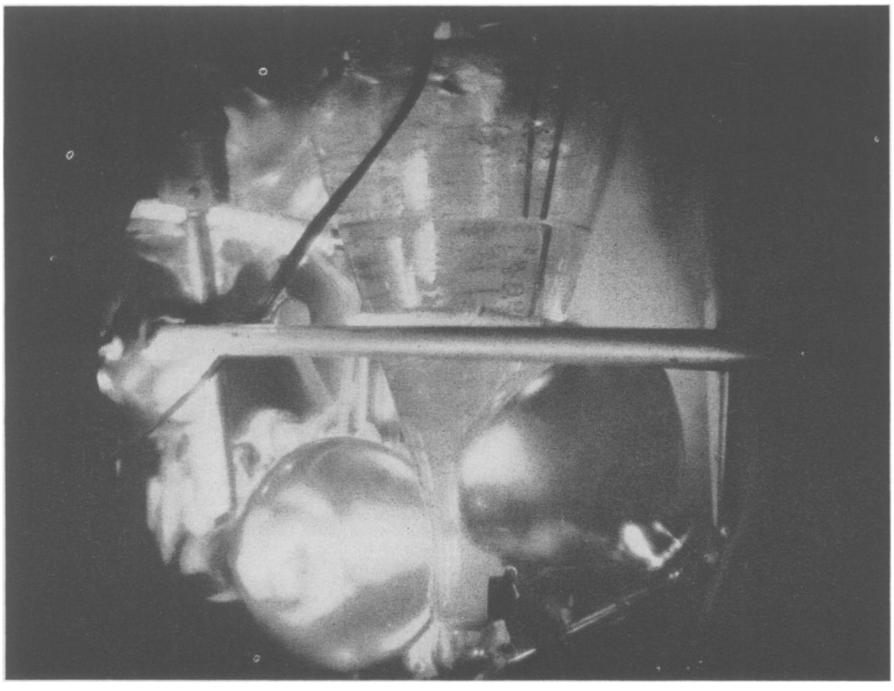

THROUGH THE PERISCOPE—This view is taken through the periscope looking into a hot cell in the new Hot Lab, Brookhaven National Laboratory. (See SNL, Jan. 20.) Here uranium isotopes and other radioactive materials are being separated for study. The solution in the vessel contains uranium and is being heated by the infra-red lamps below.

ENGINEERING

Highway Telephones Expanding Rapidly

➤ TRAVELING motor vehicles equipped with radio-telephones are now being served by 110 base transmitting stations which are handling approximately 81,000 completed calls per month, the American Institute of Electrical Engineers was told.

This highway mobile telephone system was inaugurated in Green Bay, Wis., Aug. 28, 1946, the engineers were told by Louis A. Dorff of the Bell Telephone Laboratories, New York City. It now covers many major highways in the East and West, and statewide systems have been established in Michigan, Wisconsin, Minnesota, Illinois, Missouri, Kansas, Oklahoma, Arkansas and Texas.

When first inaugurated it was planned to operate all stations on a single channel of two frequencies, he said. This would allow a vehicle equipped with a normal single-channel radio set to travel anywhere in the United States and to make or receive telephone calls.

Later, because of sky-wave interference, it was found necessary to divide the entire country into seven zones, each assigned a pair of frequency channels. Vehicles traveling from one zone to another are able to use the different frequency if equipped with an additional oscillator unit with relay switched crystals.

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