SURGERY

New Clamps Save Limbs

Legs and arms of Korean wounded are being saved through use of hand-made clamps that stop bleeding of blood vessels, yet do not injure delicate walls of veins or arteries.

See Front Cover

➤ IN HIS coat pocket when he flew to Korea the Surgeon General of the Army, Maj. Gen. George E. Armstrong, carried seven shining, stainless steel clamps.

These clamps are credited by Army surgeons with doing a tremendous leg and arm saving job among the wounded in Korea. But they are in such short supply that whenever a few come off the assembly line they are rushed to Korea by the next medical officer flying out. Even the Surgeon General is pressed into this kind of messenger service.

The reason the clamps are in short supply is that they are all hand made. The original assembly line, if it could be called that, was in the basement of a German-born instrument maker's home in Glen Ellyn, Ill., a Chicago suburb.

The special feature of these clamps are their 20 very small and perfectly aligned teeth. The teeth are so arranged that when the clamp is closed over a blood vessel, bleeding is stopped but there is no injury to the delicate walls of the artery or vein.

One of these clamps, about four times life size, is shown on the cover of this week's SCIENCE NEWS LETTER.

The teeth of the clamp follow the principle of the bed of nails Indian fakirs lie on without injury. The nails in the bed, and the teeth of the clamps, are so evenly placed that there is no undue pressure at any one point and therefore no injury.

The clamps are called Potts ductus forceps, after Dr. Willis J. Potts of Chicago who had them made for heart operations on "blue babies." They are made by Bruno Richter. The clamps, or forceps, are seven and a half inches long. The teeth are one millimeter deep and one-half millimeter apart. A millimeter is about four hundredths of an inch. The teeth are hand tempered, hand set and hand filed.

Maj. Edward J. Jahnke, MC, vascular surgeon at Walter Reed Army Hospital, Washington, began using the clamps in 1949. Last summer he took two sets to Korea for use in combat surgery there. Surgeons at Mobile Army Surgical Hospitals were so delighted with them that more were ordered and Mr. Richter started working about 18 hours a day, seven days a week, to supply the Army needs. His basement workshop has been moved to a 30-by-60-foot building in Lombard, Ill., and two assistants work with him, though the handwork is still done by Mr. Richter.

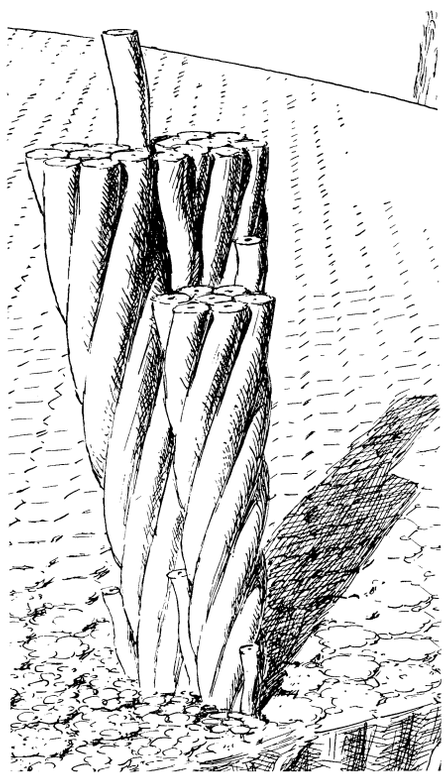
The clamps, or forceps, cost $35 apiece. They are said to be saving millions in disability payments that would otherwise go to veterans losing legs or arms. They are used to hold blood vessels during operations in which torn veins or arteries are pieced together with grafts or, if still long enough, brought together and their ends reattached by surgical stitches.

Science News Letter, January 31, 1953

CHEMISTRY

Hair Proteins Contain Rope-Twisted Molecules

➤ HAIR, FINGERNAILS, muscles and other body proteins contain molecules twisted into the shape of ropes and cables, two California Institute of Technology scientists, Drs. Linus Pauling and Robert B. Corey, have reported.



STRUCTURE OF HAIR MOLECULES — An artist's conception of the molecular structure of hair. Three seven-strand cables and several intersitial protein molecules protruding from a cut section of one hair, greatly enlarged, are shown.

In 1951 (see SNL, Sept. 15, 1951, p. 163), the two chemists announced that the individual molecules in many proteins consist of a series of atoms of carbon, hydrogen, nitrogen, oxygen and sometimes other elements coiled into spirals or helixes.

Now they have found that seven of these coiled molecules can be twisted into a cable, and they believe that these cables are present in hair and some other proteins. Each cable consists of a central molecule, coiled into a spiral, and six other molecules, also coiled into spirals, which are themselves coiled around the central molecule to form the seven-strand cable.

In rope, individual strands are coiled in one direction, and then the strands themselves are coiled around one another in the opposite direction, thus preventing its unraveling.

Drs. Pauling and Corey believe that some body fibrous proteins are similarly constructed. The individual molecules coil in one direction to form a helix in the shape of a left-hand screw. The set of coils then twists around the central molecule, with the twist in the direction of a right-hand screw.

The chemists' work is sponsored by U. S. Public Health Service, the Office of Naval Research and the Rockefeller Foundation.

Discovering the shape of proteins is important because the vital puzzle of life itself is wrapped up in the structure of proteins and other polypeptides.

Science News Letter, January 31, 1953

MEDICINE

Q Fever Discovered In Egypt Virus Research

➤ Q FEVER, one of mankind's newer disease plagues, has now turned up in Egypt. The disease was first discovered in Australia in 1937 and has since appeared in the United States.

Its discovery in Egypt for the first time was made by a Rockefeller Foundation researcher attached to the U. S. Naval Medical Research Unit No. 3 in Cairo.

Germs called rickettsia cause the disease and they are believed spread by ticks. Rickettsia come between viruses and the larger bacteria. Discovery of the Q fever ones was made in the course of a systematic investigation of viruses that cause disease in man and domestic animals and which are spread by insects, spiders or other arthropods.

Virus research has been carried on by Rockefeller scientists since 1916 when yellow fever was the prime target for virus disease fighters. This year the Foundation has appropriated $275,000 to continue studies of viruses around the world. A new virus laboratory has been set up in Poona, India, and plans call for opening another in Port of Spain, Trinidad, to survey virus diseases in the region which includes the Amazon Valley of Brazil, the Guianas, the Orinoco Valley of Venezuela and some of the Caribbean islands.

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