CHEMISTRY

Fluorescent Raft Signal

Chemical dyestuff glows brightly leading rescuers to a wrecked plane. New solution keeps film on surface despite rough weather. May also be used in life boats.

➤ AN UNUSUAL method of signaling from life-rafts has found important use in the war. A flask of uranine, a brilliantly fluorescing dyestuff which glows bright yellow in sunlight as well as in ultraviolet light, is attached to the rubber raft used by aviators.

When forced down in open water the airmen open the valve on the flask and a large amount of concentrated uranine solution is released over the surface of the water. Glowing strongly in the sunlight, it attracts the attention of pilots who may be flying high overhead.

As would be expected, the yellow spot on the blue or green water provides a convenient means for signaling aircraft on a sunlit day. However, certain faults in the method have appeared, and although they have not yet been remedied, a recent development promises to increase the chances of being safely rescued for those on such a raft.

A new solution has been prepared which assures rapid distribution of the dye over a large area without the loss of particles or globules containing the dye by sinking. The new composition disperses the uranine regardless of rough weather and tends to form a thin film which keeps most of the dye near the surface where it can be seen.

The liquid base which quickly disperses the uranine over the water consists of four organic chemicals (dibutylamine, dibutyl tartrate, dibutyl ether, and acetone) in the correct proportion so that dispersion occurs. Each substance plays a definite role in preventing the formation of globules which sink; keeping the alkalinity high so that fluorescence is at its best; and maintaining proper viscosity and surface tension. The uranine is not dissolved in the base but is suspended as very fine particles.

The new fluorescent signal need not be limited to life rafts. Individual life preservers, life-boats, and so on, may be equipped with these flasks, the signal being released when a plane or ship approaches.

Science News Letter, August 22, 1942

MEDICINE

Vitamin A Combats High Blood Pressure in Dogs

➤ VITAMIN A in massive doses counteracts high blood pressure in dogs, caused by lack of function in the kidneys, Dr. G. E. Wakerlin, Dr. W. G. Moss and Dr. E. L. Smith of the University of Illinois College of Medicine report (*Science,* Aug. 14). This gives experimental support to earlier clinical observations, which indicated blood pressure reducing properties on the part of vitamin A.

In carefully controlled laboratory procedure, the three scientists put the kidneys of five dogs out of action, so far as control of blood pressure was concerned. The dogs survived the operation perfectly and remained well, with hearty appetities, except for the rise in blood pressure.

After several months, three of the dogs were given massive daily doses of vitamin A in sesame oil. The other two were given "blank" doses of the oil, containing no vitamin. The blood pressure of two of the vitamin-treated dogs soon returned to normal, and that of the third dog to a little above normal. The untreated, "control" dogs remained in a state of high blood pressure.

The three experimenters announce their intention to continue their study on a larger scale, and also to determine the possible pressure-reducing effects of other compounds chemically related to vitamin A.

Science News Letter, August 22, 1942

ENGINEERING

Plastics Given Exercises To Test Fitness for Use

➤ AUTOMATIC machines bend plastic materials back and forth at speeds ranging from a slow wave to a singing vibration to test their fitness for airplane parts and for other uses subject to vibration.

When the specimen breaks, the machine automatically stops and the number of vibrations administered up to the moment of the break is recorded. An important result of the tests was the disclosure that the rate of vibration has an important influence on the number that can be withstood.

These and other tests on plastics have been carried out for the past two and a half years at the University of Illinois under the direction of William N. Findley, backed by more than 25 years experience of the engineering staff in putting metals through similar tests. The results are used by the American Society for Testing Materials to designate standard methods of testing plastics.

In another test, specimens hang along a wall of the laboratory with weights attached, and the stretch or "creep" is measured with microscopic fineness for periods of time from a day up to as much as a year.

These long-time "fatigue" or endurance tests are of extreme importance for the safety of our fighting men and civilian workers, for a piece will fail under oft-repeated or long-continued stresses much smaller than it could withstand for a short time. It is necessary to know how long a piece can be used or abused.

Science News Letter, August 22, 1942

Alaska produces half the world's *salmon* pack.