

ORNITHOLOGY

**Mourning Doves Dying
Due to Parasite Disease**

► DOVE HUNTING prospects in parts of the Southeast appear rather poor this year, may grow even worse in the following years. Mourning doves in Alabama are dying in increasing numbers from the effects of trichomoniasis.

This year's total of dead doves may be the highest yet. Cause of the deaths is a parasite known as *Trichomonas gallinae*. It forms large, yellowish swellings in the upper parts of the throat, making it impossible for the bird to eat properly.

The Cooperative Wildlife Research unit of Alabama Polytechnic Institute at Auburn, Ala., is asking sportsmen and others interested in wildlife preservation to report all dead or sickly birds found in Alabama, where the disease has hit hardest. Dr. Arnold O. Haugen heads the Alabama unit studying the disease.

Science News Letter, June 9, 1951

AERONAUTICS

**Air Force Pilots Trained
in Ground-Based Simulators**

► AIR FORCE future pilots will soon be getting plane-control training at Wright-Patterson Air Force Base, Dayton, Ohio, in ground-based equipment called flight simulators, each built for a particular type of plane. Air Force offices revealed that orders have been placed for flight simulators for six different types of planes.

The Air Force is now using a flight simulator for training pilots for the jet-propelled F-80 Shooting Star. Those on order will be for training for three of the largest bombers now in use, two large cargo planes, and the all-weather interceptor, the F-86-D. One type of flight simulator is used by Pan American Airways in training pilots for the Boeing Stratocruiser.

Each flight simulator is an exact duplicate of the cockpit and its instruments in the plane for which the pilot is being trained. The trainee takes the pilot's seat with the controls in front of him. Two instructors accompany him. One monitors ordinary flight performance. The other monitors radar operations, and also controls a simulated target plane.

With its many electronic devices, the simulator can be made to simulate very closely the flight of the airplane for which it is designed. Besides flight altitude, it can duplicate engine fires, fuel system, electrical system, instrument and landing gear failures. The instruments operated by the electronic computers reflect the condition of the simulated airplane just as they would on the aircraft itself.

In use, "problems" are thrown on instruments in front of the trainee by an instructor in the rear, and the pilot-in-

training learns to manipulate the particular control to meet the problem. One problem might be, for example, a simulated fire in an engine.

These ground-training devices do not teach a trainee the principles of flight. They are invaluable, however, for transition training to familiarize a pilot with a new plane type. Orders for the new flight simulators have been placed with the Curtiss-Wright Corporation, Link Aviation, Inc., North American Aviation, Inc., and Engineering and Research Corporation.

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AGRICULTURE

**Better Grass Will Give
More Food for Defense**

► BETTER GRASS will give America more food to meet defense needs. And that better grass is available now, only waiting to be planted.

The U. S. has set a goal of producing 3% more food and fiber this year than ever before. Wise use of existing grass pastures would give us that goal, without planting any new land. Only upping production to maximum on lands now given to pasture would be required, Department of Agriculture experts point out.

This could be done by using better, more hardy varieties of grasses in pastures. More extensive fertilizing would also improve grass quality.

Pastures in the northeastern United States, for instance, could carry three times as many cattle as they now do if good management practices were generally applied. As many city dwellers know, constant attention is required to grow good grass. Some farmers, however, tend to let the grass just grow and to let their cows eat just a little less if the pasture grass does not seem to be quite as rich and thick as it might be.

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CHEMISTRY

**Foam Fire-Fighting System
Provides Shipboard Safety**

► THE AMERICAN Navy now has what it believes to be the most efficient systems in the world for combating gasoline and oil fires aboard ship or at shore stations, it has announced.

Its methods, the results of ten years of research and development, use mechanically produced foams containing air, water, and protein solutions as extinguishing and protecting agents. The protein used is not announced.

As a part of the system, a new foam generator has been developed with portable hoseline foam outlets. A special nozzle is used. It can deliver foam in a straight stream over long distances or in a protective cone-shaped curtain.

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IN SCIENCE

ELECTRICITY

**Rechargeable Electric
Cell Patented**

► AN IMPROVED rechargeable electric cell, for uses ranging from hearing aids to radio transmitters, has brought patent 2,554,504 to Samuel Ruben, New Rochelle, N. Y. It is a secondary cell, claimed to be capable of being charged and discharged a large number of times without appreciable loss of its current storage capacity or overall efficiency.

A feature of this cell is the use of silver in a powder form mixed with an oxide of mercury for the positive electrode, the silver reducing the electrical resistance of the mercury oxide and eliminating the danger of coalesced mercury particles. The negative electrode essentially comprises zinc together with mercury as its active ingredient, the mercury being present in the form of zinc amalgam. The electrolyte is an aqueous solution of an alkali metal hydroxide, such as potassium hydroxide, initially containing a substantial quantity of alkali metal zincate, such as potassium zincate.

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CHEMISTRY

**Living Processes Could
Produce Unusual Chemical**

► CHEMICAL DETECTIVE work carried on by rival university research teams promises to throw new light on one of nature's processes.

Edward M. Kosower, a young chemist, is working at the University of California at Los Angeles on the way known natural processes could make a certain rare chemical. This unusual compound was reported less than a year ago by Klaus Hofmann and Robert A. Lucas of the University of Pittsburgh.

Fat-like material formed by living organisms was investigated by the Pittsburgh team. The unusual compound found in it has a structure known to chemists as a three-membered ring. Only certain rare substances distantly related to turpentine are known to occur naturally with this structure.

Mr. Kosower's study, reported to the journal, *SCIENCE* (May 25), suggests that this type of compound can be formed by chemical processes known to be working in living tissues.

