

AGRICULTURE

Huge Potato Surplus Worries U. S. Farmers

► AS THE nation faces an overwhelming potato surplus this year, worried farmers are asking the U. S. Department of Agriculture how they can reduce late crops already in the ground.

The latest forecast indicates that 398,715,000 bushels of Irish potatoes will be produced through the 1955 season. An estimated 340,000,000 bushels would meet all of the nation's normal needs for the year, a statistician with the Department of Agriculture told SCIENCE SERVICE.

This means the nation can expect a potato surplus of over 58,000,000 bushels this year.

There are no price supports or acreage restrictions on potatoes now, and the burden of lower prices resulting from overproduction will fall on the farmers.

In the hope of reducing their crop yield, many farmers are planning to kill off potato vines early this season, by pulling them up or treating with chemicals. Alerted by the large number of requests for information, the USDA has released a special report summarizing what it knows about the effects of early vine-killing.

According to the report based on previous years' testing, vine-killing in late producing states like Maine carried out about Aug. 25 will reduce potato output 25%, compared with possible production if the vines are left till Sept. 18. Pulling up the vines on Sept. 4 reduces the yield about 10%.

Quality of potatoes seems little impaired by early killing. In eight varieties tested, average content of solids in the potatoes was reduced less than three percent by Aug. 25 vine-killing.

Many farmers in Maine and Idaho are taking other steps to ward off price depression because of overproduction of potatoes. They have formed local, independent groups to regulate the kind and amount of potatoes that may leave their area for food. Potatoes not conforming to set standards are not allowed to go on the market, under their mutual agreement.

Science News Letter, August 27, 1955

RADIO ASTRONOMY

Find True Radio Star Of Variable Strength

► THREE RADIO ASTRONOMERS report discovery of a new kind of heavenly object, a true radio star, which shows rapid changes in the strength of radio waves it emits.

Radio "stars" are sources sending out radio waves picked up on earth by giant antennas called radio telescopes. More than 100 such objects are now known, many of them not identified with any visible star. Those that are known both by visible light and by radio waves are large sources, two being thought to be colliding galaxies.

The new radio star is the first observed to be of stellar size. Dr. John D. Kraus, H. C. Ko and D. V. Stoutenburg of Ohio State University announce their discovery of it in *Nature* (Aug. 13).

The object is located at the north boundary of the constellation, Hydra, the sea serpent, at a right ascension of eight hours, 19 minutes and declination of seven degrees north. So far the radio astronomers have not been able to identify the radio star with any visible star, although there are several faint stars near the radio position.

Its position is near the one at which Australian radio astronomers earlier had spotted a radio source of variable intensity.

The Ohio scientists point out that the same disturbances in the earth's atmosphere that cause stars to twinkle might cause the observed variations in intensity of radio waves from the object, picked up at 242 megacycles per second.

One reason the "marked fluctuations" in radio wave intensity are believed due to the star itself is because no correlation has been found between them and any solar or ionospheric phenomena.

The three radio astronomers have been studying the unidentified object since its unusual behavior was first noted last January. In the following months, 14 "good records" have been obtained. Four of these showed the marked changes in intensity; the remaining ten showed only a slight increase.

"If the fluctuations are intrinsic variations in the source, an explanation is that the source is a star with variable radio emission having a period of hours or days, and also a short period of a few minutes," the three scientists concluded.

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TECHNOLOGY

Blinker Searchlight Is Faster, Brighter

► A RARE GAS and a precious metal are used to make the Navy's quick-starting blinker searchlight lamps eight times brighter than present models. The lamps are used to signal between ships.

Platinum, because of its corrosion resistance, is coated on one-quarter of the new bulb's surface, forming a curved mirror. It reflects wasted rays back into the bulb, which is filled with xenon, a rare, inert gas.

As soon as the 1000-watt lamp is turned on, the xenon glows intensely, giving instantly about one-quarter of the bulb's full illumination. Heat generated by the glowing xenon heats up and vaporizes mercury in the bulb for full light power.

Use of xenon and platinum eliminates the usual warm-up period required before today's signaling searchlights can be used.

