

AERONAUTICS

# Huge Cargo Carrier

The Hermes, a gigantic airplane, is now under construction in England. It transports freight at four miles a minute with 2,000-mile range.

► THE HERMES Cargo Carrier, a gigantic airplane, has been announced by the Society of British Aircraft Constructors. It is under construction by the Handley Page Company, which is also building the 50-passenger Hermes transport, of which the new cargo plane is a version. Like the passenger model, the cargo plane is a low-wing, all-metal, four-engined ship. It will carry a useful load of 16,000 pounds.

The four radial air-cooled engines of this cargo carrier give a total maximum output of 6,600 horsepower. The maximum speed of the airplane is 340 miles an hour, but its economical cruising speed over long distances is 240 miles an hour, or four miles a minute. Its range is 2,000 miles.

British aircraft industry, with the European war over, is converting rapidly to the construction of civilian planes, both by remodeling war planes and by designing new planes which include improvements developed in constructing war planes. The British Minister of Civilian Aviation has announced that British airlines will use British aircraft, thus encouraging the industry.

The new Hermes is not as large as the new British flying boat, Shetland, which is a 70-passenger transoceanic airliner even larger than the Mars, the largest American-built flying boat. The Shetland is a 130,000-pound craft, while the Hermes is rated at 70,000 pounds. The Shetland has a greater wingspan than the famous American B-29 Superfortress.

Another new British plane is the Viking, an airliner with a range of 1,500 miles and constructed to carry 21 to 27 passengers. It is a single-engine plane that promises to play an important part in the development of postwar air routes to the continent of Europe. The Marathon is a new four-engined plane designed to carry 14 passengers and a half-ton of luggage and freight over a distance of 750 miles at a speed up to 200 miles an hour.

The Halifax Civil Transport is a conversion of the well-known Halifax bomber that carried much destruction to German war plants. It can accommodate 11 passengers and 8,000 pounds

of freight. The equally well-known Mosquito, Lancaster and Spitfire are also under conversion for civilian uses.

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ZOOLOGY-TAXIDERMY

## Miniature Animals of Plastic Look Alive

► THE ZEBRA guarding her young colt, American elk in mortal combat, and the rare bongo antelope of Africa, are but a few of the animals which Louis Paul Jonas, taxidermist and sculptor, has prepared for his Lilliputian Noah's Ark.

The elephant and the field mouse, the giraffe which towers above the hippopotamus—all are one-tenth the size they would be in real life. Although the number of mammals represented but a fraction of those known, the collection is the most extensive of its kind. The individual animals have been made with great accuracy and artistic skill.

Mr. Jonas, who converted an abandoned railroad station at Lake Mahopac, N. Y., into a studio, believes that models should be made so children can handle them. To make this possible he developed a plastic that is practically unbreakable—the delicate horns and long tails will last under handling. He decided to

make the models one-tenth natural size, as he felt this was an easy scale for anyone to comprehend.

In making the models, first the skeleton or armature of the animal is created to exact scale. This is drawn on cardboard, cut out, and lined with wire so that the limbs can be bent into the desired position. The animal is then set upon a base and is ready to receive the clay from which the mold will be made.

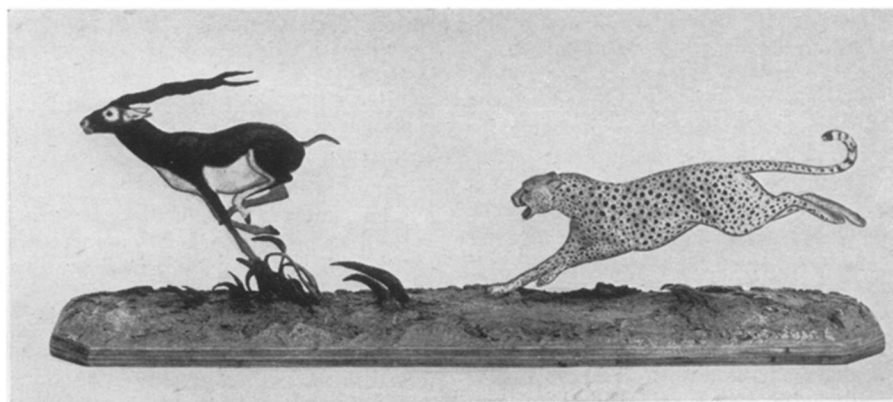
"You can well imagine how important it is to have a knowledge of the animal's anatomy when one works from the bones out," states Mr. Jonas. Throughout the process careful measurements are frequently made. About two weeks of hard work, exclusive of watching the animal at the zoo, studying pictures, and reading about it, is usually needed to make a model.

A plaster mold is cast from the clay sculpture, and self-vulcanizing rubber latex, of which the finished animal is made, is forced into the mold by compressed air.

Only a limited number of duplicate animal models are made in the finished mold since the impression eventually wears down. The original clay models, though damaged from casting, are saved and can quickly be put into shape for re-casting.

The latex plastic does not harden until it is removed from the mold and baked for 15 minutes or so. The cast shrinks slightly during baking. After the model is tooled, it is shellacked, mounted on a base and fitted with eyes. Prepared with a ground white, it is ready for the final coating of oils.

