

ICHTHYOLOGY

Thousands Caught in New High Speed Fishnet

► A NEW kind of fishnet, which can be towed at high speeds and is designed to catch great quantities of small fish for scientific study, has been devised by two scientists at the Marine Station, Millport, England.

In use in the Clyde sea, it was towed at seven knots over a 68-mile course. The scientists, D. T. Gauld and T. B. Bagenal, said the purpose of the net was to investigate the changes in the distribution of young fish in the Clyde sea area. A description of the net appears in the British journal, *NATURE* (Sept. 22). Catches obtained consisted of 37 species, including up to 250,000 *Calanus* and 3,000 fish eggs per haul.

The net is an ordinary tow net usually used for plankton. It has a wide circular front end and a narrow circular rear exit. In use at high speeds, this narrow rear exit is turned in upon itself—or “flipped”—as is the foot of a sock before being rolled up. Each of two nets has been towed for more than 160 miles without signs of undue strain.

Science News Letter, September 29, 1951

INVENTION

Patches Zip on Pants Where Hard Wear Comes

► KNEE PATCHES for the pants, attachable and detachable at will, have received a government patent. When the workman gets to his job in the morning, he zips the patches on. At the close of day, he zips them off. A youngster on the playground can wear them when needed.

The patches are made of the same material as the pants themselves, or can be made of heavier fabric. For the workman who spends much time on his knees, they may be pads. Well concealed zippers on them and in the inner and outer seams of the pants provide the attachment. Inventor is Kathryn E. Mitchell, Boise, Idaho, who received patent 2,568,083 for this knee protector.

Science News Letter, September 29, 1951

GENETICS

Tomato Breeders Seek “Sports,” Abnormal Plants

► TO PROVIDE bigger and tastier tomatoes for your dinner table, a world-wide organization of tomato research scientists has been set up.

The Tomato Genetics Cooperative, with headquarters at the University of California's College of Agriculture at Davis, includes about 100 workers in the United States and 12 foreign countries.

Dr. Charles M. Rick, associate professor of truck crops, University of California, is coordinator of the organization.

Main function of the group is to provide a medium of exchange for the latest information on research in the genetics and breeding of tomatoes throughout the world. Another role of the organization is the exchange of breeding stock. The Cooperative issues periodic reports containing research notes from various members. Much of this material has not before been readily available to the majority of the workers in this field.

Tomato growers also assist in the research work of the Cooperative. Occasionally abnormal tomato plants appear in commercial fields. These plants are useful in studying inheritance and also, in some instances, in the breeding of strains with higher yield.

Seeds of these sports or mutants would be appreciated by the members. These seeds should be sent to Dr. Rick, Division of Truck Crops, University of California, Davis, Calif.

Science News Letter, September 29, 1951

MEDICINE

Ultrasound Waves For Better Vaccines

► BETTER VACCINES against germs, both bacteria and viruses, may be prepared by the use of high intensity ultrasound waves, Dr. Nelson Newton, of the Battelle Memorial Institute in Columbus, Ohio, suggests in a report.

His suggestion is based on experiments with tobacco mosaic virus. When this plant disease virus was exposed to ultrasound for three and a third minutes, its infectivity, or ability to produce disease in Scotia bean plants, was reduced about 95%.

Using lower intensity levels of ultrasound and varying the length of exposure gave other results. Among them was an increase in the infective ability of “aged” viruses. This, Dr. Newton suggests, might be applied to reactivating and possibly extending the period of usefulness of “aged” vaccines.

The ultrasonic waves reduce the infecting ability of the virus by breaking it into shorter particles. Other scientists have previously reported this, but Dr. Newton used a much higher frequency, seven megacycles, than those previously used. With this frequency, a virus particle 280 millimicrons long is broken into fragments only 20 to 40 millimicrons long.

The 280-millimicron-long unit is the basic infecting unit. When it breaks under the high intensity ultrasonic vibration, it tends to break first at a constant distance from the end of the virus rod and then as the power is increased, it breaks into fragments in a random way. This, Dr. Newton states, “shows a structural weakness at one definite point in the virus rod.”

