BOTANY

Tobacco Leaf Beats Mass Production Rate

➤ NATURE HAS produced an assembly line that turns out products faster and in greater abundance than Detroit ever dreamed of.

A single cell of a growing tobacco leaf in a week's time produces some 2,000,000,000 nucleoproteins, enabling a one-inch leaf to grow to seven inches.

Dr. Sam Wildman, Dr. A. T. Jagendorf and C. C. Chow of the department of botany at the University of California at Los Angeles are investigating this phenomenon.

Most protein production studies have been concerned with animal tissue. Animal cell protein production is complicated by the process of cell division. The relatively unexplored process by which the plant leaf manufactures its proteins within non-dividing cells may reveal new information in regard to protein synthesis.

Preliminary studies indicate one of two processes may be involved in the mass production methods of the plant cell: 1. the cell nucleus may stamp out the proteins like a die press, or 2. each nucleoprotein may be a self-reproducing, rapidly multiplying unit like a virus.

Science News Letter, July 18, 1953

PUBLIC SAFETY

Safety Rules for Swimming in Summer

➤ HERE ARE some simple rules for water safety:

1. Select a safe place for bathing, preferably one supervised by qualified life savers. Find out whether the water is free from pollution and is safe from fast currents, and other possible dangers.

2. Never swim alone. It is more fun and much safer to swim with a buddy. And you should always have someone along who could help in an emergency.

3. Don't be a show off and try to demonstrate abilities you don't possess. Know your limitations.

4. If you must test your endurance on a long distance swim, have someone accompany you in a boat.

5. Make sure the water is deep enough and free of sharp rocks or other obstruction before you dive.

6. Enter the water gradually, especially if it is cold.

7. Don't go into the water when you are overheated or overtired, and get out when you begin to feel tired.

8. Wait at least an hour after eating a meal before entering the water.

9. Remember that horseplay can end in tragedy, especially if the other fellow can't swim.

10. If you get into trouble, keep your head. Don't get panicky and reach for the sky. Spread yourself out over the water and keep your arms beneath the surface to help keep afloat.

11. Take your sun gradually. A few minutes exposure the first day is enough. And don't forget that you can get a severe burn even on a hazy day.

These rules were given by Pat Murphy, assistant director of Safety Services, American National Red Cross, speaking as guest of Watson Davis, director of SCIENCE SERVICE, over the CBS Radio network.

Science News Letter, July 18, 1953

AGRICULTURE

Improve U. S. Crops By Exploring Caribbean

➤ MAJOR IMPROVEMENTS for United States crops are expected from plant exploration in the West Indies by Dr. Julian Miller of Louisiana State University and Dr. Donovan S. Correll, U.S. Bureau of Plant Exploration and Introduction.

Some 700 collections were made of Caribbean varieties of plants like cotton, tobacco, corn and sweet potatoes. Many of these tropical varieties will produce higher yields in more northern areas than they do in their place of origin, Dr. Miller said.

Dr. Miller's main interest on the West Indian islands was the collection of sweet potato varieties for experimental planting in the southern states. He gathered 300 different kinds of sweet potatoes on this trip.

Besides the plants, Dr. Miller collected about 20,000 seeds of cultivated and wild sweet potatoes from the islands. These will be used in breeding experiments to develop disease resistant and better yielding new varieties for the United States.

Dr. Miller believes that the West Indies are the original home of the sweet potato. From earlier explorations, the first wilt-resistant sweet potato varieties and the best yellow flesh varieties were brought to the United States from the Caribbean island.

Science News Letter, July 18, 1953

ZOOLOGY

Rare Swamp Monkeys In San Diego Zoo

See Front Cover

➤ A PAIR of extremely rare Belgian Congo swamp monkeys, *Allenopithecus nigroviridis,* have been received by the San Diego Zoo.

The newcomers, shown on the cover of this week's SCIENCE NEWS LETTER, are remarkable both for appearance and habits. They have attractive green and black coats, large eyes close together that stare straight ahead, pointed ears and mutton-chop whiskers. They can jump as high as three feet straight up without warning or apparent preparation.

