CONSERVATION

Drought May Aid Reforestation Program

THE severe drought in the interior of the United States offers an opportunity to gain highly valuable information which has great practical importance on the future reforestation program of the Federal government, states E. N. Munns, chief of the Division of Silvics, U. S. Forest Service.

The Forest Service needs information on the drought resistance of trees and shrubs, declares Mr. Munns (*Science*, Aug. 7). Such information is now sadly lacking.

Interested persons in the drought area are asked to send to the Division of Silvics for data sheets on which they may list pertinent information that will eventually aid reforestation, erosion and flood control and other cultural operations in the forest.

Science News Letter, August 22, 1936

MARINE BIOLOGY

Lack of Fresh Sea Water Causes Loss of Sea Pigeon

NEW YORK City's Aquarium and all other marine exhibition halls throughout the nation would be highly pleased if someone would invent a satisfactory closed system for circulating stored ocean water and have it keep its natural composition.

For lack of such a system the metropolitan showplace has just lost one of its most interesting and rare specimens of recent years—the sea pigeon.

What was a bird doing in an aquarium? The sea pigeon was no bird but a slug-like marine invertebrate. It took —and in its native tropical waters around Bermuda still takes—its name from its wing-like appendages which propel it through the water. At New York's Aquarium it looked like nothing so much as a rather formless bird flying slowly and gracefully through the water.

C. W. Coates of the New York Zoological Society's department of Tropical Fishes at the Aquarium, states that the last of three specimens has finally died. And all because the proper circulation system for the sea pigeon's tank was not available.

The sea pigeons, on arrival, all seemed to be of different species. They never were accurately identified. Yet, despite the want of a formal name, the hardy one made a good exhibit. For one thing, when annoyed the sea pigeon will release a quantity of dark ink-like fluid, providing a screen behind which it can make its escape in its natural habitat.

This fluid, reports Mr. Coates in the *Bulletin* of the New York Zoological Society, may be collected and used in a fountain pen. It makes a permanent record on paper.

The New York sea pigeon raised the hopes of the marine scientists for a time by depositing long strings of bright yellow eggs about its tank for a month after arrival. None of the eggs, however, proved to be fertile.

The difficulty encountered in raising the sea pigeon is similar to one which any aquarium faces when it places the ever-popular octopus on exhibition. Record length of life for these many-armed invertebrates at the New York Aquarium is fifty-two days.

Aquaria which have the facilities for pumping good clean ocean water through their tanks report lengths of life for octopi of several years, but New York's harbor is hardly up to the sanitary standards for this purpose.

Science News Letter, August 22, 1936

ASTRONOMY

Largest Star Camera Will Photograph Milky Way

A TWO-and-a-half ton battery of three star cameras, the largest using plates two feet wide, has just been placed in operation at the private observatory of Dr. Gustavus Wynne Cook, Wynnewood, Pa. It is the largest camera battery of its kind in the world. Dr. Cook will use it to make a series of photographs of the entire Milky Way. After photographing all the Milky Way area that is within reach from the Northern Hemisphere, he expects to move the equipment to South America or South Africa, so that regions of the sky which never rise in the Philadelphia area can be recorded.

The three cameras take pictures on plates 20 by 24 inches, 14 by 17 inches and 8 by 10 inches. They are equipped with lenses 6½, 5 and 4 inches in diameter, of a type invented by Dr. Frank E. Ross, of the University of Chicago's Yerkes Observatory. There is a guiding telescope with 4-inch lens by means of which the photographer can keep the cameras accurately pointed at a selected part of the sky. He can also correct any errors in the running of the electric motor which turns it once daily from east to west to compensate for the earth's rotation. The instrument was built by J. W. Fecker, of Pittsburgh.

Science News Letter, August 22, 1936

IN SCIENC

PHOTOGRAPHY-ORNITHOLOGY

Camera Stops the Wings Of Humming-Bird in Flight

See Front Cover

A REMARKABLE stop-motion photograph of three female ruby-throated humming-birds hovering about a vial of sweetened liquid is shown on the cover of this week's SCIENCE NEWS LETTER.

Prof. Harold E. Edgerton, Kenneth J. Germeshausen and Herbert E. Grier of the Massachusetts Institute of Technology, where this ultra-high speed method of photography was developed, found that in hovering the wings move at the amazing speed of nearly 60 beats a second.

The photograph, taken at an exposure of one one - hundred - thousandth (1/100,000) of a second, is believed to be the first of its kind showing the wing action of a humming-bird. It was made at the home of Mrs. Laurence J. Webster at Holderness, N. H., where Mrs. Webster, founder of the New Hampshire Nature Camp, has devoted many years to the study of wild bird life. The birds are so tame they take food from her lips, perching on her head and shoulder while awaiting their turn to feed.

Science News Letter, August 22, 1936

MILITARY SCIENCE

Michigan University Has New War Laboratory

THE newest precision measuring laboratory of the U. S. War Department has just been established at the University of Michigan. Ordnance reserve officers are now being instructed in the laboratory, reviewing the manufacture of artillery munitions.

During the school year the War Laboratory equipment on precision measure devices will be available for regular engineering instruction, but at all times the laboratory will be held in readiness for military war-time use.

Only one other university, Stanford, has a War Department laboratory of this type. The other six in existence are located in government arsenals.