Science News Letter, September 29, 1951

IN SCIENCE

OCEANOGRAPHY

Sea Captains Mind Winds To Save Time and Fuel

► SEA CAPTAINS—disdainful of the wind since steam displaced sails—are once more beginning to pay respectful attention to the forces of the weather. Some of them do what is called engineering the weather for better navigation and in the process they save fuel and make better time.

One Navy ship, the U. S. S. *Beckham*, by avoiding areas of adverse winds and retarding seas on a trip from the Philippines to Seattle arrived 24 hours ahead of the estimated time and consumed only seven-eighths of the expected amount of fuel. Yet the ship travelled a route 600 miles longer than the great circle route.

The method is described by Louis P. Allen, of the Office of Naval Research.

Mr. Allen says that too little appreciation has been given to the power of the sea and too little is known about the forces which create it. He believes that shipping routes should not always be planned according to great circle courses, that more thorough studies of the power of wind and waves are in order.

Different types of ships react differently to different climatic circumstances, says Mr. Allen, but for each class of ship some generalities can be made. Although the oceans can never be blocked out into specific regions of definite wind and sea conditions, he points out, answers can be computed on a percentage basis and a probability can be stated.

Science News Letter, September 29, 1951

AGRICULTURE

Crop Slide Rule Tells When Harvest Is Due

► A CROP “slide rule” promises a “revolution in agriculture.”

The slide rule has been devised by Dr. C. Warren Thornthwaite, director of the Climatology Laboratory of Johns Hopkins University, located at the Seabrook Truck Farms, Seabrook, N. J.

When coupled with scientific irrigation methods, he declares, it will enable farmers to know exactly how long, from sowing to harvest, it will take a plant to reach its peak in flavor and quality.

On the slide rule, time is measured in “growth units.” April, therefore, is much shorter than June. If one arrow is set at the date the plant is placed in the ground, another arrow points to the day it should reach its peak.

Science News Letter, September 29, 1951

E FIELDS

MEDICINE

Simple Test Could Save Many from Cancer Deaths

► ALMOST 26,000 women could be saved from cancer death each year if a simple test were made part of a yearly health examination of all women over 30 years old, Dr. J. Ernest Ayre of Miami, Fla., declared at the meeting of the U. S. Chapter of the International College of Surgeons in Chicago.

The test is called a cervical cytology test. It consists in the painless procedure of scraping surface cells from the neck, or lower end, of the uterus and then examining the scrapings under a microscope to see whether cancer cells are present.

Many times the cancer cells discovered through this test come from tissue that looks perfectly normal to the doctor on visual examination. These are the most favorable cases because cancer is completely curable when found at this stage, Dr. Ayre stated.

Not one woman in 5,000, Dr. Ayre said, gets this test as part of a yearly physical examination, but cancer of the uterus claims 26,000 lives each year. Almost all of them, he said, could be saved by this yearly cervical cytology test.

Science News Letter, September 29, 1951

MEDICINE

Keep Active to Keep Brain Cells Young

► KEEP ACTIVE, if you want to keep your brain cells from growing old. Overwork will not speed the aging of your nerve cells. Exercise will delay it.

Evidence for this was presented by Dr. O. Vogt of the Institute for Brain Study at Neusadt/Schwarzwald, Germany, at the Second International Gerontological Congress in St. Louis.

Dr. Vogt made microscopic studies of the nerve cells of normal adult human brains, noting the changes due to age.

In the brains of two women, age 90 and 100 years at their deaths, who had been very active throughout their lives, the aging changes of the nerve cells were considerably delayed, he found.

"In addition," he stated, "in our collection of specimens we have observed no case in which overwork was found to have accelerated the aging of the nerve cells."

The aging process, he reported, may be speeded or delayed by mutations or external factors. Among the external factors he mentioned hardening of the arteries, deficient supply of oxygen in the blood, poi-

soning and infections. Often the effect is restricted to certain cell types and produces the so-called systematic nerve changes.