The swamp monkeys use their big hind feet for swimming. They relish shrimp, small fish and snails as well as ordinary fare such as leaves and berries.

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IN SCIEN

BIOCHEMISTRY

New Drug Helps in Tuberculosis Treatment

➤ A NEW drug promises to prove a helpful companion to streptomycin in the treatment of tuberculosis. It is HES, hydroxyethyl sulfone, originally synthesized at the National Institutes of Health and tested there on animals.

A group of physicians at the Howard University Medical School, Washington, have shown that the combination of the two drugs when used on a group of 57 patients produced better results than usual treatments on equivalent groups. Similar groups of patients were given streptomycin alone and streptomycin and sodium PAS, another drug which is used along with the antibiotic.

The new drug seems to be effective against streptomycin-resistant infections. Its use in combination with other antimicrobials when such resistance is encountered is planned.

The Howard University team that reported to the American Trudeau Society consisted of Drs. Howard M. Payne, Robert L. Hackney, Charles M. Domon, Edward E. Marshall, K. Albert Harden and Otis D. Turner.

Science News Letter, July 18, 1953

MARINE BIOLOGY

Octopuses Outwitted By Cunning Crabs

➤ OCTOPUSES ARE perplexed creatures on Britain's Jersey beaches, since a favorite bill of fare, the juicy spider crab, *Maia squinado,* has learned to outsmart them.

When the great tides rush out, thousands of the crabs are left trapped in the pools that dot the two miles of intertidal beach. In the old days, the octopuses used to mop up in these pools.

Now, however, the hard-shelled, long-legged crabs have developed a defense, reports H. J. Baal of the Societe Jersiaise Museum in Jersey. During last September, Mr. Baal observed that the spiny crabs grouped themselves into tight balls about two feet high and three feet in diameter. Their legs were entwined so it became a major task to separate an individual from the heap.

When the octopuses tried to make a meal from this armored mass, the best they could do was to capture a few of the crabs from the outer surface. The heaps remained intact for several days, Mr. Baal wrote in *Nature* (May 29), then the crabs disappeared to their winter quarters with the coming of October.

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CE FIELDS

ORNITHOLOGY

Hawks and Sparrows Share the Same Nest

➤ HAWKS ALWAYS have liked sparrows —at dinner time. But now, a pair of red-tailed hawks and an English sparrow couple have taken up housekeeping in the same nest.

Ornithologist G. Victor Morejohn had his binoculars trained on a great nest near Davis, Calif., containing four downy red-tails, when he heard the familiar chirping of young English sparrows. He soon spotted a sparrow nest impudently built among the large sticks of the hawk nest and within one foot of the young hawks.

Later, moving pictures were taken of the adult sparrows only inches away from the young hawks. Mr. Morejohn reports in *Condor* (May) that he saw the young hawks leave the nest successfully.

Nobody, however, reported seeing the young sparrows leave.

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PARASITOLOGY

Parasites Do Without Mouth, Digestive Tract

➤ THE PARASITES par excellence, spiny-headed worms or *Acanthocephala,* are so well adapted to the life of relying on other animals for food and protection that they have lost most of the organs generally "necessary" for life.

The spiny-headed worm has no appendages, no specialized sense organs, no digestive organs. It has no mouth or alimentary canal, its food being absorbed through its general body wall from the digested material in the host's intestines.

Attaching itself by means of a many-hooked proboscis to the intestinal wall of its host, a vertebrate animal, the adult acanthocephalan becomes little more than a reproductive sac. Reproduction is sexual, by means of union of male and female worms.

At no time in its life history is the spiny-headed worm not parasitic. Even the microscopic larvae live in higher animals. A species that parasitizes swine, and sometimes infects man, passes its larval stage in the grubs of beetles. Swine feeding on these beetles thus infect themselves with the larvae, which then become adults in the hosts' intestines.

While the spiny-headed worms can cause considerable local damage to the intestinal wall of domestic animals and, especially, fish, they are generally considered to be more pest than menace. Human infections are rare.

