

## AGRICULTURE

**Harvesting Machine Saves Sweet-Potato Vines**

► MEAT AND MILK can be produced from thousands of tons of a farm product now wasted—sweet-potato vines. This has been made possible through the development of new harvesting machines by U. S. Department of Agriculture engineers.

Sweet-potato vines are highly nutritious as stock food, but because they cling to the soil with little roots produced every few inches, no practical machine-harvesting method has hitherto been devised.

The new method does the job in three stages. First, a sliding shoe holds the vines down while a rolling blade cuts them into manageable lengths. Next, a flat blade just under the surface sweeps the vines into windrows atop the cultivated hills.

Finally, a revolving drum beset with receding fingers picks up the vines. As they are carried over its top the fingers withdraw into the drum. At this point they are picked up by a slatted conveyor and carried to a trailer for removal.

The vines are run through a chopping machine and fed into a silo for storage until needed.

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## SOCIOLOGY

**Ten Reasons Why Punishing War Criminals Will Fail**

► PUNISHMENT of Japanese and German war criminals "will increase the probability of World War III," Dr. Donald R. Taft, University of Illinois sociologist, believes.

Predicting failure for the punishment of World War II war criminals, Dr. Taft declares, "If we can think less of punishing war criminals and more of reducing international tensions, there is possibly a chance for avoiding war."

Writing in the *American Sociological Review* (Aug.), he says that the value of punishing the war criminals must be judged in terms of its effect on starting another war.

The Illinois sociologist lists ten reasons why he believes the punishment of war criminals will be a failure:

1. The punished will feel they are being judged by war criminals because of Allied acts such as the atomic bombings.

2. Punishment is being inflicted by war conquerors and not "peers" of the punished.

3. The social approval of criminal acts is greater than execution in the minds of some of the punished. Goering, facing probable execution, is said to have declared he would follow Hitler again if he were to have the chance.

4. More war criminals will escape punishment than will be punished.

5. Other criminal acts, such as dangerous doctrines and discrimination, will go unpunished.

6. Punishment by victors may appear unjust to former enemies and potential supporters of the punished.

7. If nationalism survives in Germany and Japan, it will tend to make the punishment of the war criminals ineffective.

8. Punishment alone cannot change antisocial attitudes to social attitudes.

9. Punishment that expresses hatred is ineffective.

10. Individual punishment of war criminals distracts attention from the need to attack the basic causes of wars.

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## MEDICINE

**Streptomycin Effective For Influenzal Meningitis**

► STREPTOMYCIN is destined for a life-saving role in yet another deadly disease, influenzal meningitis, it appears from studies reported by Dr. Hattie E. Alexander and Dr. Grace Leidy, of Columbia University's College of Physicians and Surgeons, in *Science* (Aug. 2).

Compared with sulfadiazine and serum, now used together in treatment of the disease, streptomycin is at least one hundred times as effective in protecting mice.

Encouraging results have been obtained in treatment of 10 human patients with the disease, the Columbia doctors report.

Influenzal meningitis used to be 100% fatal. With the advent of sulfa drugs and serum, the mortality has been reduced to about 30%. Hope of reducing this mortality still further and saving more lives prompted the doctors to study the action of streptomycin against the germ, *hemophilus influenzae*, type B, which causes influenzal meningitis. This is not the germ, or virus, which causes influenza, however.

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**IN SCIENCE**

## INVENTION

**Device to Arrest Engine Exhaust Flames**

► AN ENGINE exhaust flame arrester, particularly for aircraft, was awarded patent 2,401,806. Lynn A. Williams, Jr., Northfield, Ill., received the award, and he has assigned it to the Stewart-Warner Corporation of Chicago.

It is a device to prevent the burning of exhaust gases at the outlet end of aircraft engine exhaust pipes. The flame created is usually due to the combining of the discharged carbon monoxide with oxygen in the air. It has relatively little importance in commercial and private flying, but great importance with military planes active at night because the flaming tail gives away the craft's position.

The device is designed to reduce the temperature of the exhaust gases enough so that they will not ignite in the air. It consists of several rows of in-take tubes in fan-shaped arrangements that scoop up air to cool the gases within a special section of the exhaust tube. A damper determines whether the exhaust gases travel by way of the special cooling tube or discharge through the ordinary route.

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## PHYSICS

**Nuclear Release Old as Sun's Heat**

► RELEASE of nuclear energy, the process that smashed Jap cities, sank Navy ships at Bikini and promises a new world in peace or war, is as old as the sun's heat, Dr. Emilio Segre, University of California physicist, points out.

An old story in nature, nuclear reactions create the sun's heat, he explained.

"Moreover, it has been known for many years that the radioactive substances contained in the crust of the earth play a most important part in maintaining the temperature of the interior of the earth at its present level," Dr. Segre stated.

"The great achievement of the atomic bomb work," he said, "is not so much to have released nuclear energy, as to have released it in large quantities and under controllable conditions."