A simple animal like a bear, which only requires two or three colors, can be



**ONE-TENTH NORMAL SIZE**—The African black buck pursued by a cheetah is one of the most intricate animal groups in the collection recently exhibited at the Chicago Natural History Museum. Both of the miniature animals are practically in mid-air.

painted in an hour, but sometimes a day or more is needed to paint an intricate mammal like a jaguar or a giraffe. Oil paints are blended to achieve the elusive quality of an animal's coat.

The cheetah pursuing a black buck antelope was one of the most difficult animal groups to make. Both of them are practically in mid-air—the cheetah has just one paw touching the ground—yet no additional supports are necessary.

The klipspringer, a little antelope, is one of Mr. Jonas' favorites among the

almost 90 animals. Capable of springing up on a 30-foot rock, in real life it is only about 22 inches high.

The elephant and the field mouse have proven most popular with children, who enjoy the contrast in size. The animals this past year have been exhibited at the American Museum of Natural History and the Chicago Natural History Museum so children and grownups alike would have an opportunity to enjoy them.

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#### ASTRONOMY

## To Observe Eclipse

**Amateur astronomers will fly to Montana to observe the event of July 9. Will take photographs from the air if the weather is bad.**

➤ AMATEUR astronomers will fly from New York to Butte, Mont., to observe the sunrise eclipse on July 9. If the weather does not permit ground observations, the entire expedition will fly above the clouds to take photographs.

A Lockheed airliner, owned by Sperry Gyroscope Company of Brooklyn, N. Y., will furnish transportation both ways for members of the Amateur Astronomers Association, Inc., which has headquarters at the Hayden Planetarium in New York. R. E. Gilmor, president of Sperry Gyroscope, announced that there would be no charge to the amateur astronomers for use of the plane and its crew.

The expedition will take off from MacArthur Field, Long Island, on July 7, and land near an appropriate observing site near Butte, Mont., where the total phase of the eclipse occurs soon after sunrise.

On Sunday, July 8, the equipment will be set up. It is expected that color motion pictures of the partially eclipsed sunrise will be made, followed by the same for totality. The largest instrument carried in the plane will be a four-inch camera of 10-foot focus, giving an image of the sun itself about one and one quarter inches in diameter.

If weather does not permit ground observations, the entire expedition will take off again early Monday morning, fly above the clouds to take the photographs, and then head straight back to Long Island.

The plane will carry relatively few persons as most of its passenger space has been cleared for observing equipment. The party will include, in addi-

tion to the crew, George V. Plachy, secretary of the society; Peter A. Leavens, director of the society's camera station at Sayville, Long Island, and in charge of the expedition's photographic equipment; and a few other observers and amateur astronomers.

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### Justifies Trips

➤ ALTHOUGH there is a war still being waged, the total eclipse of the sun on Monday, July 9, is a sufficiently rare and important event to justify astronomers traveling to the path of totality to observe it, Dr. John Q. Stewart, Princeton University astronomer, said.

"Before V-E Day it was announced that the Russians were sending no less than 22 expeditions of astronomers to various parts of that war-torn country," Dr. Stewart said, speaking as guest of Watson Davis, Science Service director, on the CBS program "Adventures in Science."

The eclipse will be observed also in Norway and Sweden as well as in the United States and Canada. Amateurs as well as professional astronomers are visiting the narrow band of totality that will begin at sunrise in Idaho.

Dr. Stewart explained that he has enlisted the help of some 60 foresters stationed in the path of totality in studying the advancing shadow of the moon at the time of the eclipse. Dr. Stewart himself will observe the eclipse from a point near Malta, Mont., where the sun will rise partially eclipsed.

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#### CHEMISTRY

## Improved Methods for Extracting Actinomycin

➤ JUST as sulfanilamide, the sulfa drug, was joined by a considerable family of chemical cousins within a few years of its original discovery, so now we may expect related extracts from earth-dwelling molds to join penicillin, the first widely publicized and used germ-stopper of that origin. One such compound, known as actinomycin, together with a method for extracting it, is the subject of two new U. S. patents and assigned to Merck and Company, Inc.

The first patent, on the mold chemical itself, is No. 2,378,876, taken out by Prof. Selman A. Waksman of Rutgers University and Dr. Harold B. Woodruff, scientist in Merck's employ. Actinomycin, as they describe it, is a red substance left after a mold known as *Actinomyces antibioticus* has been subjected to ether extraction and the extract then evaporated. It can be chemically separated into two fractions, designated respectively as A and B. Actinomycin A is stated to be especially powerful in its action against certain microorganisms.

The second patent, No. 2,378,449, was granted to another Merck employee, Dr. Max Tishler, and covers an improved method for extracting Actinomycin A.

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#### SEISMOLOGY

## Double Earthquakes Recorded in California

➤ TWO earthquakes, centered close together in the Lower California region, wrote their autographs on instruments in several American observatories on Wednesday, June 27, seismologists of the U. S. Coast and Geodetic Survey reported.

The first, which began at 9:08.3 a.m., EWT, had its epicenter near latitude 27 degrees north, longitude 111 degrees west. The second quake began at 2:08 p.m., EWT, and centered about 100 miles southwest of the first, approximately in latitude 26.5 degrees north, longitude 112.5 degrees west. Both were indicated as moderately strong shocks.

Stations reporting were those of St. Louis University, Georgetown University, and the observatories of the U. S. Coast and Geodetic Survey at Tucson, Ariz., Ukiah, Calif., Sitka and Honolulu.

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