

LANDMARKS—This diagram, drawn by the Navy, shows landmarks that can be seen on the photograph of the earth.

METALLURGY

Tougher Alloys Needed For Jet Engines' Heat

➤ METAL ALLOYS to withstand the extreme temperatures in jet-propulsion engines was discussed in Cleveland by the National Aircraft Propulsion meeting, Institute of Aeronautical Sciences.

Much progress has been made in developing alloys for jet engines but none are entirely satisfactory. J. W. Freeman, research engineer of the University of Michigan, made what he called some guesses as to future prospects of improved materials. He discussed the fundamental metallurgical principles controlling the properties of the alloys for the types of services, and reviewed the results of chemical composition, heat treatment and processing procedures to date.

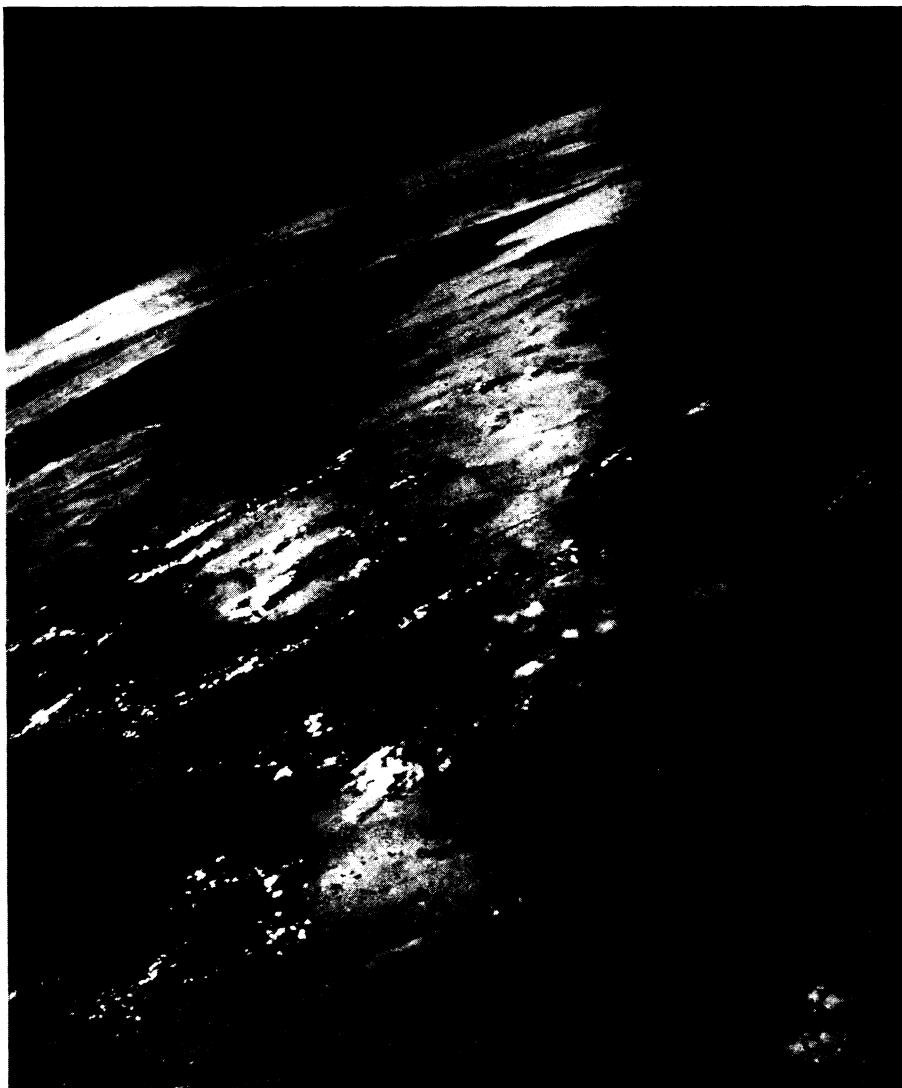
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PHOTOGRAPHY

Rocket Cameras Photograph Earth From 100 Miles Up

➤ FROM 100 miles above the earth, V-2 rocket aerial cameras took a picture that shows the curvature of the earth and more than 200,000 square miles of the United States and Mexico. This is the highest a picture has ever been taken.

Two aerial cameras, carried amidship in the rocket launched at White Sands, N. Mex., on March 7, took pictures through an infra-red filter to cut the



FROM 100 MILES UP—Taken from a V-2 rocket, this is the highest point from which the earth has been photographed. U. S. Navy photo.

haze. Since the force of the rocket blasts a crater into the ground when it returns to earth, the nose and tail of this rocket were blown off by explosives detonated by radio signals to make recovery of cameras easier.

The spectrograph was recovered also, and Navy scientists are studying spectrogram films of the sun taken at an altitude of 100 miles. The Navy and Army are cooperating on the V-2 flights for scientific purposes.

This particular rocket flight was successful in gathering valuable new information in the fields of upper atmospheric pressures and temperatures, cosmic rays, ionosphere investigation and studies of solar spectra.

The time of flight of the rocket was six and one-half minutes.

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ENGINEERING

Liquid Propellant Cools Rocket Engine in Motion

➤ A METHOD of cooling a rocket engine was discussed by Thomas E. Reinhardt of Bell Aircraft Corporation at the National Aircraft Propulsion meeting, Institute of Aeronautical Sciences. Regenerative cooling of a liquid propellant rocket is accomplished, he said, by flowing one of the liquid propellants through a jacket surrounding the combustion chamber and nozzle. The liquid cools the walls of the chamber to a safe operating temperature, and at the same time is itself pre-heated, thereby aiding combustion.

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