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# E FIELDS

## WILDLIFE

### To Count Squirrels Count Nuts They Eat

► THE LAST word on how to count squirrels is to count the less elusive nuts and acorns they feed on.

Such is the theory of a state-wide census program of the Missouri Conservation Commission, being undertaken because of hunters' complaints last year that a lot of time was wasted looking for squirrels that weren't there.

Reckoning that under-nourished squirrels are in no condition to bear young in the spring, Commission members conceived the idea of placing seed traps under sample trees in different parts of the state in order to measure the annual squirrel food crop.

Rule-of-thumb experience by Missouri hunters in previous years suggested existence of a definite relationship between squirrel food and hunted squirrels.

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## PHOTOGRAPHY

### Lie-Detector for Library Research Work

► A "LIE DETECTOR" for Shakespeare, designed to aid library research work, may be used to detect fingerprint differences and show up forgeries.

The device for revealing printers' errors in microfilmed copies of early editions of Shakespeare's works was invented by Dr. Charlton Hinman, research fellow at Folger Shakespeare Library.

The technique which Dr. Hinman finds speeds up his work by 50 times could perhaps be applied also to the detection of counterfeits, in reconnaissance work by the Army and Navy to detect a change in enemy fortifications, or for any work requiring the high-speed detection of differences between two supposedly similar objects.

Two copies of the page to be compared are first perfectly imposed on a screen, by use of a half-silvered mirror. Flashed alternately on the screen, all words identical in the two copies remain motionless. Passages, words or letters that are different are instantly detected by a bright flickering. In this way, Dr.

Hinman can note all differences between two pages in one minute, a job which formerly took him an hour.

As the first step in the process, micro-filmed copies of a page or map are mounted on one glass slide, and the copies to be compared with them are mounted on another slide. With two micro-projectors set at right angles to each other, the two copies of the object are focused on the screen together. By transmitting the image from the copy directly behind the half-silvered mirror and reflecting the image of the copy located to one side, two pictures go to the screen from exactly the same point.

Alternating of the two images on the screen starts when two sectored occulting discs geared together are set in motion. Controlled by a rheostat, the speed of alternation can be varied by the operator. The bright flickering will reveal differences as small as variation in inking between the copies.

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## METEOROLOGY

### Midget Batteries Power Balloon Weather Stations

► CANDY-BAR-SIZED batteries are now powering small radio transmitters in balloons that soar up to 12 miles above the earth gathering weather data.

Approximately four inches in length and one and one-half inches wide, the inch-thick batteries were developed by the Army's Signal Corps Laboratories in conjunction with several industrial organizations. Energy from these lead-acid batteries operates the radiosondes that gather figures on humidity, temperature and pressure as the balloon goes aloft.

Vacuum packed, four in a set, the batteries come in a dry, "precharged" state and are activated by an acid solution electrolyte by puncturing the container with a hollow steel rod. This allows the acid to be sucked up from a jar through a synthetic rubber tube attached to the rod.

The container is opened by a key that winds up a strip below the top of the can, and the excess acid is poured off. The midget battery is then ready for use.

When the hydrogen-filled balloon bursts at high altitudes, sometimes as high as 15 miles above the earth, the sensitive equipment parachutes earthward, continuing the signals that record weather data.

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## MEDICINE

### Cancer Linked to Female Hormone

► THE ROLE that estrogenic or ovarian hormone plays in the production of cancer is indicated in two medical reports published in the *Journal of the American Medical Association* (July 6).

In a paper by Drs. L. Halberstaedter and A. Hochman of Jerusalem, Palestine, the artificial menopause was induced by irradiation of the ovaries in the case of 60 women suffering from cancer of the breast and its metastases. Of these, 34 or 56% benefited from this treatment. The improvement due to the interruption of estrogenic secretion is of short duration, it is reported, since vicarious estrogenic secretion from other sources than the ovaries intervenes.

What is believed to be the first report of the occurrence of endometrial cancer, which is malignancy in the mucous membrane lining the uterus, in a woman undergoing prolonged treatment with estrogen is reported by a group from the Massachusetts General Hospital and Harvard, consisting of Dr. Maurice Fremont-Smith, Dr. Joe V. Meigs, Ruth M. Graham and Helen H. Gilbert.

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## GENERAL SCIENCE

### Radio Insulation Inventor Wins Stalin Award

► FOR THE discovery of a new dielectric substance that may revolutionize the manufacture of insulation material, Prof. Bentsion Vul, well-known Soviet physicist and head of the laboratory of dielectrics in the Institute of Physics of the USSR Academy of Sciences, has been awarded the Stalin prize.

The new substance, barium titanite, possesses a dielectric constant, a number which rates its ability as a non-conductor, several times higher than that of usual dielectrics. By offering a high resistance to wide temperature changes, the new substance promises to furnish the most stable insulating material ever developed for radio and electrical industries.

During the war several hundred thousand high-frequency condensers, made from a less stable magnesium and calcium titanite insulation material developed by Prof. Vul, were produced by Soviet industry and used in the manufacture of radio equipment.

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