

## ASTRONAUTICS

# Moon Car Jumps Chasms

**Preliminary work directed at development and production of a "moon car" is urged by a rocket scientist who has already designed one such vehicle.**

A MOON CAR that can leap 410 feet high to jump over chasms and climb 14,000-foot mountains without slowing down has been designed.

The car has a cauldron-shaped superstructure that is gyroscopically balanced on a single leg that looks like a bridge girder. The leg is retractable, and has a "foot" consisting of caterpillar tractor treads equipped with track-shoe spikes.

As the car speeds around a curve, the whole superstructure can be tilted inward to a 45-degree angle to compensate for centrifugal force that would tend to throw it to the ground.

The car, which would also carry a shower bath, was designed by German scientist Hermann Oberth, who helped develop the V-2 rocket. After the war, he joined Dr. Wernher von Braun at the Huntsville, Ala., Redstone Arsenal where he worked several years in United States rocket research. He recently returned to Germany, but his plans for "The Moon Car" have been published by Harper & Brothers.

Prof. Oberth believes if a car for getting around on the moon is to be available by 1965 or 1970, preliminary work should begin now. He believes the car should be built and tested soon on earth.

Designed to overcome problems peculiar to the moon, such as no atmosphere, re-

duced gravity, powdery ground, and temperature extremes, the car could be driven by an engine using as fuel "a lot of hydrogen peroxide or a watery solution of nitric acid with comparatively little gasoline." To improve combustion further, he suggests chemicals that burst into flame upon mixing.

A solar energy plant also could be used in the vehicle to help save fuel. Prof. Oberth said the solar plant alone could drive the car at speeds up to 93 miles an hour. He envisioned a system of circulating carbon dioxide heated to about 1,290 degrees Fahrenheit in a mirror-concentrated beam of sunlight.

In addition to stabilizing the top-heavy vehicle, the spinning gyroscope above the pressurized passenger pod could help conserve fuel by storing up energy as rotary motion when the car goes downhill.

To jump over chasms, highly compressed gas would be forced into a cylinder. This would quickly shove out the retractable leg with enough force to make the car jump 410 feet high under the moon's reduced gravity (about 1/6 that of the earth's).

Prof. Oberth suggests the moon car's jumping ability also could be utilized in jumping from plateau to plain, in turning around "in a tight place," or in stopping the car in an emergency.

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## TECHNOLOGY

# "Gatling Gun" Returns

**An aircraft gun, resembling the Gatling gun of television western films, is among the developments in U. S. Army ordnance recently shown to the public.**

THE U. S. ARMY has a new aircraft gun that resembles the familiar Gatling gun sometimes seen on television westerns.

The new M-61 multi-barreled 20-millimeter weapon takes high-velocity cartridges and ejects them at 6,000 rounds a minute without noticeable increase in barrel wear. Its barrels are clustered around a drum that turns as the weapon fires. Rotation of the drum and firing is done hydraulically so that full power of the round itself can go into firing the projectile.

Among 48 other Army improvements and developments shown at the American Ordnance Association meeting at Aberdeen Proving Ground, Md., are the mechanical mule, convertible mule, superduck M-60 tank, MAW rifle, and M-14 rifle.

The mechanical mule is a motor-driven flat-bed vehicle with a steering wheel that

swivels through a wide arc. It is designed for use by airborne troops in carrying wounded men, ammunition, food and other cargo. The mule has a low silhouette, about 36 to 40 inches high, posing a minimum target to enemy fire. The swiveling steering wheel enables a soldier to guide the truck while walking beside it, crawling beside it (using it for cover), or crawling behind it. The mule runs in reverse, or forward at speeds of one to 25 miles an hour.

The convertible mule is a ¾-ton experimental vehicle combining the virtues of a jeep and the mechanical mule. Its seats fold down to make flat space for cargo. Its suspension system gives a smoother ride than the mechanical mule.

The amphibious superduck, closely resembling the "wheeled boat" used in World

War II, "swims" faster, has a greater cruising range, automatic transmission, sealed brakes, plastic cab, and an improved central tire inflation system.

The M-60 tank, the Army's main new battle tank, sports a 105 mm gun. The M-60 replaces the present M-48 tank with its smaller, 90 mm gun. The 33-pound, recoilless MAW rifle is a light-weight shoulder-fired weapon said to penetrate all armored vehicles with its 90 mm projectile. Its range is greater than the 3.5-inch rocket, the old bazooka.

The M-14 rifle, now going into mass production, takes 7.62 mm rounds and can be fired semi-automatically or automatically. It is a little lighter than the M-1 rifle, and replaces the M-1, carbine and sub-machine gun. A companion machine gun, taking the same ammunition, replaces three 30-caliber machine guns used in World War II.

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## MEDICINE

# Step Up Study of Virus-Caused Cancers in Chicks

A VIRUS-CAUSED cancerous disease of chickens is coming in for some intensive study with the awarding of a \$100,000 research grant, the U. S. Department of Agriculture has announced.

Funds from the grant, made by the American Cancer Society, will be used to step up research on three main types of avian leukosis, as the disease is called. Scientists at the USDA's Regional Poultry Research Laboratory in East Lansing, Mich., have already shown that this poultry cancer is caused by a virus. They have transmitted the virus to other chicks and have immunized chicks against the disease.

Poultry cancers cannot be transmitted to humans but it is expected that research results can be applied to human cancer studies.

Dr. Ben R. Burmester, USDA biologist, will direct the research program which will now include a larger staff. Study of visceral lymphomatosis, or "big liver" disease—one of poultry's biggest killers—will be emphasized. It is one of the most difficult of the avian cancers to detect.

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## EDUCATION

# Jalopies and School Are Poor Mixers

DAD'S HUNCH that a jalopy and high school make a poor combination has acquired statistical backing.

Although owning a car may increase a teen-ager's popularity, it is unlikely to increase his chances of being valedictorian, it is shown by a study of more than 1,450 juniors and seniors in a suburban Chicago high school. In a cooperative survey with Allstate Insurance Companies, the car owners were found more often in the lowest quarter of the class.

Grades dropped even more when part-time jobs helped to pay auto expenses, but hindered homework and study.

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