The bulb, called a short-arc mercury-xenon lamp, was developed by Westinghouse Electric Corporation in Bloomfield, N. J. Two thousand will be supplied to the Navy for converting standard blinkers.

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IN SCIENCE

BIOPHYSICS

Atoms Give Measure Of Heart's Efficiency

► AN "ATOMIC" METHOD for speedy, accurate measurement of the heart's pumping efficiency and the state of its action has been developed by Dr. Rosalyn Yalow, senior physicist at the Bronx Veterans Administration hospital, New York.

Mounted on a cart, the equipment can be wheeled to the bedside of patients. It is so fast in its operation that it can record the heart actions of ten patients per hour.

A minute amount of radioactive substance is injected into a patient's blood stream. Blood from an artery then is directed into an especially designed Geiger counter, and the output of a sensitive count-rate meter is amplified so it may be viewed as a moving spot on an oscilloscope screen.

This moving spot is photographed with a recording camera to form a pattern of curves, known as the arterial dilution curves. From this strip of film, a graph of heart action can be plotted quickly to provide an accurate measurement of cardiac output.

Daniel Bibona assisted Dr. Yalow in devising the equipment. It is being used for clinical studies at the hospital by Dr. Solomon A. Berson.

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METEOROLOGY

"Brain" Aids Forecasts Of 1955 Hurricanes

► A GIANT electronic "brain" is being used for the first time this year to help track and predict hurricane motion and speed 24 hours in advance.

The weather maps resulting from millions of computations on the electronic computer are wind flow charts for the surface and at 12,000 and 20,000 feet in the atmosphere. They are not direct predictions, but are an "influence" on the final forecast, which is based on many considerations.

Dr. George Cressman, director of the Joint Numerical Weather Prediction Unit at Suitland, Md., said the computer's results for the hurricane's motion "have been working out with fair accuracy." He warned, however, against putting too much faith in the computer's calculations.

Predicting hurricane paths on the machine, he said, is difficult because "the storm's horizontal dimensions are small" compared to the general circulation. Tremendous as a hurricane's energy is, the tropical storms are nevertheless relatively little disturbances.

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CE FIELDS

AERONAUTICS

British Study Raindrop Damage

► THE BRITISH have a way of studying the damage caused to the exteriors of high-speed planes when they strike raindrops in the air, D. C. Jenkins, a Royal Aircraft Establishment official, reports in *Nature* (Aug. 13).

When a plane flying at high speeds hits water drops in the air, the effect on the plane's exterior is like that of thousands of tiny, solid pellets hitting the plane with great force. The British Establishment and the U. S. Bureau of Standards have been studying this water-drop damage problem for some time.

Now the British have a way to test materials to be used for the exteriors of planes, without having to build a test plane and flying it through water in the air. A projectile of the exterior aircraft material is fired at a single drop of water, suspended on a web in the laboratory.

The projectile being tested is fired from an air pressure gun, at speeds up to 800 feet per second.

Air, pushed forward by the fast projectile, blows the web out of the way so that only the water drop hits the projectile. The projectile is then halted in a tube containing washers which "grab" the projectile and slow it down.

The head of the projectile, where the water drop struck, can then be examined for damage.

Science News Letter, August 27, 1955

NUTRITION

Fight Stirred Over Bread Wrap Material

► IN THE CONTROVERSY of Cellophane versus opaque waxed paper bread wrap, the American Institute of Baking, Chicago, has now taken up the cudgels in behalf of Cellophane.

The important point in the fight is how much of the B vitamin, riboflavin, is kept in the bread by its wrapper. Riboflavin is an important vitamin and one that the average person is likely to be short on. Milk is an excellent source, but few other foods are.

Consequently, when the bread enrichment program was started to make a better-fed America, riboflavin was picked as one of the vitamins that must be put into enriched white bread and flour.

Riboflavin, unfortunately, is destroyed by light. That is one reason why you are advised to protect your milk from sun and even strong daylight.

The efficiency of transparent Cellophane as protection for the riboflavin in enriched bread was challenged in a report to the Institute of Food Technologists (see SNL, July 2, p. 3). Bread wrapped in opaque waxed paper retained 30% to 60% more riboflavin than bread wrapped in Cellophane, W. H. Kanninen, director of food technology for Foster D. Snell, Inc., reported on the basis of a two-year study by his company.

