

GENETICS

**Egged On by Machine
Hens May Lay More Eggs**

➤ GENETICISTS with the Australian Federal Government's Commonwealth Scientific and Industrial Research Organization are using an electronic device designed in Sydney to aid research aimed at breeding hens that will lay more than one egg a day.

The device, an "eggatron," records information on the laying performance of hens for an electronic computer. Experiments with it are being conducted at the Poultry Research Center, Werribee, Victoria.

The C.S.I.R.O. bulletin, Rural Research, says that as the egg is laid it closes a switch that signals a teletype machine to punch a roll of paper tape. The punch marks record which hen laid the egg and the time. The paper tape is then fed into the computer at Sydney University.

Geneticists are exposing hens to a combination of continuous light and noise that destroys the normal daily rhythm of egg-laying. Birds with the shortest interval between successive eggs are then selected to breed future generations.

Dr. J. J. Claringbold of the C.S.I.R.O. division of animal genetics conceived the idea of the "eggatron" when he was in the veterinary physiology department of Sydney University. Dr. H. D. Rathgeber of the university's physics department designed the machine, which was built by the university.

• Science News Letter, 83:200 March 30, 1963

TECHNOLOGY

**Brightest Light Produced
With Vapor Lamp**

➤ A METALLIC vapor lamp, twice as bright as lights currently used in lighting for streets, highways, sports and industry, has been developed by General Electric. It operates at pressures and temperatures greater than those used for similar purposes, producing favorable lighting colors. A new method of sealing metallic vapor in the alumina ceramic increases the lamp's high temperature resistance.

• Science News Letter, 83:200 March 30, 1963

MEDICINE

**Anesthetic Suspected
Of Damaging Liver**

➤ A POPULAR new anesthetic called halothane is now suspected of damaging the liver severely and even of causing death. It is one of the most widely used of inhaled anesthetics.

Two reports, one from New York and the other from California, suggest further study of the anesthetic because of 11 cases in which liver function was affected. Two of the patients died following anesthesia with halothane. Chemically, the anesthetic is 2-bromo,2-chloro-1,1,1-trifluoroethane. The trade name is Fluothane.

Fluothane has had enormous and increasing popularity since its introduction for clinical use in 1956. It is nonexplosive.

The New York cases were reported by Drs. John Lindenbaum and Edgar Leifer of Presbyterian Hospital. Nine of their patients showed liver damage and one of them died in hepatic coma.

The California cases were reported by Dr. John P. Bunker, Stanford University School of Medicine, and Dr. Charles M. Blumenfeld, Sutter Community Hospitals, Sacramento. Their two patients died after surgery, but because there were other possible causes of the liver damage they were not willing to implicate the anesthetic definitely.

Both reports appear in the New England Journal of Medicine, 268:525, 531, 1963.

• Science News Letter, 83:200 March 30, 1963

NUTRITION

**Fish Cakes Stored at
Room Temperature Fresh**

➤ CODFISH CAKES that have been stored at room temperature for six months are being eaten with relish by scientists at the Oregon State University.

The codfish, which was ground and made into patties and prefried, was packed into cans and then irradiated with harmless dosages of gamma rays which kill food-decaying bacteria and in no way damage the product. The fish cakes were then stored at room temperatures and tested at intervals for changes in flavor and bacterial activity. The project was developed at the request of the U. S. Army.

A few minutes' heating in a pan or hot oven was the only preparation needed to present a tasty wholesome dish.

Irradiated foods are in no way "radioactive" and there is no loss in nutrients.

• Science News Letter, 83:200 March 30, 1963

CHEMISTRY

**New Particle Coatings to
Control Nutrient Release**

➤ PLANTS will receive nutrients as they need them rather than all at one time, by a new method of controlling chemical reactions using "timed release" particle coatings.

The coating of compositions has been applied by Archer Daniels Midland Company, Minneapolis, to a new technology, the coating of particles of chemical materials.

First commercial application has been to fertilizer to control the release of plant nutrients. Each granule of fertilizer is coated with a semi-permeable membrane, which slows the release of food to plants and assures higher yields and sustained growth even in dry periods.

With the specially designed coating, the fertilizer releases its nutrients to plants over a period of six months or longer instead of in one massive dosage immediately after application, as uncoated fertilizer does.