A top winner in the National Science Talent Search of 1945, Mr. Kosower is now a research fellow of the U. S. Public Health Service's National Institutes of Health.

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E FIELDS

ENGINEERING

Shortage of Engineer Graduates This Year

► DEFENSE industry faces a shortage of 11,000 engineers from this June's graduating class. The situation will be worse than that during the next two or three years.

This report of Maynard M. Boring, chairman of the statistical committee of the Engineering Manpower Commission of Engineers Joint Council, is based on a survey of this year's graduating class.

Of the total of 38,000 to be graduated, the report declares, about half are expected to be taken into the Armed Forces, through the draft, R.O.T.C. or reserve and national guard units.

Defense industry, it is contended, needs 30,000 of the graduating engineers each year. Graduating classes will become smaller and smaller for the next few years.

The report was based on a survey of 86 engineering colleges who expect to graduate 18,630 engineers this month, about half the country's total.

"The Armed Services need ships, planes, tanks, guns, trucks, radar, radio, sonar and other modern devices of war," Mr. Boring pointed out. "They need food, clothing, transportation and other goods and services. These are the result of research, development, design and other engineering applications by industry. Industry needs its engineers."

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NUTRITION

Eat Variety of Foods For Best Nourishment

► IF YOU live on a modern, scientifically run farm or visit one this summer you will learn about what the farmer calls "growing medicine." This is a combination of one of the newest vitamins, B 12, and one or another of the antibiotic drugs such as aureomycin or streptomycin. It helps baby pigs and chicks and other young animals grow bigger than they would without these extra substances. Apparently it does this by helping young animals make more efficient use of amino acids, the chemical building blocks of which proteins are made. The same vitamin may help humans grow big, too, though scientists so far have not much evidence on this point.

Vitamin B 12 is known to be useful for humans, however, in treating pernicious anemia. Yet this vitamin has only recently been discovered, though scientists knew for years that some substance in liver was effective in pernicious anemia.

The B 12 discovery is one example of the fact that scientists do not yet know all the chemicals in foods that are important for health. More than 40 such substances, called nutrients, are known, but other important ones will be discovered in the future, Dr. Esther Phipard, U. S. Department of Agriculture nutritionist, predicts. And each time one is discovered, the discovery shows again the importance of liking and eating a variety of nourishing foods, Dr. Phipard stresses. Nutritionists who work out food plans aim to provide enough of certain key nutrients for the body's known requirements, Dr. Phipard explains. When daily meals provide sufficiently for protein, fuel, calcium, iron, vitamin A, three B vitamins—riboflavin, thiamine, and niacin—and vitamin C, the chances are good that the foods will include enough of other nutrients, including the unknown, for normal needs.

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INVENTION

Two-Film Camera Takes Black or Color Pictures

► A TWO-FILM camera, on which Clarence C. Smith of Flushing, N. Y., received patent 2,554,349, can be loaded with a color film and an ordinary film at the same time so that pictures may be taken in color or black-and-white at the choice of the photographer.

The film holder of the camera, which is attached in a similar manner as the usual film pack holder, holds the two films with their photosensitive surfaces facing outward. The holder is merely reversed in position to change from one film to the other. Safety slides are provided for protecting the two films from light prior to exposure in the camera.

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INVENTION

No Wall Smudge Left By Newly Patented Heater

► A WALL type heater which leaves no deposit of smudge on the wall above it has been patented by Noel E. Blazer, Berkeley, Calif., who is the recipient of patent 2,552,837. Westinghouse Electric Corporation, East Pittsburgh, Pa., has acquired the patent rights. Wall type heaters are recessed in the wall, usually creating an upward draft along the wall and leaving dust particles on it.

Behind this heater itself is space through which cool air circulates, while air passing through the heater is warmed. Deflectors on the top of the frame of the unit cause the air currents to move upward but away from the wall. The cool air current is between the wall and the warm air current until both have acquired a vertical direction of flow.

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PSYCHOLOGY

Mental Hospital Aides Help Patients Recover

► PART OF the recent revolution in treatment of mentally sick persons has to do with the aides in mental or psychiatric hospitals. When these institutions were called asylums, the patients were in charge of guards. These often were untrained, underpaid men and women who worked in the asylums because they could not make a success of anything else. Today mental hospitals are employing more and more trained psychiatric aides who help sick people get well.

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INVENTION

Trace Underground Water To Aid Oil Production

► A METHOD of tracing the underground flow of water which will be of particular value in the oil industry where water pressure is being used to get secondary production of petroleum has been awarded a patent by the government. In this procedure water is forced down a central drill hole to drive the underground crude oil through the sands to the wells under pumps.

The injected water used in this process contains borax. Very tiny traces of this boron chemical that pass from the injection well to a producing well can be detected by spectrographic analysis. A suitable chemical for this purpose has been long sought by oilmen. Borax, the inventors of this process claim, is only substance yet found that answers the full requirements as a satisfactory tracing material for this particular application.

Patent 2,553,900 was issued to Richard L. Doan and Edwin Fast, Bartlesville, Okla., for this process. Rights have been assigned to Phillips Petroleum Company of the same city.

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INVENTION

Patent Improved Type Of Solar Heater

► A SIMPLE and improved type of solar heater to use heat from the rays of the sun to heat air, which in turn heats water, brought Roy Everett Barnett, Wauchula, Fla., patent 2,553,073. His heat-catching box, placed inclined at a proper angle, contains under a glass cover sheets or layers of glass or copper arranged like a series of open overlapping steps. Bottom layers are painted black. Air enters at the lower end and, after being heated, passes out the top and into a chamber where it heats the water.

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