

BIOLOGY—BALLISTICS

Viruses May Show Way to More Effective Bullets

PRODUCTION of more effective bullets and torpedoes for national defense might be achieved with the aid of the virus that causes mosaic disease of tobacco plants. This suggestion of a way to mobilize disease viruses for defense comes from Dr. Wendell M. Stanley, Rockefeller Institute scientist who isolated tobacco mosaic virus as a crystalline chemical substance.

"Solutions of tobacco mosaic virus could be used to study the flow currents in apparatus such as pumps and hydraulic rams or the nature of flow when boats or projectiles move through a liquid," Dr. Stanley told members of the American Institute.

This use of tobacco mosaic virus solutions depends on the fact that they "exhibit what is known as double refraction of flow. When examined by means of polarized light," Dr. Stanley said, "the flowing stream is found to be doubly refracting, whereas when quiescent the same material is not doubly refracting."

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ENTOMOLOGY

Red Scale Insects Resist Death by Holding Breath

THE secret of resistance of certain red scale insects, among the most important of citrus pests, to drastic control measures used by citrus growers has been uncovered: they can hold their breath for more than a half-hour at a time.

Dr. Roderick Craig and Dr. N. W. Hardman of the University of California have found that shortly after resistant red scales are exposed to cyanide gas they close two pairs of holes, called spiracles, through which air enters their bodies. They can keep these holes closed for at least thirty minutes, time enough for at least 20% of the insects to escape death. Since practical control requires a kill of 98% to 99%, cyanide fumigation is useless for control of resistant red scales. Petroleum oil sprays will control resistant red scales but are much more expensive and besides are harmful to the trees.

Non-resistant scales, say Drs. Craig and Hardman, can keep their spiracles closed for only about one minute, after which the holes open and the lethal gas enters their bodies.

Hundreds of thousands of dollars are

now spent annually to control red scale. Since 1922 the resistant type has been spreading over larger areas every year. At present Drs. Craig and Hardman are attempting to find some substance which can be combined with cyanide to force the resistant scales to open their spiracles, thus allowing the gas to enter their bodies.

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MEDICINE

Typhoid Vaccination Affects Appendicitis Diagnosis

SPECIAL care in interpreting the blood test used in diagnosis of acute appendicitis will be necessary in the case of men recently inducted into army service, Dr. Hugh McKenna, of Chicago, warns the younger medical officers of the army.

World War experience with appendicitis in military hospitals forms the basis of Dr. McKenna's note. (*Journal, American Medical Association*, Feb. 8.)

The white blood cell count, frequently used in diagnosing acute appendicitis is lower, Dr. McKenna points out, following the triple typhoid vaccination now used in the army.

"The blood picture sometimes puzzled medical officers in making a prompt diagnosis of acute appendicitis," Dr. McKenna says of World War days. "Any factor which may delay a decision in making a prompt diagnosis in acute appendicitis is hazardous and must be corrected in order that surgery may not be delayed."

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CHEMISTRY

Wrappers Reduce Losses in Australian Citrus Fruits

WRAPPING oranges and other citrus fruits in paper treated with diphenyl, a method originated by Dr. Adalbert Farkas of Hebrew University, Jerusalem, has been used with marked success by citrus growers in New South Wales, Australia. Word of the experiments has just reached the American office of the University in New York. Losses of fruit in the treated wrappers were from two-thirds to three-fourths less than losses in control lots of similar fruit kept in ordinary untreated wrappers.

Dr. Farkas was formerly on the faculties of the Technical College in Vienna and the University of Frankfurt-am-Main. After leaving Germany, he was for a time at the University of Cambridge, England.

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MEDICINE

U. S., Canadian Physicians May Practice in England

ASPECIAL defense regulation has been passed to enable U. S. and Canadian physicians to practice in the United Kingdom so that they can "give practical expression to their belief that our cause is their cause by placing their services at the disposal of the British government as long as the emergency lasts," the London correspondent of the American Medical Association reports.

At the same time the 40-year-old English medical reciprocity with Italy has been ended.

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METEORITICS

Meteorite Fragments Received by Smithsonian

METEORITE fragments totaling about two pounds in weight have been received by the Smithsonian Institution from scientists in the USSR; it required a special act of the Central Soviet to permit their export from Russian soil. Not valued particularly for their size, the pieces of celestial stone and iron were very much desired here for purposes of chemical analysis, to compare with meteorites that have fallen in other parts of the earth.

One piece is a slice weighing about half a pound (220 grams) from an iron meteorite that fell near the city of Boguslavka, Siberia, in 1916. The remainder of the specimens are fragments of a stony meteorite that fell at Lhotnevyyi, Ukraine, in 1930; their total weight is about one and one-half pounds (700 grams).

E. P. Henderson, Smithsonian mineralogist who is analyzing the specimens, states that his Russian colleagues who specialize in the study of meteorites are an exceptionally progressive group of scientists, and that they have cooperated well with American workers in the same field.

The legislation necessary for the export of the meteorite fragments was passed upon the recommendation of the Academy of Sciences of the USSR.

