

## MILITARY SCIENCE

**Gliders Get Wider Use; Carry Supplies to Troops**

► GLIDERS and small liaison planes capable of landing on little emergency fields or even on highways, lend themselves to probable use, in addition to transport planes, by the new Air Evacuation Group (Medical). This unit operates under Brig. Gen. David N. W. Grant, the Air Surgeon, to speed the trip of wounded troops out of the fighting area (*American Aviation*, Aug. 1).

An average transport, with two gliders, it is pointed out, could carry in tons of vital supplies to fighting forces and take out scores of wounded on each trip. Each evacuation will be under the direction of a flight surgeon, trained in the selection of cases and conversant with the effects of air travel. Each of the larger planes will also carry an Army nurse and one trained Medical Corps enlisted man.

Facilities to train the enlisted personnel for this special work will soon be set up.

*Science News Letter, August 29, 1942*

## INVENTION

**Roll and Twist Will Make Artillery Shell Stronger**

► A NEW method for making artillery shells stronger and better able to withstand the terrific basal push they receive as they are fired, is covered by patent 2,292,928, obtained by William C. Coryell of Youngstown, Ohio. Mr. Coryell starts with a forged blank of a deeply bell-shaped pattern. He rolls the flaring skirt down to the caliber already given to the head, at the same time twisting it. This, he states, adds greatly to the strength of the metal near the base.

*Science News Letter, August 29, 1942*

## INVENTION

**Stylus Writes on Diamond By Using Gem Dust "Ink"**

► FIANCES of the future may have their betrothal vows of eternal devotion marked not in the metal of the engagement ring, but engraved on the diamond itself, in almost invisible but completely indelible lines.

This is fancy; the more matter-of-fact purpose of the invention patented (no. 2,293,100) by Joseph Baumgold, veteran New York diamond cutter, is to enable members of his craft to put their brands

or hallmarks on the stones they prepare for market. This will serve the purchaser as a guarantee of quality, and will also aid in the recovery of stolen or lost gems.

The apparatus looks a bit like a small drill-press—with attachments. The place of the drill is taken by a very fine-pointed stylus, which writes on the gem surface with an "ink" of diamond dust. It is moved in the desired pattern by a "minifying" lever arrangement, which translates a large pattern on a template or pantograph into the almost microscopic one that appears on the stone.

*Science News Letter, August 29, 1942*

## MEDICINE

**Durable X-Ray Machines Assured Army Surgeons**

► X-RAY MACHINES that will stand up to hours on end of hard use under the severe conditions of military service and be perfectly safe, are assured by rigorous tests carried out by the National Bureau of Standards.

The requirements are so severe, Bureau officials said, that most machines fail to make the grade the first time they are tested. Then they must be remodeled and often the new model fails also. Sometimes models have been sent back half-a-dozen times before a machine was produced that could meet the strenuous military requirements.

These machines are used to test the physical fitness of inductees, to examine injuries at army hospitals, to test materials in shipyards, airplane factories and other plants producing war materials.

*Science News Letter, August 29, 1942*

## NUTRITION

**Chicks May Get Soy Beans As Dried Milk Goes to War**

► MILK-FED chickens may yield place, on premium market and restaurant listings, to soybean-fed chickens, at least for the duration. Soybean oilmeal is recommended as a substitute for dried milk in poultry rations, as increasing quantities of the latter food are sent overseas in Army supplies and lend-lease exports.

The recommendation is made in a committee report of the National Research Council. In addition to replacing the milk proteins, soybean oilmeal is also a good source of riboflavin, one of the necessary vitamin materials ordinarily supplied in milk, the report states.

*Science News Letter, August 29, 1942*

**IN SCIENCE**

## RESOURCES

**Pao Santo May Replace Cork; Grows in Brazil**

► BRAZILIAN BARK may substitute for cork. In a worldwide search, Pao Santo, bark of the tree *Angica Reyada*, of which there are millions in Brazil, was judged to be the material most closely resembling cork from Portugal, Spain and North Africa.

This bark has all the characteristics of cork but in lesser degree. It has been used for the past 20 years in Brazil for many of the purposes for which cork is used.

The United States uses 120,000 tons of cork annually, and while supplies are not particularly low as yet and several substitutes are already in use for bottle closures, gaskets, life preservers, and other uses, the Brazilian bark may yet be needed.

*Science News Letter, August 29, 1942*

## BOTANY

**Plant Currents Parallel Changes in Growth Rate**

► ELECTRICITY AND LIFE processes were given a new hookup by researches of Prof. Harold S. Burr, Yale University anatomist, who simultaneously took motion pictures and electrical records from growing corn plants. (*Yale Journal of Biology and Medicine*, August).

It had been known for some time that all living things give off minute electrical currents, but Prof. Burr's experiments have shown for the first time that these variations in intensity correspond exactly with changes in the rate of growth, and with internal structural developments.

Voltages as measured by Prof. Burr were low — from 25 to 75 thousandths of a volt. Some of the changes detected by the delicate instrumental setup were quite abrupt. The more rapid fluctuations in plants, accompanying internal changes, are stated to be "curiously like brain waves in animals."

