

AERONAUTICS—RESOURCES

# More Fuel Is Needed

Huge expansion of cargo plane fleet poses new problem of fuel supply. Air transport is aiding the African drive.

➤ AVIATION FUEL, the priority passenger on every cargo plane, must be produced in much larger quantities to keep aloft our growing fleets of military transports, it is revealed by a study issued by the Standard Oil Company.

About 3,300,000 gallons of 100-octane fuel a day will be required to fly the 1,200 cargo planes called for by a recent contract, assuming that they fly a third of the time.

To maintain such a fleet of planes, if they were the most efficient heavy type for long hauls, would require a substantial increase in the nation's 100-octane capacity, the report states.

Four to five gallons of aviation lubricants will also be required for every hundred gallons of gasoline consumed. The huge demands may make it necessary to restrict civilian consumption of premium grade motor oils. In normal times it would take more than a year to expand the complicated processing facilities for these aviation lubricants.

"Whether the industry can supply the fuel and lubricants to put into the air such a cargo fleet as is now being dis-

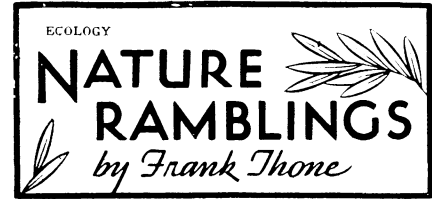
cussed depends on how rapidly the steel and other critical materials that must be allocated among various programs of strategic importance can be made available for 100-octane plant construction," Standard Oil officials warn.

The cargo plane's thirst for fuel is revealed by statistics showing that more fuel must be carried than cargo except on short runs and with frequent refueling. For heavy types of planes, like the Mars, the proportionate fuel demand is lowered.

Every cargo plane now in operation on overseas lanes requires more tankers to keep it in service than it replaces in freight ships, the report states. But planes are now actually delivering military supplies to far corners of the earth because of their speed and because their valuable cargoes can be delivered directly to troops inaccessible by ship.

Planes from the United States, for example, have been flying replacement parts for tanks and planes all the way to Africa to help maintain the drive of the United Nations.

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Florida Dunes

➤ SAND DUNES are very much alike wherever you find them. Young soldiers and aviation cadets in Florida, whose thousands have largely replaced that state's normal peacetime population of tourists and vacationers, have doubtless noticed that the sand dunes along both ocean and gulf coasts are in a general way very much like other dunes they have seen along the seaboard farther north, or on the Pacific coast, or on the southern and eastern shores of Lake Michigan.

First there is bare, loose sand; then a zone of sparse, weakly-rooted plants eking out a hard existence; above this, one or more ridges bound with increasing firmness by the tough roots of perennial grasses. Still beyond comes the area of the stabilized dunes, with long-established plant populations of substantial bushes and various kinds of full-sized trees.

Closer examination, however, will show decided differences in detail underlying the general similarities. The same jobs of pioneering, sand-binding and stabilization are done, but there are different plants doing them.

A comprehensive and most readable study of the vegetation of Florida dunes has just been brought out by Prof. Herman Kurz of the State College for Women at Tallahassee. In text and diagrammatic illustration he tells the story of the plants that make the shifting sands stand still. (*Florida Dunes and Scrub, Vegetation and Ecology; State Geol. Surv., Tallahassee, \$1.*)

A stroll from the water's edge takes the observant student of nature first across the weakly-held pioneer-plant zone where beach morning glory and the fleshy sea-rocket are the most con-

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spicuous plants. In the zone of sand-binding grasses, sea-oats is by far the dominant plant, its waving monotony punctuated towards the inland margin by stiff-stemmed yuccas.

The stabilized zone of trees is the most complex part of the dune plant world. Most constant throughout are palmettos, usually sprawling undergrowth bushes, but sometimes tall tree forms also. Oaks, of Southern species, abound; often (though not always) pines as well. There are one or two kinds of holly, with smooth-edged leaves that fall off in winter.

Highest vegetational development, corresponding to the beech-maple "climax" community of the famous Lake Michigan dunes, is reached when the large-flowered magnolia appears among the oaks, like a queen who finds that her hardy pioneer fighters have made the frontier safe for her regal presence.

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## CHEMISTRY

## Dr. Elvehjem Wins Medal For Work in Nutrition

➤ THE WILLARD GIBBS Medal, highest award of international scope which the American Chemical Society's Chicago Section can bestow, has been given to Dr. Conrad Arnold Elvehjem, professor of biochemistry at the University of Wisconsin.

A long record of original research in chemistry brought Dr. Elvehjem the honor. In 1928 he received wide recognition with his associates for work involving trace elements in nutrition. They discovered that copper is essential to the formation of hemoglobin, the oxygen-carrying red stuff of the blood.

Later their studies revealed the place of a number of metals in nutrition, such as iron, manganese and aluminum.

While at Cambridge Dr. Elvehjem conducted studies on tissue respiration which have since been applied to the study of vitamin functions.

Use of nicotinic acid in prevention and cure of pellagra developed from Dr. Elvehjem's greatest discovery: the role of nicotinic acid in animal nutrition.

He is now conducting studies on the newer members of the growing family of B vitamins.

For these and other researches, Dr. Elvehjem will formally be presented with the medal at a meeting of the Chicago Section of the American Chemical Society on May 20.

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## INVENTION

## Device Saves Ammunition By Reducing Gun "Climb"

➤ TERRIBLE ammunition-waster is the tendency of submachine ("Tommy") guns and automatic rifles to "climb;" it is difficult even for experienced gunners to keep their muzzles at proper elevation when full-automatic fire is on. To overcome this tendency, Eugene G. Reising, well-known gunmaker of Hartford,

Conn., has developed a simple muzzle attachment on which he has received patent 2,313,669.

It is tubular in general outline, with internal diameter appreciably greater than the weapon's bore. Through its upper side are cut several transverse slots, and a cuplike lip extends across the lower side of the outer end. Effect of the blast, reacting against these, is to push the muzzle down, neutralizing the climbing tendency.

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### HERE'S HOW TO ENLIST YOUR BINOCULARS

The Navy needs every binocular it can get. If you have a Bausch & Lomb 6 x 30 or 7 x 50 binocular and will turn it over to the Navy for the duration, pack it carefully and ship to the Naval Observatory, Washington, D. C., or deliver to the nearest naval district headquarters. An identification tag bearing your name and address should be fastened securely to each instrument. Accepted binoculars will be acknowledged with a fee of one dollar and will be returned to you after the war if still in use.

The Navy is not authorized to accept gifts or free loans. Therefore, the binoculars are purchased for \$1.00 and if they are available after the war they will be returned to the owner, in which case the \$1.00 will constitute rental and appreciation charges. Commanding officers of naval vessels are requested to notify you of the ship aboard which your binoculars are in service.

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