

two-section metal oars which are strapped in place.

The new rubber boat is much more easily rowed and maneuvered than older and smaller boats, according to Wright Field engineers. When deflated and folded the craft occupies approximately three cubic feet of space.

The Air Corps plans to use it as standard equipment on its big four-engined bombers, when they fly overwater, but it will probably be made available soon to commercial airlines. Tests on the new boat have been completed, and an order has already been placed for a service test quantity, amount of which was not disclosed.

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Government engineers say that a small opening, such as the crack under a door, will almost completely destroy the sound insulating value of any wall.

Germany has ordered that universities and technical schools turn out engineers faster, by shortening the courses.

#### TIMES ARE CHANGING!

*The gas mask has been improved in function but not in beauty or its grim reminder of the frailty of man. From left to right are shown: The handkerchief soaked in hypo that served the British against the German's chlorine. The Ku-Klux-looking outfit is a later development of the British in the World War. The feedbag-looking mask is of Italian make. On the facing page, at left, the new type U. S. Army mask with replaceable aviator goggles and ventilation to remove moisture. Next the new Navy mask with a diaphragm to permit speech. At right, a new mask of synthetic rubber-like material, Koroseal, transparent and with improved circulation of air to keep goggles free of fogging.*

CHEMISTRY

## Edgewood Arsenal Prepares For New Defense Program

### Gas Masks Are Special Feature; Production Could be Speeded Up to 300,000 a Month With Present Plant

See Front Cover

**A** WITHERED skeleton of a mighty World War industry, which poured its products across the sea to the allies by the millions of units and then dried up when peace-time came, is coming to life again in a small Maryland town as Uncle Sam's new defense program swings into action on land and sea and in the air.

Gas masks for the Army! Smoke screens for the soldiers! Chemical shells and gas America hopes she will never use but is preparing anyway! That's the business of Edgewood's famous arsenal, busy as it has not been in many a year, a sprawling institution where experimental and pilot plants are being studied today to serve as guides for tremendous industries that may have to spring up overnight tomorrow.

You can see some of it today, if you have proper permission, and are in the custody of a watchful Chemical Warfare Service officer, but it is becoming a bit more mysterious than ever as a spreading air of secrecy masks its work.

Some buildings are relics of World War days. Everywhere, however, you will see huge concrete foundations that

once supported enormous tanks of chemicals. Wherever you look are the network of pipes that once linked these tanks with buildings and buildings with each other. Through these pipes—ten feet off the ground—once flowed concoctions of death through poison gas. And they can do it again.

At Edgewood you learn that the term "poison gas" is little used in the service. Chemical agent is the characteristic term for everything from mustard gas to the technical names of sternutators and lachrymators.

If the wind is right you will hear, at Edgewood, the dull booms of distant guns as chemical mortars, Livens projectors and their newer fellows shoot gas and smoke shells in nearby Bell Farm Test Field, hard by the shores of Chesapeake Bay. When the Army gets to work on its big guns at Aberdeen Proving Ground down the road toward Wilmington, you can really hear the big fellows roar.

The illustration on the front cover of this week's SCIENCE NEWS LETTER shows a smoke screen spread to cover movement of troops.

Any civilian visitor at Edgewood will



make for the gas mask factory for two reasons. In America—as yet—thanks be gas masks are a rarity and there is something of a Man-from-Mars aspect about them which intrigues the layman. Subconsciously perhaps the urge to visit the gas mask factory comes from the realization that here the civilian will probably find his closest reminder of what war is like.

Gas mask manufacture is one of Edgewood's chief activities. Eight hundred a day are being turned out by a skeleton force of 280—nearly all civilians and under Civil Service. These masks go to the Army and the Navy to replace old masks and to make possible a greater distribution of masks in the services, where the present ratio of masks to soldiers and sailors is about one mask for every four men.

Using the same plant, but by increasing personnel to 1,500 and by going on a 24-hour production day, it is estimated that 300,000 masks per month could be made at Edgewood.

Gas mask manufacture has come a long way since that shocking day in April, 1915, when a thin veil of haze swept over the landscape at Ypres and left in its wake a terrorized, shattered force of British and French soldiers.

The hastily concocted handkerchiefs soaked in a solution of sodium thiosulfate, known also as hypo in photography, and tied over the mouth and nose, which the British used to gain some measure of safety from the original chlorine gas of the Germans, have now been replaced by masks that are proof against any known poison gas or dust.

The weight of the mask and its supplementary filtering canister has come down, its utility has gone up. It fits better, lasts longer and is more comfortable.

Clever placement of the intake duct splits the flow of air and makes it sweep across the eye-pieces of the masks to keep them free of breath fog.

Special masks are coming into production for all manner of jobs in the Army and Navy. Commissioned and non-commissioned officers are supplied with diaphragm masks which permit the sounds of commands to come out without letting in poison gas. Telephone operators of the signal corps, too, wear masks of

this type.

Some new masks have their eyepieces made to optical perfection so that the wearers can read delicate and sensitive instruments. Try reading the vernier settings on the range of a 75 millimeter gun while wearing an old-time gas mask and see how low is the accuracy of fire. Aviators need such special masks too because of the myriad of instruments before them in the cockpit.

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#### ARCHAEOLOGY

## Indian Ears Preserved By Copper Earrings

INDIAN ears "preserved" by salts formed by their copper earrings after burial, and Indian skulls that were buried minus bodies by some strange prehistoric American custom, are among the finds salvaged by archaeologists from the Alabama T. V. A. area now flooded by waters of Wheeler Dam.

Rated highly important for reconstructing events in Southeastern states in America's prehistory, the excavations at 19 sites in this area are described in a report by Prof. William S. Webb, of the University of Kentucky, issued by the Smithsonian Institution.

The most primitive of the Indians whose homes now lie beneath the lake are described by Prof. Webb as having lived mainly on the bounty of the Tennessee River. They had no agriculture, no pottery, and did little hunting. They may have been cannibalistic, but the evidence is doubtful. They used a throwing

stick, similar to the atlatl of pre-bow and arrow days in some other sections of America, which may mean that these Indians lived many centuries ago.

Prof. Webb and his associates recorded every significant detail of Indian cultures they could find in the area to be flooded, because so far archaeologists admit they are far from understanding when and how various tribes and types of Indian culture left their mark on the aboriginal Southeast. Shell ornaments and other objects found in some of the Alabama burial mounds resemble articles used at the well-known Indian mound settlement of Etowah, Georgia, 100 miles east. At other Alabama sites, many articles unearthed suggest to experts the advanced Hopewellian Mound Builder culture in the Mississippi Valley. Links between these factions, whatever they were, are still missing.

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