



SMOKE-SCREEN—With a portable fog generator the Army can carry large-area smoke screens to beachheads, mountain passes and jungle trails. With favorable conditions, this one generator can blot out an area five or six miles long and 200 yards wide.

contents. The liquid is broken up into tiny droplets and then atomized into smoke. Big bombers fitted for smoke layers carry their tanks of sulfurtrioxide in their bomb bay, from which a small pipe leads to the belly of the plane and through which the chemical escapes into the air.

Both the United States Army and the Navy have carried out extensive studies on smoke screening continuously since World War I. One method developed to protect battleships against submarines and other war vessels consisted of the use of fast destroyers scooting around

and among the slower heavier boats, belching out heavy black smoke from their stacks. Another consisted of the use of low-flying light airplanes which dropped smoke pots to float in the water at intervals encircling the surface boats. Some are arranged to sink when empty.

In the Army the chief of the Chemical Warfare Service calls the skillful extensive use of smoke in this war a "startling development." The orders "make smoke" and "cease smoke" are becoming about as familiar to combat troops as "fire" and "cease firing."

Science News Letter, July 1, 1944

PHYSICS

Metal Torn By Friction

► WHEN two surfaces slide over each other and there is friction, little bits of material are exchanged between them.

This has been demonstrated at the Massachusetts Institute of Technology in experiments that used artificially radioactive metals as detectives to find out just what did happen.

Long-standing discussion as to nature of friction has received an experimental answer. Some have thought it is due to lifting over small roughnesses, others credited adhesion between the atoms, while still a third group assumed that contact electricity plays a major role.

Dr. B. W. Sakmann, who with the aid of Dr. J. T. Burwell, Jr., now a lieutenant in the Navy, and Prof. J. W. Irvine, Jr., working at M.I.T. in experiments detailed in the *Journal of Applied Physics* (June), found that no matter what material was rubbed on metal, the sliding material took up bulk metals from the base. Base material was taken up by metals as soft as lead and by substances as dissimilar to the base material as glass. The amount of deposited material increased with the surface roughness of the sliding specimen if it was harder than the base material. Lu-

brication with pure mineral oil reduced the amount of the deposited material.

Even paper can tear particles out of a metal when it is rubbed over it.

Artificial radioactivity provided a means of detection that is 10,000 times as great in sensitivity as the older microchemical and spectroscopic methods used for detection of small quantities of materials. As little as 1/10,000 of a microgram of metal can be detected. A copper-beryllium alloy was bombarded in the M.I.T. cyclotron with deuterons. This made the copper radioactive and tagged it so that the radiation it gave off could be used to distinguish it from ordinary copper and measure the amount present. When other substances were slid over the base plate of this bombarded metal, this radioactivity allowed a very precise determination of the amount of the base plate picked up.

Science News Letter, July 1, 1944

MEDICINE

Inexpensive Blood Banks By Use of Plastic

► A METHOD by which small hospitals can easily build their own blood plasma banks without expensive and elaborate equipment was reported to the American Medical Association by Dr. Charles Stanley White and Dr. Jacob Weinstein, of Washington, D. C.

Separation of the blood from the plasma, they find, can be accomplished by mixing the blood, as it is drawn from the donor with methyl cellulose. This plastic causes the red blood cells to pile up in rouleaux—like stacks of coins—and therefore settle out of the plasma faster. In 24 hours plasma equivalent to almost half the total blood volume can be siphoned off and used at once safely. The plasma may be stored for a year at room temperature and still be safe to use.

Science News Letter, July 1, 1944

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WYOMING

Yes, even THIS summer you may fish in its mountain streams, ride horseback through its hills and canyons, find Indian relics and marine fossils in a region of great historical and geologic interest.

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