Now the American Institute of Baking states tests in its laboratory and elsewhere show only very small differences in riboflavin between Cellophane and waxed paper wrapped breads. In one test the Institute reports a difference of only 2.7% riboflavin, and other figures given are of about the same range.

The Institute of Baking's report said, "Any difference between clear Cellophane and waxed paper as a protection from vitamin loss due to light is too slight to warrant any advertising claim. In either case the loss is nutritionally insignificant."

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AGRICULTURE

Insecticides Can Cause Insect Pests' Increase

► USING INSECTICIDES can increase the number of harmful insect pests attacking an orchard, researchers at the University of California have discovered.

Where there is already control of destructive insects by their natural enemies, use of insecticides may kill off the beneficial insects and allow the pests to come back in more devastating numbers.

Testing avocado groves in Ventura County where pests were controlled by their natural enemies and where insecticides had never been used, entomologists Charles A. Fleschner and Walter Ebeling found that some chemicals killed beneficial insects while allowing pests to increase.

Following treatment with DDT and dieldrin, serious populations of avocado brown mites developed in test areas, where no problem had existed before. Dieldrin and sulfur on another area was followed by increased numbers of ammorbia and omnivorous looper and *Latania* scale.

After two years of insecticide treatment in the groves, treated trees now have a serious pest problem, while untreated trees are free of injurious populations.

To test the effectiveness of pest control by natural enemies, Mr. Fleschner had beneficial insects removed by hand from a series of test trees. As many as 1,400 ladybird beetles, which feed on mites, were picked off one citrus tree on a single day.

After removing its natural enemies for 60 days, Mr. Fleschner found that the citrus red mite had increased enough to seriously damage the test trees. On other trees in the grove, the natural enemies kept mites under satisfactory control.

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AGRICULTURE

Fooling Female Flies May Mean Victory In U.S.

► SCIENTISTS WERE completely successful in ridding the entire Dutch island of Curacao in the Caribbean of the once numerous and destructive cattle pest, screw-worm, by freeing sterilized male screw-worm flies on the island to frustrate the maternal longings of wild female flies.

A report from U.S. Department of Agriculture scientists said that checks made regularly since the experiment have failed to show any trace of screw-worm infestation on the island.

The success of the eradication program in Curacao now makes U.S.D.A. scientists confident that infested areas in the United States may be cleared of the pest, saving cattlemen millions of dollars annually. They are especially hopeful for the southeast cattle country. In normal winters, screw-worms in this area can only survive in Florida. If the screw-worm could be wiped out there by setting loose sterile males, the entire section would be freed of the pest.

In the eradication program, laboratory-bred screw-worm flies were sterilized by radiation from radioactive cobalt, and about 400 a week were set loose over the island. The males mate repeatedly, but females mate only once. Thus, any female mating with one of the sterile males is doomed to lay unfertile eggs. After a few months, there were no fertile males left, and the screw-worm disappeared completely.

Drs. A. W. Lindquist and E. F. Knipling and R. C. Bushland of the U.S.D.A. made the report in *Science* (Aug. 12).

Science News Letter, August 27, 1955

ARCHAEOLOGY

Evidence Found That Indians Were Cannibals

► A RESEARCH TEAM from the State University of Iowa has found burned and crushed human bones—some in a cooking pot—in an early Indian settlement near Cherokee, Iowa.

The bones confirm a theory that the Mill Creek Indians, probable ancestors of Sioux-speaking tribes, were cannibals.

The Indians, who are believed to have occupied this area from the thirteenth century to the seventeenth century, did not eat humans as a source of food. The cannibalism was part of a ritual.

R. J. Ruppe, director of the excavation, explained that the Indians ate captured enemy warriors. They believed that in this way they acquired the strength of the enemy's men.

The Iowa researchers have uncovered five house floors, weapons and farm tools. Food particles and bones also found show the Indians' diet included corn, beans, squash, clams, turtles, fish and deer, as well as human beings.

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