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CE FIELDS

MEDICINE

Vitamin K Injected Into Veins to Stop Bleeding

SUCCESS in giving the anti-bleeding vitamin K by injection into the veins of patients too sick to take it by mouth was announced by Dr. Edward R. Anderson, Dr. John E. Karabin, Dr. Herbert Udesky and Dr. Lindon Seed, of the University of Illinois College of Medicine and Cook County Hospital.

In 17 out of 18 patients injection of a water-soluble compound with vitamin K activity was effective. Failure in the eighteenth case was ascribed to the fact that the patient's liver, necessary for utilization of vitamin K by the body, had been completely destroyed by illness.

Injection of the vitamin brings a quick response, the doctors found. Also, the injection eliminates the need for use of bile salts, which must be given along with the vitamin when it is taken by mouth.

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PHARMACY

Blood Will Be Included In Pharmacopoeia

BOTTLES and flasks of vital red fluid stored in hospitals for emergency lifesaving may in the future bear labels reading: BLOOD U. S. P. The three letters are initials for the Pharmacopoeia of the United States, and when they are on the label of a bottle the contents of that bottle must, by law, come up to the standards described for the substance in the Pharmacopoeia.

Whole blood, blood serum and blood plasma for transfusion are recommended for inclusion in the twelfth revision of the Pharmacopoeia, Dr. E. Fullerton Cook, chairman of the revision committee of the U. S. Pharmacopoeia, announces. The Pharmacopoeia is revised every 10 years, with occasional interim revisions to keep up with the rapid development of scientific knowledge.

Quinine, according to Dr. Cook's announcement, may come out of the next Pharmacopoeia. This will surprise you unless you know that physicians nowadays seldom prescribe quinine for treatment of malaria. Instead, they prescribe

various salts of quinine such as quinine sulfate. These will remain in the Pharmacopoeia.

Antipneumococcus serum, immune serum for scarlet fever, and immune serum for measles are recommended for the U. S. P. XII. So is tetanus toxoid. Among other articles recommended for inclusion are radium, nicotinic acid amide, halibut liver oil, vitamin A and D in oil, riboflavin (one of the B vitamins), and cortin, an adrenal gland extract used in treatment of Addison's disease. Extract of rice polishings, standardized for vitamin B₁ potency for use in the Philippines, is also recommended for inclusion.

Among recommended deletions of articles now in the Pharmacopoeia are such standbys of grandfather's day as asafetida, cantharides, capsicum, pepsin, iodoform, powder of ipecac and opium, creosote, and one reminiscent of the World War surgery, modified Dakin's solution.

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AERONAUTICS

Simple Airplane Engines Made From Auto Parts

ISSUANCE of a type certificate for a new type aircraft engine of 93 horsepower and constructed 70 per cent. of the precision parts from a Ford V8 automobile motor was announced by James Church, veteran aeronautical engineer. The certificate was issued by the Civil Aeronautics Authority.

The new engine is air cooled and is slightly heavier than other aircraft engines of comparable power, but this weight consideration is expected to be offset by the fact that it will cost only about one-third as much. The inventor said he expected to sell his new motor for \$350, including starter and generator as standard equipment. Lighter airplane motors now cost from \$1,100 to \$1,200 each, without accessories.

Endurance and flight tests of the new motor have been completed.

One of the features of the new motor is the fact that replacement parts can be had at any of the more than 35,000 Ford service stations in the United States.

Mr. Church is preparing to launch large-scale production of the engine, and he is also building a three-place airplane especially designed for this motor. Both plane and engine will be manufactured in Chicago and the complete aircraft will cost under \$2,000, Mr. Church announced.

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CHEMISTRY

Grain Sorghum Seen as Possible Source for Starch

STARCH may soon be made commercially from kafir, a grain-yielding sorghum, research work at Kansas State College indicates.

J. W. Greene, assistant professor of chemical engineering, has been seeking some way to use kafir since his project began on July 1, 1937. Recently he reported that it may be possible to start this new industry within a few months if proper progress is made. Already numerous advancements toward the projected goal have been made.

The fact that kafir possesses starch as a component part has been known for years but chemists have had difficulty separating it from the rest of the grain on a profitable scale for commercial use.

Prof. Greene and his research assistants have been interested mainly in processing the starch and finding new uses and commercial application. Prof. H. N. Barham of the Department of Chemistry of Kansas State College has been studying the properties of the starch. This work of testing, studying and examining the tiny kernels of grain has gone on for two and a half years and, although months of work admittedly are still ahead, the research workers believe that the success of their project seems almost certain.

Advances of kafir over corn are cheaper production, possibility of processing more cheaply and increased value per unit of material. If the project lives up to present hopes, farmers of the plains may plant hundreds of acres in kafir. This land is that which now is wind-swept, arid land in the section formerly known as the dust bowl. The crop would tie the soil with its root systems and yet yield a profitable crop.

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ORNITHOLOGY

Wildlife Photographer Catches Some Odd Poses

See Front Cover

THE BIRD with the very peculiar expression, shown on the front cover of this week's SCIENCE NEWS LETTER, is a western grebe that tried to get saucy with the manager of the Sacramento National Wildlife Refuge in California.

The picture is one of a number of unusual photographs taken officially by the U. S. Fish and Wildlife Service.

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