One application of the coated fertilizer applied at the start of the growing season thus maintains a green, dense lawn at a uniform growth rate throughout the spring and summer.

• Science News Letter, 83:200 March 30, 1963

IN SCIENCE

GEOPHYSICS

**Earth, Not Space, Seen
As Origin of Tektites**

➤ TEKTITES, tiny glass objects found in various parts of the world, are of earthly origin—not from space as many believe.

This was found by analyzing the amounts of rare-earth elements in three tektites, then comparing these quantities to the amounts of the same elements in earthly rocks.

Two University of Wisconsin scientists, Drs. Larry Haskin and Mary A. Gehl, used the new, accurate technique known as neutron activation analysis to investigate the composition of the three tektites and the rocks. The quantities of rare earth elements were found nearly alike in both.

If later research shows that tektites come from outer space, it would mean that another body extremely similar to the earth exists in space or that the source of tektites was once part of the earth, they reported in Science, 139:1056, 1963.

• Science News Letter, 83:200 March 30, 1963

ASTRONOMY

**Machines in Heavens
Source of Radio Waves**

➤ GIGANTIC cosmic accelerators are the source of radio waves broadcast in space by some of the huge groupings of billions of stars known as galaxies.

This is the new theory on radio galaxies suggested by the Russian astronomer, Dr. I. S. Shklovskii of the P. K. Shternberg State Astronomical Institute. The gigantic accelerators do not operate continuously but function only periodically for each galaxy.

Dr. Shklovskii proposes that the center of a powerful radio galaxy acts like a deep well into which the rarefied gas of intergalactic space pours. He estimates the amount of this gas that falls into the galactic center as equal to hundreds of our suns.

The huge masses of gas swept into the center carry their own frozen-in magnetic fields. This means highly favorable conditions for the acceleration of charged particles to speeds close to that of light, as is done on earth in man-made accelerators.

However, the gas does not accumulate indefinitely in the center but is expelled periodically by the pressure of cosmic radiation. Dr. Shklovskii stated that this process could be considered as a "collision" of a galaxy with an enormously extended and comparatively dense cloud of intergalactic gas.

Details of the theory are reported in Soviet Astronomy 6:465, 1963, a translation of the Astronomical Journal of the Academy of Sciences of the USSR made at the American Institute of Physics, New York.

• Science News Letter, 83:200 March 30, 1963

CE FIELDS

BIOCHEMISTRY

Food Coloring Dye Injures Rat Liver

► A COLORING DYE formerly used on oranges damages the liver of rats.

Another similar aniline dye, not used in large enough amounts to cause harm to humans, also damages rat liver but not as much.

Dr. Alton H. Desmond of George Washington University, Washington, D. C., told SCIENCE SERVICE that the difference lay in the type of atomic groupings on the aniline molecule.

In large doses both dyes destroy RNA, ribonucleic acid, which manufactures protein.

One of the dyes, called xylylidine or 2, 4-dimethylaniline, caused considerably greater damage in the liver and its cells than the other, which is 2, 5-dimethoxyaniline. The second differed from the first in having additional oxygen atoms and a different position on the basic molecule.

Scattered dead and decaying cells, marked loss of storage sugar and an increase of fat around the central vein were found in livers of the xylylidine-treated animals. The cells showed an increase in the number of their nucleoli and a decrease of vital material, along with a breakdown of RNA in the cytoplasm surrounding the nuclei.

The American Cancer Society, which helped start the research, reported the findings.

• Science News Letter, 83:201 March 30, 1963

GENERAL SCIENCE

Flunkey Technicians Hamper Real Research

► BATTERIES of "assorted flunkeys" surrounding scientists for purposes of prestige create situations that the editor of Science, Dr. Philip H. Abelson, fears hampers, not aids, the conduct of research.

Dr. Abelson, who is also director of Carnegie Institution's Geophysical Laboratory, warns editorially in Science, 139:875, 1963, that nonprofessional assistants inhibit the stimulating creative atmosphere that helps the process of discovery. He tells of the creative days at the University of California's Radiation Laboratory when, as a graduate student, he participated in the nuclear research that helped create the atomic age.

There were no secretaries to answer the telephone or make coffee, he recalls. The staff of about 25 were largely young scientists who had just received or were working for their Ph.D.'s. They made much of their own apparatus and operated and repaired the cyclotron themselves.

