

have scoffed at as impractical because vibration would break the joints holding the top to its supports. Now the top can be attached by Cyclewelding a thin rubber sandwiched between the plastic and the metal.

That is only a beginning, Saunders says. When you find a gunk that will stick anything to anything else, the sky is the limit.

For much of the technical data in this article the author gratefully acknowledges indebtedness to Lloyd Stouffer, author of "Cycleweld—a New Bonding Process," published by *Modern Plastics*, September, 1943.

Science News Letter, March 11, 1944

CHEMISTRY

Paper Shipping Sacks Receive Specifications

► THE FIRST extensive federal specifications for paper shipping sacks have just been issued by the National Bureau of Standards. War uses of paper sacks, now necessarily replacing metal, wood or textile containers, make these of particular importance at the present time.

Specifications include construction details for five types of sacks, and for waterproofing the ends of sewn sacks. They cover four different kinds of kraft paper: shipping sack paper, paper treated for high wet strength, paraffined paper, and asphalted paper. For wet-strength paper a wet tensile strength of about 27.5% of the dry strength is specified.

Science News Letter, March 11, 1944

CHEMISTRY

Process for Obtaining Magnesium from Sea Water

► MAGNESIUM, super-light metal needed alike for airplane construction and illuminating flares, has been obtained in quantity from sea water during the present war. Patent 2,342,666, on a process for doing this, has been granted to S. B. Heath and F. R. Minger of Midland, Mich., and assigned by them to the Dow Chemical Company. Basic steps in the process are the treatment of the sea water first with a lime slurry, then with calcium chloride, to remove undesired compounds (principally sulfates), and introducing carbon dioxide to unite with the magnesium to form magnesium chloride. Since this compound is highly soluble, it remains in solution while the insoluble sulfates are precipitated and filtered out. Then the magnesium chloride is reduced to solid form by evaporation.

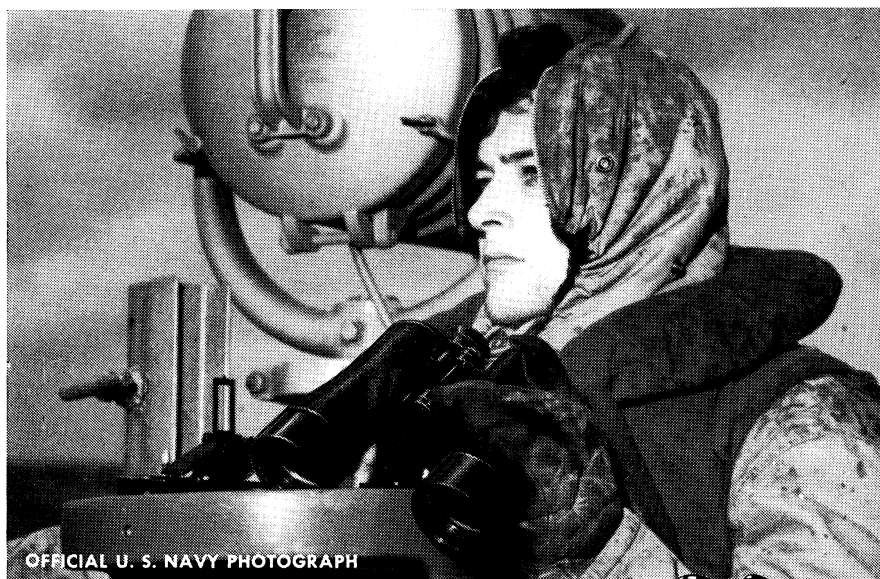
Science News Letter, March 11, 1944

CHEMISTRY

Oil-Treated Shoe Soles

► SOLES of wartime rationed shoes last longer if treated before attached with special oil preparations, or impregnated with wax. In tests made during the past year by the National Bureau of Standards, an improvement was found of 14% in wear of sole leather of grades available to civilians, and a possible improvement of from 30% to 40% indicated by a few service tests of wax-impregnated soles.

Some thirty commercial mixtures for water-proofing and improving wear were examined at the Bureau, but the service tests on oil-treated soles were confined to two, both of which are made of available materials and may be applied without special equipment. In the service tests a considerable number of cadets were used, the cadets being in a Washington, D. C., high school military unit.



OFFICIAL U. S. NAVY PHOTOGRAPH

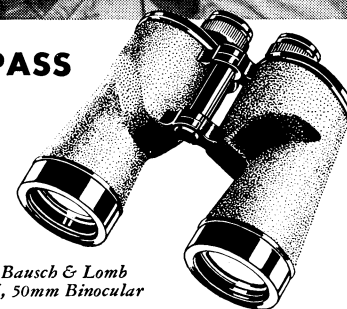
BINOCULARS LIKE THIS MUST PASS

a "swimming" test

Bausch & Lomb developed the first waterproof binocular—a binocular which can be immersed in a tank of water, yet due to its water-tight construction, not a drop of water can get into the interior to fog the optics or interfere with its perfect functioning.

This engineering achievement required a complete redesign of the instrument, complete re-tooling and revised manufacturing procedure. All this was accomplished without interrupting the scheduled even flow of needed binoculars to the armed forces.

Based on this redesign, both the Army and Navy now specify that *all* binoculars supplied to them be of waterproof construction.



Bausch & Lomb
7X, 50mm Binocular

Facilities of this plant—developed through 90 years of service to outdoor enthusiasts, to science and industry—are busy today fighting a war. After Victory new miracles of optical science for better living will come from the drafting tables, the glass furnaces and the precision finishing rooms of Bausch & Lomb, optical headquarters of America.

BAUSCH & LOMB

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