Not long ago the Mexican government began building roads, flood control projects and power dams on their land. Lakes backed up by the dams will soon force many of the Mazatecs to find new homes, while results of the modernization will give them cheap power, transportation and schools.

The 90,000 Mazatec Indians are beginning to react to this progress. Dr. Beals, together with U.C.L.A. graduate student, Elias Adis Castro, who is currently living with the Indians, are watching this reaction carefully in hopes of uncovering ways and means of easing the change.

"In the Mazatec situation we have a compact, test tube case," Dr. Beals said.

Science News Letter, December 1, 1951

MEDICINE

## Blood Vessel Trouble May Warn of Lung Cancer

➤ THROMBOPHLEBITIS, blood vessel trouble similar to that which attacked King George VI of England, should, if it recurs, be considered a warning sign of hidden cancer of the lung or some other internal organ, Dr. Martin M. Fisher of New York and Drs. Lew A. Hochberg and Nathan D. Wilensky of Brooklyn, N. Y., report in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Nov. 24).

They report four cases of lung cancer in men, three of whom were suspected of having thromboangiitis obliterans, also called Buerger's disease, and all of whom had more than one attack of thrombophlebitis.

Science News Letter, December 1, 1951

TECHNOLOGY

## Aluminum Bulb Bases Save Critical Copper

➤ ALUMINUM IS being used in the bases of incandescent electric light bulbs instead of brass, thus saving critical copper for defense purposes, it was announced by General Electric's Lamp Department. In the future either metal can be used, depending upon which may be in least critical supply.

The lamps with aluminum bases are identical in life, efficiency and cost to the familiar brass-based bulbs. In addition they have the advantage of being resistant to tarnishing, and of maintaining a general better appearance. Aluminum also has excellent electrical properties, being two and a half times as good a conductor of electricity as brass.

Pure aluminum is not used in the new bulb bases. Instead it is a special alloy that will withstand the high temperatures used by machines on which lamps are assembled. To manufacture them a special solder and flux had to be developed which were suitable for use in a high-speed automatic operation.

Science News Letter, December 1, 1951

BIOCHEMISTRY

# Sulfur Aids Wound Healing

**Fast healing of wounds on the battlefield, in accidents or in the operating room aided by sulfur proteins in the diet, doctors report.**

➤ SULFUR IN the diet is the key to fast healing of wounds on the battlefield, in accidents or in the operating room. The sulfur is eaten in the form of protein building blocks known chemically as amino acids.

The key role of the sulfur-containing amino acids for wound healing was announced by Drs. Martin B. Williamson and H. J. Fromm of Loyola University School of Medicine in a report to the American Chemical Society meeting in Chicago.

Not all amino acids contain sulfur. Those that do are found in the proteins of eggs, milk, wheat, corn and some other foods, Dr. Williamson said.

Wounds heal at a much faster rate when the diet is high in protein than when it is low in protein. But when a sulfur-containing amino acid is added to the low protein diet, wounds in laboratory animals healed at almost the same rate of speed as those of animals on the high protein diet.

The importance of the sulfur amino acids was also shown by a study of the sulfur balance. During the healing of a wound, this study showed, the sulfur compounds accumulate in the body, whereas proteins in general are lost by excretion faster than they are gained through the diet.

"This suggests," Dr. Williamson said, "that the tissue proteins are being broken down, but that the sulfur-containing amino acids of protein are being conserved for the healing wound. It appears that during the stress reaction after wounding, tissue protein is being sacrificed to make a greater proportion of sulfur amino acids available for some process connected with healing."

Science News Letter, December 1, 1951

*"LIGHT" BULBS—Lamp bulbs have become "light" with the introduction of aluminum to replace brass made with scarce copper for their bases.*

ENGINEERING

## Electronic Brains Figure Metal Cutting by Machine

➤ ELECTRONIC "BRAINS" may soon be helping machine tool cutters. The computer will do the necessary figuring, then its results will be fed by punched tape into a machine that does the cutting.

Such a development is foreseen from work being done at the Massachusetts Institute of Technology, Cambridge, to make machine tools more useful.

Under development is a contour-shaping machine with a cutting tool whose position is controlled by digital information rather than the dimensions of a model, as used in presently existing automatic machine tools. From design drawings of how a part should look, engineers figure out over what path a cutting tool would have to move in order to form the desired surface. This line-path is then divided into very small parts—0.0005 inch long.

The correct angle for the cutting tool to go during a certain time in order to make such a minute path is computed. Since figuring this involves a large amount of routine computation, electronic "brains" will probably be used.

Information computed by the machine will then be fed into the "machine director" which will move the cutting tool just a tiny space. The tool, therefore, can never be more than 0.0005 inch in error.

The machine director controls the angular position of three separate servomechanisms.

Once properly punched, the paper tape provides a permanent control and may be used again and again to make the same shape. The new machine is particularly suited to making airfoil surfaces. It is also expected to be applied to template making, cam making and jig boring machines, Dr. Gordon S. Brown and William Pease of MIT report in THE TECHNOLOGY REVIEW (Nov.).

Science News Letter, December 1, 1951