A post-humous work of Prof. Harley J. Van Cleave, a world authority on spiny-headed worms, has just been published by the University of Illinois Press. Entitled "Acanthocephala of North American Mammals," the volume brings together Prof. Van Cleave's 40 years of study on spiny-headed worms of mammals in America.

His death cut short plans for further books which were to deal especially with the acanthocephalans of birds and fishes. The greatest number of spiny-headed worm species are parasites of fishes.

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ZOOLOGY

Insect "Missing Link" Protected in Panama

➤ THE "MISSING LINK" of the world of animals without backbones is a privileged, protected character on Barro Colorado Island, tropical research center of the Smithsonian Institution in the Panama Canal Zone.

This tiny creature, called the peripatus, is neither worm nor insect, though it shows characteristics of both. For this reason it is closely studied by scientists trying to piece together the fragmentary story of the evolution of the invertebrates—animals without backbones.

The peripatus, looking something like a caterpillar, has an internal structure much like the higher worms. It is superficially segmented, with paired excretory organs running serially through the body like worms. The nervous system, too, is somewhat segmented, roughly copying the worms.

On the insect side, the peripatus has paired legs—not six functional pairs like the insects, but many pairs, varying in number according to the species. Like insects, and the whole group to which the insects belong—the arthropods, the peripatus has one or two pairs of legs modified into jaws.

The respiratory system of peripatus is made up of fine tubes, or tracheae, running through the body from openings, or spiracles, along the body wall. This type of system is found only among the arthropods. Its blood, or circulatory, system is similar to the insects, too.

The peripatus is protected on Barro Colorado, although capture of a few individuals is permitted for research. It stays in damp earth under rotting logs during the day, coming out only at night.

It is found in Africa, southern Asia, Australia, New Zealand, South and Central America and the West Indies, except Cuba, some 50 species being known to science. In earlier geological eras, it was probably distributed over much of the earth, but became more and more isolated with changing environments.

Fossils of peripatus have been discovered in rocks that have been found to be as much as half a billion years old. They may have been among the first animals to invade dry land.

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ENGINEERING

Can't Hear Police Siren Until Pursuer Is Close

➤ IF YOU are speeding along a highway at 65 miles an hour, chances are that you cannot hear the siren of the pursuing motorcycle policeman until he comes even with your rear bumper.

This is fact, not fantasy. It was among the findings reported to the Highway Research Board in Washington by the Oakland, Calif., police department. It is scientific confirmation of what motorists have known all along.

Seeking to separate the truth of motorists' excuses from fiction, Oakland police ran a check on the "hearability" of various sirens. A "violator" drove a 1949 police car at 65 miles an hour with the driver's window rolled down. Other windows were closed. A motorcycle siren was inaudible until it practically had come alongside the driver's ear.

When the "violator" was cruising at 55, he could hear the siren's wail 40 feet behind him. At a speed of 40, the "violator" could hear the siren 65 feet behind him.

Oakland police also pointed out that the tests were made under ideal conditions as far as the "violator" was concerned. His radio was not blaring dance music or a quiz program, nor was his mother-in-law distracting him with dire predictions. And, of course, the "violator" knew a cop was chasing him with a wide-open siren. He was listening for it.

"Model 17-B electronic sirens" seem to throw their howls more easily into the motorist's ear. Test data show the "violator" could hear the sirens farther behind him. The bigger the siren's loudspeaker was, the better the device could make itself heard. But the faster the "violator" was moving, the nearer the cop had to be before the motorist could hear the siren.

Science News Letter, July 18, 1953

INVENTION

Patent Cigarette With Built-in Match

➤ THE CIGARETTE of tomorrow may come complete with a built-in match. When rubbed against an abrasive surface, a "fire capsule" in one end of the cigarette bursts into flame.

The invention is designed to provide smokers with a cigarette that can be lighted easily, even in foul or windy weather. Upon being struck, the fire capsule forces the small blaze into the tobacco.

The capsule consists of inflammable chemicals overlying a tiny charge of explosive. It is the explosive that drives the flame into the cigarette, reports Frank Witt of San Francisco. The explosive charge is small enough to be harmless, and should not frighten smokers when it goes off. The patent is No. 2,644,461.

Science News Letter, July 18, 1953