All nerve cells undergo an aging process which leads to death of the cells, Dr. Vogt stated. This process may be primary in nature and in that case must be characterized as a normal phenomenon.

The aging process is different in the various types of nerve cells in the brain. The difference may concern the time when aging starts or the speed with which it proceeds. Some types of brain cells are still normal in persons 100 years old.

Science News Letter, September 29, 1951

PSYCHOLOGY

Words Come Slower To Older People

► WORDS COME slower to an older person, though he may know just as many words as a young man or woman.

Studies showing this were reported by Drs. J. E. Birren and J. Botwinik of the U. S. National Institutes of Health, Bethesda, Md., at the Second International Gerontological Congress in St. Louis.

In their studies, 341 persons ranging in age from 16 to 90 were required to write as fast as they could words beginning with a given letter, for example, S. Thirty-one persons aged 20 to 29 wrote a mean of 24.9 words in two minutes, but 30 persons aged 70 to 79 wrote a mean of 6 words per two minutes.

The younger group wrote at about 52% of their rate of writing when copying words, whereas the elderly wrote at about 36% of their potential writing speed. Thus, the elderly show a retardation in verbal fluency beyond that associated with a slowing in the motor response of writing.

The present results indicate, state the scientists, that an elderly individual may show a defect in thought arising from a low rate of association.

Science News Letter, September 29, 1951

PHYSIOLOGY

Hedgehog Awakened by Hormone Alarm in Body

► IF YOU find it hard to get up in the morning, consider the hedgehog: When he is awakened from his long winter sleep it is such a great physiological strain that an alarm reaction is set off in his body.

This alarm reaction is like that in humans when, under stress, the adrenal and other glands grow very active in preparing the body for defense against stress or threat of danger.

The hedgehog's alarm reaction or awakening is reported by Drs. Paavo Suomalainen and Anna-Maija Herlevi of Helsinki University, Finland, in the journal, SCIENCE (Sept. 21).

Science News Letter, September 29, 1951

VETERINARY MEDICINE

Rabbit Fountain of Youth Is in Thyroid Hormone

► THE FOUNTAIN of Youth, for male rabbits at least, seems to have been found in the thyroid gland. This is the U-shaped gland in the neck which in some conditions develops a goiter.

Doses of thyroid hormone considerably improved the sexual desire and stimulated production of male germ cells in buck rabbits previously classed as infertile because of their poor breeding records, Dr. M. Maqsood of the University of Cambridge School of Agriculture reports in the journal, NATURE (Sept. 15).

Production of thyroid hormone decreases, as does male fertility, with advancing age, Dr. Maqsood points out. His rabbit experiments were made to learn more about the relation between the thyroid gland and the male sex glands. The doses of thyroid hormone that apparently rejuvenated the buck rabbits were "physiological," that is about the amount normally produced by the gland.

What the studies may mean for human males is not stated in Dr. Maqsood's report. Potential importance for breeders of food animals other than rabbits is suggested by the fact that the research was done at an agricultural school.

Science News Letter, September 29, 1951

MEDICINE

Female Hormone Banks For Cancer in Men

► FEMALE HORMONE banks are helping the fight against cancer of the prostate gland in men in two ways, it appears from a report by Dr. Edward M. Tracy, Jr., of Hamburg, N. Y., to the U. S. Chapter of the International College of Surgeons meeting in Chicago.

1. Men with far advanced prostatic cancer got "dramatic relief" of pain and some were able to return to work through the aid of these hormone banks.

2. Although not curative, the research with female hormone treatment spotlights a relation between cancer of the prostate and adrenal and pituitary glands as well as sex glands. Following this lead may give better weapons for fighting the disease.

The hormone banks consist of pellets of semi-synthetic female hormone. These are buried beneath the skin and release the hormone gradually over a period of three months. Previously, female hormone for prostatic cancer relief has been given by mouth. Some patients forget to take the treatment and others get stomach upsets from it.

Although the hormone banks did not help all the patients, many were helped and some no longer required morphine for pain relief.

Science News Letter, September 29, 1951