Science News Letter, August 22, 1936

E FIELDS

PHYSIOLOGY

Interior of Steer's Stomach Photographed

MOTION pictures of the interior of a steer's stomach as the animal digests its food were shown to the American Veterinary Medical Association meeting.

For 18 months scientists of the Ohio Agricultural Experiment Station and Ohio State University have been "shooting" the stomach interiors of five steers through special openings in their sides. Plugs kept the openings closed normally and the animals lived normal lives, finally being sold on the market in good condition.

Food and water, in the movie film, are seen to enter the stomach. Gradually the food is broken down to the proper consistency for passage on through the digestive system.

At times, when the animal is not feeding, saliva is seen to enter the stomach in periodic spurts.

Dr. Arthur F. Schalk and Prof. Francis W. Davis performed the experiments and took the motion pictures in the studies, which are being continued.

Science News Letter, August 22, 1936

AGRICULTURAL CHEMISTRY

New Fertilizer Developed For Phosphorus Use

COMBINING a possible large-scale use for farm products with a very much more effective way to get phosphorus to the roots of growing plants, a new type of fertilizer developed at the Nevada University College of Agriculture in Reno is being watched with greatest interest by both agricultural scientists and fertilizer manufacturers.

Phosphorus is one of the most important of all fertilizer elements, yet it is at present one of the most inefficiently used. In the forms now commercially available, the phosphorus is grabbed by other chemical elements in the soil and held in insoluble form almost where it falls. It does not penetrate to any appreciable degree below the level disturbed by the plow, whereas most common crops and all orchard trees send their feeding roots far below the plowline.

Obviously, a soluble fertilizer, that will penetrate deeper, is a highly desirable thing. Drs. Robert Stewart and V. E. Spencer have been experimenting with organic compounds of phosphorus, instead of the simpler inorganic ones now in use. They have made several entirely new phosphate compounds, of which the most successful, both in its behavior in the soil and in its possibilities for economic manufacture, are compounds with common glucose.

If the glucose phosphates come into extensive use, it will provide a tremendous potential market for corn and other high-starch farm products, of which there has been an embarrassing surplus at times since the war. Starch is easily converted into glucose, and the glucose, combined into the new, highly efficient phosphorus fertilizer, can return to make the farm and orchard more profitable.

Science News Letter, August 22, 1936

ANTHROPOLOGY

"Horned Men" of the Plains Linked with Iroquois Indians

EVIDENCE linking the "horned men"—the Pawnee Indians of the Plains—with the Iroquois of New York and Pennsylvania is being turned up by the spades of scientists digging in their old village sites, it is revealed by a report of Waldo R. Wedel, of the University of Nebraska, issued by the Bureau of American Ethnology, Smithsonian Institution.

The Pawnees were called horned men because of their curious custom of shaving the head clean except for a small tuft of hair on top which was daubed with bison fat and red ochre until it was stiff enough to stand erect or curve slightly backward like a horn.

The remains of these people now being turned up indicate strongly, Mr. Wedel says, that the Pawnees were not originally a Plains people but moved westward out of the southeastern woodlands like the pioneering whites who came much later in the covered-wagon days.

A remarkable resemblance was found between Pawnee pottery and the typical earthenware utensils of the Iroquois. Other links are seen in a highly characteristic style of stone pipe and small triangular, notched arrow points. It is thought that these clues indicate that both Pawnees and Iroquois might have been derived originally from some common eastern woodlands stock.

Science News Letter, August 22, 1936

MEDICINE

Egg Diet Is Found To Be Helpful in Arthritis

"EAT eggs" is the message of five doctors of the Medical College of Virginia to people who suffer from arthritis. Drs. J. C. Forbes, R. C. Neale, O. L. Hite, D. B. Armistead and S. L. Rucker have found that diets which contain a great deal of sulphur and little carbohydrate are beneficial to sufferers from the painful disease.

Arthritis, these doctors find, is accompanied by the presence of indole in the blood. This is a chemical produced by the decomposition of body products. It has long been known to be deleterious. To remove this indole the body needs sulphur. The Virginia doctors therefore feed their arthritis patients on diets which have much sulphur, such as is found in meat and eggs. To aid in preventing indole production in the body only very little carbohydrate is fed. Such foods as potatoes and rice are entirely eliminated from the diet.

The results of this diet, the doctors find, are promising. In one case the patient was kept on an ordinary diet for a month. There was a good deal of indole in his blood, and he suffered considerably. After a month on the special diet there were only traces of indole in his blood, and he felt stronger, suffered less. At the end of another month there was no indole in the blood, and the patient was considerably improved.

In another case, after having been on the diet for some months, the patient temporarily stopped following it. He had completely lost his pains, but they came back almost immediately. Once again on the diet, the pains left him.

Science News Letter, August 22, 1936

AGRICULTURE

Drought, Grasshoppers Make "Pineapple Corn"

"PINEAPPLE" in gangster literature used to have a sinister significance, as an instrument of destruction.

Now the word has a new and equally sinister significance, but as the end-result of a different kind of destruction.

In the drought-afflicted parts of the Corn Belt the stalks grew short, with abnormally short joints. Grasshoppers attacked, chewing off the leaves, leaving only the tough bases of the mid-ribs sticking out around the stalks, in bristling array.

These stripped stalks have been given the grim nickname of "pineapple corn."

Science News Letter, August 22, 1936