Today technicians perform many tasks that supposedly free scientists to do higher things, but Dr. Abelson feels that it does

not work out that way and that scientists spend much of their time being the equivalent of straw bosses in a factory. Too much non-scientific help creates a sterile environment instead of one that is intellectually stimulating. A group of scientists should interchange ideas and create discussions that generate enthusiasm and a stream of sparkling ideas, he urged.

• Science News Letter, 83:201 March 30, 1963

AGRICULTURE

Yams, Cortisone Source, Now Grown in U.S.

► YAMS, those edible starchy roots like sweet potatoes, are an important source of cortisone and other substances such as certain hormones and solid alcohols.

A simple solution now has been found for growing wild yams, *Dioscorea*, from Central America in the United States to increase the U. S. supply of these drugs.

The secret for successful planting is to take young shoots from plants that are not large enough to produce climbing vines and propagate them in mist, report horticulturists at the Plant Introduction Station in Glenn Dale, Md., part of the U.S. Department of Agriculture.

Before the recent experiments, scientists had been getting poor results with shoots taken from mature climbing vines. Until the U.S. can grow its own cortisone crops, the wild yams will continue to be collected by Central Americans and then partially processed for exportation to the U.S. as raw material.

Field tests for taming the wild *Dioscorea* to a cultivated crop in several parts of the South are under way at stations of the Agricultural Research Service, scientists report in Agricultural Research, Feb. 1963. About 15,000 plants have already been distributed, and 15,000 more will be shipped out this spring.

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CYTOLOGY

Chromosome Unwinding Reveals Vital Fibers

► VITAL FIBERS of the human chromosome can now be studied under the powerful electron microscope as a result of successful uncoiling of the minute particles of life. A team of scientists at the University of Oregon Medical School in Portland, reported the uncoiling, which may lead to revealing the mysteries of birth deformities, cancer and other diseases whose causes are unknown.

Dr. Edwin E. Osgood, head of the school's division of experimental medicine, and his co-workers reported the study in the London Annals of Human Genetics, 26:139, 1963. Human leukemic blood cells were placed in a solution of potassium chloride, which was heated to 107 degrees Fahrenheit for 30 minutes. As the solution dried, the chromosomes spurted out and uncoiled.

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TECHNOLOGY

Shot Into Ground Scans Landing Area

► TO FIND whether the ground is hard enough so a landing can be made, Air Force scientists measure soil hardness by firing a projectile into the ground from high-speed jet aircraft.

A one-pound device, called an airborne penetrometer, is carried in the wings of the aircraft.

As the aircraft flies over a potential landing area, a timing mechanism fires five penetrometers at predetermined intervals. Looking like small rockets, penetrometers are aimed downward and backward at a horizontal velocity sufficient to cancel the forward speed of the aircraft.

The depth of penetration is governed by the degree of soil hardness. A switch measures the impact. If the impact is greater than a pre-set level, an infrared bulb in the tail of the penetrometer lights up.

Once the penetrometers have been fired, the aircraft can then circle back and take infrared pictures of the penetrometers' impact areas.

The Air Force plans to use the invention to chart safe areas for emergency jet landings.

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ORNITHOLOGY

Migratory Bird Now Turning Into Settler

► THE SLOW UNFOLDING of evolution takes millions of years to produce a mouse, but it is now turning a migratory bird into a settler right before the eyes of New Yorkers.

During the last few years, more and more mourning doves are staying for the winter in New York, while others hang around late into the fall before starting their traditional journey south.

This smooth gray-brown bird with a plaintive voice was rather scarce in the New York area about 50 years ago, and always went south in the autumn, explained Prof. Daniel Q. Thompson of the Cooperative Wildlife Research Unit, New York State College of Agriculture, Ithaca.

Now the dove is changing its old habits, and staying north—even though it shivers and sometimes dies of the cold.

Its feeding habits are also changing. Doves are built structurally so they must eat from the ground. The usual diet of doves is seeds of weeds, but when these cannot be found on the ground in winter time, the doves eat waste grain at railroad sidings, in barnyards and other places.

A survey made on the food intake of 57 mourning doves showed that almost 50% of the volume of food was yellow bristlegrass, or foxtail. Seeds of this wild plant were found in more than 90% of the doves. Corn, wheat, and seeds of such plants as wild radish, ragweed, sheepsorrel and pigweed, also were included in the diet of these birds, as were a few snails and insects.

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