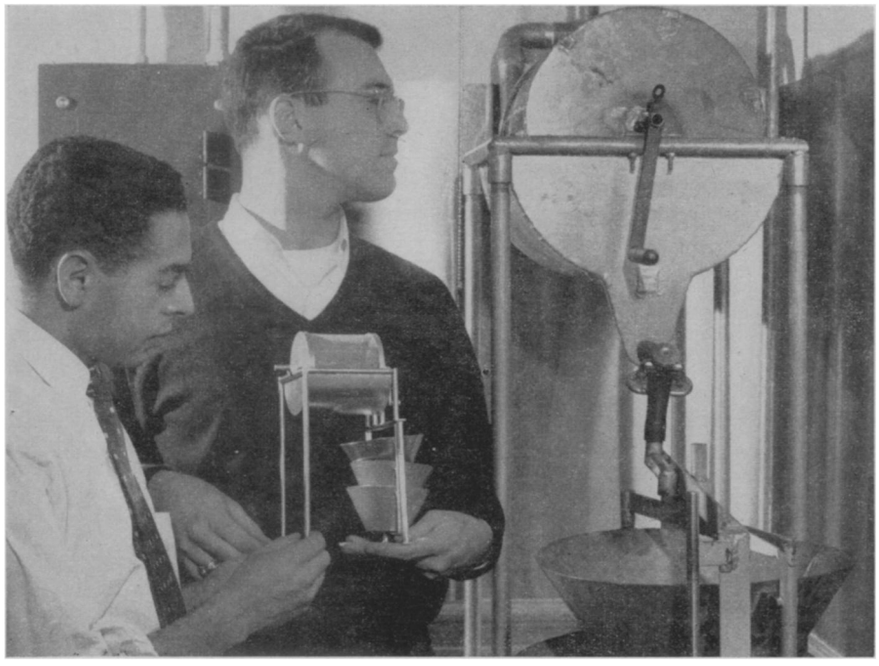

MOSQUITO EGG EXTRACTOR—Two members of the University of Illinois entomology department, Moufied Moussa, Cairo, Egypt, and Jaques Berger, Philadelphia, Pa., are shown comparing an exact scale model of the Illinois mosquito egg extractor with the actual machine. Through a special process, the machine is able to extract mosquito eggs, the size of soot specks in a coal pile, from soil samples.

SURGERY

Safer Heart Operations

➤ SURGEONS will be able to operate on the heart safely for much longer periods with a simplified, inexpensive, throw-away artificial lung announced at the meeting of the Society of University Surgeons in Indianapolis.

The new lung consists of a series of plastic bags. It was reported by Dr. Ivan W. Brown Jr. of Duke University. With it, he and his associates at Duke have been able to operate on human hearts for as long as two and a half hours.

Time may be virtually eliminated as a major factor in future heart surgery with the aid of this new lung that lets the blood bypass the heart.

During an operation, while the heart is by-passed, blood is pumped from the body by a special electric finger pump into the "lung" where carbon dioxide is removed, oxygen is added, and the blood is pumped back into the circulatory system.

Meanwhile, a flow of blood through the coronary arteries "feeds" the heart muscle sufficiently to keep it alive, but does not interfere with surgery. Two operating room assistants "monitor" the blood flow by weighing the plastic bags on scales before the blood is pumped back into the body.

The new lung apparatus overcomes a major problem of blood clotting and "blood damage" encountered in most other devices (because of blood being altered during contact with surfaces of the materials used). A special film coating in the Duke apparatus prevents "frothing." The surface of the plastic bags and tubes also prevents any damage to various elements of the blood.

In attacking the problem, Dr. Brown said, "We considered the following requirements to be essential: freedom from dependence on mechanical or electronic devices; simplicity and hand operation; freedom from bacterial contamination; smooth-non-wetting surfaces throughout, preventing as far as possible damage to various blood elements; rapid and efficient enough to provide sufficient flow rates; and low cost and expendability.

"From laboratory and limited clinical experience, we feel that the blood-gas exchanger (artificial lung) fills these requirements and offers certain other advantages not inherent in most oxygenators," he said.

Science News Letter, February 25, 1956

A new *dictionary* compiled and printed automatically by an electronic "brain" is used as a source for naming new drugs.

Properly processed *cottonseed meal* is suitable for feeding to poultry and hogs, thus opening a new market to the product.

CHEMISTRY

Clear Up Mystery Of How Iron Rusts

➤ STEPS IN RUSTING of iron have been made clearer by purposeful corrosion of stainless steel.

Gradual solution of the protective surface of stainless steel samples in dilute sulfuric acid was found suddenly to give way to rapid corrosion at a definite electrical potential at about minus 0.4 volt, followed by a recovery process described as "ennobling."

Radioactive isotopes of iron and copper were used to follow the formation and solution of surface films on the special steel. The study, made by Dr. G. H. Cartledge of the chemistry division, Oak Ridge National Laboratory, Oak Ridge, Tenn., is described in a preliminary report in *Nature* (Jan. 28).

So completely does the new study explain the rusting and recovery processes that Dr. Cartledge is now able to start the ennobling process, if it is delayed, by any one of five methods. Earlier studies on corrosion have also had some puzzling features cleared up by this new research.

Science News Letter, February 25, 1956

MEDICINE

Set Standards for Blood Vessel Banks

➤ STANDARDS for establishing and running community blood vessel banks have been set up by the American Heart Association.

The banks would serve patients who need to have a piece of artery cut away and replaced in conditions ranging from gangrene-threatening clots in leg blood vessels to removal of cancers that have invaded blood vessels.

Radioactive cobalt 60 and high voltage cathode rays are methods recommended for sterilizing the blood vessels after removal from dead bodies and before deposit in the banks.

Quick freezing and simultaneous freezing and drying are presently accepted methods for preserving the blood vessels.

Synthetic grafts, made of plastic, nylon, orlon, dacron and vinyon "N" cloth, when used under proper conditions have given satisfactory early results, but the recipient's reaction to these over a long period of time is unknown.

The blood vessel bank standards are issued as "recommendations" by a committee of the American Heart Association and appear in the association's scientific journal, *Circulation* (Feb.)

The committee consisted of Dr. Jere W. Lord Jr., University Hospital, New York; Dr. Robert E. Gross, The Children's Hospital, Boston; Dr. Charles A. Hufnagel, Georgetown University, Washington, D. C., and Dr. Abel A. Lazzarini Jr., New York University Postgraduate Medical School, New York.

Science News Letter, February 25, 1956