*Science News Letter, August 29, 1942*

# E FIELDS

## MEDICINE

### More Spotted Fever Now Outside Rocky Mountains

► ROCKY MOUNTAIN spotted fever now occurs in other parts of the country more frequently than in the Rocky Mountain states from which it got its name. Reports of cases of this disease as they occur in the various states are now being telegraphed weekly to the U. S. Public Health Service in Washington. These reports show only about one-fifth as many cases in the Rocky Mountain states as in the rest of the nation.

The germ of the disease is carried by ticks, which makes it a warm weather disease, appearing when the ticks come out of their winter quarters. Within three to five days of being bitten by an infected tick, the patient notices the first symptoms of this often fatal disease: fever, a peculiar rash on the skin and considerable prostration.

A vaccine to protect against the disease has been developed by scientists of the U. S. Public Health Service. It is now being made by the federal health service and by a commercial firm.

A promising serum for treatment of the disease was also available this summer for the first time.

*Science News Letter, August 29, 1942*

## INVENTION

### Shafts Transmit Power to Propellers From Fuselage

► PROBLEM of transmitting power from a centrally mounted engine in an airplane's fuselage to twin propellers on the wings is tackled in a new way, in an invention on which U. S. patent no. 2,293,279 has just been issued to Roland Chilton of Ridgewood, N. J., and William M. Siesel of Verona, N. J.

Instead of having one lateral shaft extending from the engine through each wing, necessitating considerable weight to achieve necessary rigidity, this invention uses two slender shafts, with relatively small pinion gears at either end. These operate at relatively high speeds, but are "geared down" again at the propeller end of the system. Placed on opposite

sides of the larger gears of both engine and propeller, they grip them firmly between them, reducing the weight of metal necessary to hold them true.

The advantages of wing propellers geared to a centrally mounted engine are obvious. The nacelles can be far smaller and shorter, thereby greatly reducing both head resistance and parasitic drag.

Rights in the patent are assigned to the Wright Aeronautical Corporation.

*Science News Letter, August 29, 1942*

## INVENTION

### Back Plate on Machine Gun Increases Its Steadiness

► A BACK PLATE for machine guns, claimed by its inventors to make for greatly increased steadiness in firing these chattering, jumping weapons, is the device put forth by W. G. McNeill and I. G. Boehm of Dayton, Ohio. They grant rights in their patent, no. 2,293,069, to the U. S. Government for manufacture and use without payment of royalties.

An essential part of the new invention is a set of recoil-absorbing springs, which take up much of the jolt and jar of the firing, which have in other types of mounts been imposed on the hands and arms of the gunner. The new design is especially well adapted, the inventors state, for heavy weapons like the .50-caliber machine guns.

*Science News Letter, August 29, 1942*

## INVENTION

### Meter Gives Relative Humidity Reading on Dial

► A METER that gives the relative humidity as a pointer-reading on a dial, like an aneroid barometer or a bimetallic thermometer, is the device offered by Frank Kahn of Philadelphia for patent no. 2,293,064.

The heart of the instrument is a thermocouple surrounded by a wet wick. The amount of current flowing through the thermocouple is affected by its temperature, which of course is affected in turn by the rate of evaporation from the wick. And the rate of evaporation depends in part on the amount of water vapor already in the air—that is, the relative humidity.

The device is intended primarily for use in connection with air-conditioning systems.

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## ASTRONOMY

### Moon Found More Massive Than Previously Supposed

► THE MASS of the moon is now found to be  $1/81.271$  of the earth's mass, instead of  $1/81.56$  as previously supposed. The probable error is plus or minus 0.021. The latest figure was calculated by Dr. H. Spencer Jones, Astronomer Royal of England.

It is a by-product of his discovery last year that the mean distance of the sun from the earth is 93,003,000 miles instead of the previously accepted value of 92,870,000 miles.

Both of these new results are based on observations on the planetoid Eros at its close approach to the earth in 1931. Unsettled conditions in the world and the resulting wars prevented earlier completion of the calculations.

Despite the nearness of the moon, its mass is one of the most difficult astronomical measurements to make. It is done by determining the position of the center of gravity of the earth-moon pair. Then, as though they were two bodies attached to a stick balanced at this point, their relative masses are proportional inversely to their distances from the supporting point or center of gravity.

*Science News Letter, August 29, 1942*

## AERONAUTICS

### Plane Wingtip Forms Vortex That Sounds Like Bomb

► SMALL VORTICES or whirlpools are often formed in the air at the wing tips of an airplane which sometimes emit a sound like the whistle of a falling bomb.

A recent case was reported in England in which the sound was so realistic that both the occupants of the plane and the spectators on the ground thought something had dropped from the plane. Spectators actually ran for cover. The plane was doing 200 miles per hour at the time and making a sharp turn, so that the outer wing tip was traveling with a considerably higher velocity. This case is reported in the English journal *The Aeroplane*.

Another correspondent wrote in that a screaming noise is sometimes heard when a howitzer is fired with a low charge. The sound seems to go away in a different direction from the shell as though a part of the latter had flown off. But since no such piece had ever been found, he attributed it to a screaming vortex.

*Science News Letter, August 29, 1942*