

# First "Mother Ship" for Airplanes to Use Helium

By James M. Scott

UNCLE SAM will soon own the first "mother ship of the air."

Carrying beneath her huge 300-foot body a brood of speedy bombing and scouting planes that she can release or pick up while traveling at full speed, the "R-1"—first semi-rigid airship to be built in America—will provide, when completed, an ef-



Herman T. Kraft

Chief aero engineer of the Goodyear Tire and Rubber Company, in charge of constructing the "R-1." He predicts that "the entire surface of the airship of the future will be of metal. And the first practical all metal airship will open wide the gates to the use of the airship commercially"

fective means of patrolling the Atlantic or Pacific seaboard.

Construction of this remarkable "mother airship" for the United States War Department will begin at an early date at the plant of the Goodyear Tire and Rubber Company at Akron, Ohio. And the most significant feature about her—especially from the standpoint of commercial development—is that she will be the first airship to be designed and built especially for the use of non-inflammable, helium gas.

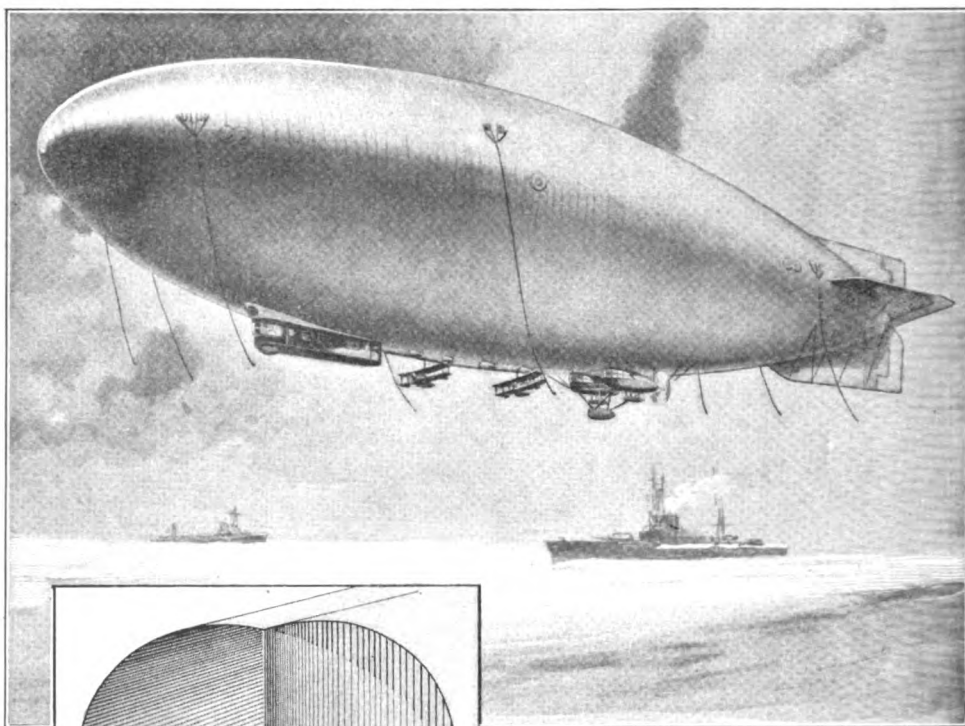
Indeed, Dr. R. B. Moore, chief chemist of the United States Bureau of Mines, in charge of the government research work in connection with helium, declares that the future of lighter than air craft never has been brighter than it is today, and that the problems of helium production have been solved. Within the next decade, he adds, 99.9 per cent helium will be produced at a cost as low as \$20 the cubic foot.

## A Rigid, Triangular Backbone

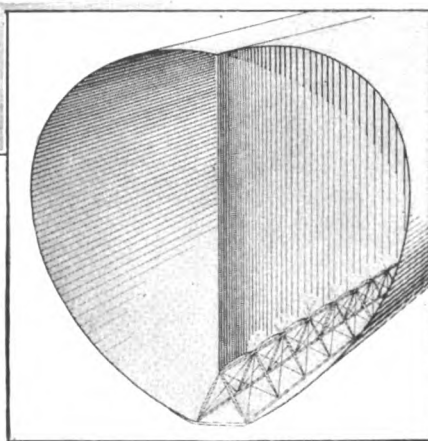
The work of constructing her will be under the direction of Herman T. Kraft, chief aeronautical engineer of the Goodyear Company.

The ship's structural rigidity will be along its backbone, which will consist chiefly of a duralumin framework keel of triangular cross section running from nose to tail. Into this keel will be built the large frame of the nose cone and also the fins, forming one integral structure. It will be driven by four low compression Liberty motors. Three cars, constructed of duralumin and aluminum, will be slung from the keel, the navigation car being forward and the two power cars aft, side by side.

The pilot's car will ordinarily carry a



The 300-foot semi-rigid army airship "R-1" as she will appear when completed, with scout planes suspended from her rigid keel as explained below, and with navigation car forward and two power cars aft, side by side



Cross section of the semi-rigid "R-1," showing double envelope that will inclose helium filled balloonets, and rigid, three-cornered framework keel of duralumin that will run the entire length of the ship

crew of from 16 to 20 men. A telautographic signaling system, by which the pilot can signal the power cars for speed changes, engaging motors, and reversing, will be a feature of the control-board equipment. The propellers will be 20 feet in length and will have 640 revolutions a minute.



## Small Electric Motor Shakes Sifter



This sifter is shaken by an electric motor beneath the screen

A NEW electric sifter, which shakes material through a screen at an extraordinarily rapid rate, has a novel eccentric that produces a rapid shaking motion.

The material to be sifted is thrown into a container at the top of the sifter and falls upon a movable mesh screen. A small electric motor beneath the sifter rotates a shaft connected with the screen through an eccentric, imparting a vibratory motion to the screen and causing the small material to be brought over the openings in the middle.

The machine is capable of screening a ton of moist sand in four minutes. It is also used for the purpose of separating the solids from the liquids in various processes used in chemical manufacturing industries.