

## PHYSICS

## "Dry Water" Shown Before Academy of Sciences

**W**ATER made "dry" by a single layer of molecules was shown to members of the National Academy of Sciences, meeting at the University of Pennsylvania. Dr. Irving Langmuir, Nobel prize laureate and physicist of the General Electric Company's Research Laboratory, showed it in illustration of a lecture on the peculiar properties of such layers on a water surface.

A thin film of formvar, plastic used for electrical insulation, was held about a sixteenth of an inch above the liquid. The water vapor immediately caused it to go limp. But when a drop of tricosanic acid was spread on the surface, and made to cover the water, the film became rigid, showing that the invisible acid film prevented the escape of water vapor, thus effectually making the liquid "dry."

In another demonstration, he set fire to a mixture of ether and water, and extinguished it with a layer of oleic acid molecules. This does not smother the flame by cutting off the oxygen from the air, it was explained, but rather the layer stops movement in the solution. Without the top layer, the solution is in rapid

motion, bringing more ether to the top to burn.

A possible means of measuring the amount of oxidation of automobile oil was illustrated in another experiment.

First, a little used oil was dropped on the surface of water in a tray, so it spread, forming a colored film. By moving barriers along the surface towards each other, he could compress the film, changing its thickness, and the colors. Then he added about a 30-millionth of an ounce of olive oil in the center of the lubricating oil film, which produced a well-defined "invisible film" within the first. It spread out as a black film, revealed only by the way it was outlined by the oil.

With new lubricating oil, no film could be formed, but merely a lens on the water surface. With oil that was very old, and greatly oxidized, it made a film too thin to show any colors. He suggested that this could be used to measure the oxidation; by measuring the amount of new oil that must be added to produce the color films.

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to about 700 patients, except for a few months when about half the patients receiving it had reactions, Dr. Murray reported.

Only four of these patients got it in connection with the vein grafting operations. In three of these, the operations were successful and Dr. Murray credits heparin with the success. Reason for giving heparin in such cases is to prevent formation of dangerous clots while the vein graft on the artery is healing. These operations have been tried before when a piece of an important artery, such as the carotid in the neck which supplies the head with blood, or the big arteries supplying blood to the legs, is destroyed by injury or disease. The attempts to graft a piece of vein to bridge the gap have heretofore, however, not been satisfactory because of blood clot which stopped up the artery.

Heparin is available to any hospital from the Connaught Laboratories in Toronto at a cost of \$3.40 per vial, Dr. Gordon stated. It must be given continuously, because its effect does not last more than one hour. For the average patient, about two vials per day are required, making the total cost between \$6 and \$7 per day. As many of the indications for the use of this substance occur in diseases which require treatment for only three or four days, usually 10 days at the outside, the total cost of treatment is not a very large item and "does not run to the figures involved in funeral expenses," Dr. Gordon states.

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## MEDICINE

## Vein Grafts Used to Bridge Gaps in Wound-Torn Arteries

**P**IECES of veins can be successfully grafted to bridge gaps in wound-torn arteries with aid of the anti-blood-clotting substance, heparin, Dr. Gordon Murray, of the Toronto General Hospital and University, announced at the

meeting of the American College of Surgeons in Chicago.

Heparin was discovered many years ago but has been available in a purified form suitable for use on patients only since 1934. It has now been given safely

## NUTRITION

## Cockroaches Get Along Without Any Vitamin A

**S**UPPOSEDLY necessary for all forms of animal life, vitamin A has been found entirely superfluous in at least one species—the common cockroach. Experiments demonstrating this have been reported by Dr. C. M. McCay of Cornell University.

A colony of cockroaches was kept on a diet known to contain no vitamin A. They should have sickened and died. Instead, they thrived and multiplied in swarms. To make certain that they were not manufacturing the vitamin in their own bodies, Dr. McCay made an extract from five pounds of the insects and fed it to rats kept on a vitamin-A-free diet. The rats developed all the symptoms of vitamin A deficiency.

Plainly, somehow cockroaches are able to get along without vitamin A.

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