

MEDICINE

Treat Hay Fever Victims With More Potent Pollen

► A GROUP of hay feverites at Evanston, Ill., will be treated with a new, purer and more potent ragweed pollen extract this summer. If this new material comes up to expectations, the hay feverites will be desensitized more quickly and with fewer bad reactions to the weed that causes their late summer and fall misery.

The new material is the pure, or nearly pure, active principle of short ragweed pollen. Its purification by adsorption on an acid-washed alumina chromatographic column was accomplished by Drs. Theodore B. Bernstein, Anne L. Mosher and Raymond P. Mariella of Northwestern University, Evanston, Ill.

Their material is free of the pigments and possibly some other irritating substances found in the usual ragweed pollen extracts used for testing and treatment. These pigments and irritants dilute the amount of active hay fever causing material in the extracts, making them less potent, and may also be an important cause of the false positive reactions commonly produced when tests are made, especially tests of allergy to food and dust.

Details of the purification and testing of the new material are reported in the journal of the American Association for the Advancement of Science, *SCIENCE* (April 6th).

Science News Letter, April 14, 1951

TECHNOLOGY

Power Plant Boilers Today Use Diversity of Fuels

► POWER PLANT boilers and fuel burning equipment needed today must be able to use a greater diversity of fuels and fuel quality than those of the past, the American Society of Mechanical Engineers meeting, Atlanta, Ga., was told by P. R. Loughin of the Babcock and Wilcox Company, New York.

"There has been a general lowering of quality of raw coal in recent years along with an increase in cost," he said. "Because of increased consumption of imported heavy oils and the blending done at refineries, it is not often possible to count on receiving a given quality of fuel oil over an extended period," he added.

Sulfur, moisture and ash contents of the fuel, and ash fusion temperatures are the most important fuel characteristics. Moisture is an important factor in the design of equipment for it affects storage, handling, ignition, furnace temperatures, corrosion and efficiency.

Ash fusing temperatures vary considerably with the atmospheric conditions under which they exist. Most coal ashes have been found to have higher fusing temperatures in oxidizing than in reducing atmospheres.

Many oil ashes react oppositely. The fusing temperatures are lower in an oxidizing atmosphere than in a reducing atmosphere.

Boilers designed to handle different types of fuel require that proper provisions be made in the design stage. Efficiency will be affected by the constituents of the fuels. Unburned combustible losses are an important factor that must be considered.

Science News Letter, April 14, 1951

VETERINARY MEDICINE

Farmers Warned of Danger of Hog Disease Outbreak

► FRESH OUTBREAKS of swine erysipelas may cause heavy losses among the farmer's hogs and also attack the farmer himself.

The American Veterinary Medical Association has cautioned farmers to wear rubber gloves while handling sick hogs in erysipelas areas and to watch for these common symptoms in swine: lameness, arched backs, discoloration of the skin, enlarged joints, high fever, great loss of weight and sloughing of skin patches.

Germ of the disease may live in contaminated ground for several years and may also spread to other farm stock, including sheep and turkeys.

Science News Letter, April 14, 1951

BACTERIOLOGY

Tame Wild Germs, Breed New Ones, Scientist Urges

► MAN SHOULD tame and breed new strains of bacteria and other microorganisms for his own use just as he once learned to tame wild animals and breed new species to help him in his farming and daily living.

We have taken some steps in this direction and are starting to take more. But we are just at the beginning of exploiting the "wild life of the microbiological jungle," Sir Ben Lockspeiser, Secretary of Britain's Department of Scientific and Industrial Research in London, believes.

Our attitude towards bacteria and microorganisms has been much like that of our ancestors towards the wild beasts of the field. We have been afraid of them, since many of them mean death and our first instinct is to protect ourselves.

The production of wines and beers from sugar solutions using yeast is one of man's earliest and most successful tries at harnessing microorganisms to work for him, Sir Ben said. The new antibiotics industry is the most recent development of this kind.

Microorganisms in general are susceptible to changes in their food, environment and physical treatment, and thus they can be domesticated for particular purposes. It is this possibility of breeding new, "more able and willing workers" that may have a profound effect on our industrial life, Sir Ben predicted.

Science News Letter, April 14, 1951

IN SCIENCE

MEDICINE

Season for Spring Colds And Early Hay Fever

► THE SPRING sneezes and sniffles season is on. Some come from colds and some from hay fever. July and August, of course, are the worst hay fever months because they are the months for ragweed which causes most hay fever. But early spring and summer plants and trees which are now shedding their pollen cause misery for many.

Pollen victims are usually treated by a process of desensitization. First, the physician makes careful tests to determine just which pollen or pollens cause the trouble. Then the patient is given a tiny dose of the offending substance and at regular intervals thereafter increasingly large doses until he is able to tolerate the large amounts of pollen blown on spring and summer breezes. Details of the treatment, of course, must be planned by the physician who will also give advice on general health measures and will prescribe drops for nose and eyes if necessary.

Desensitization treatment can be given during the hay fever season, but is said to be more comfortable and about 20% more efficient if given before the hay fever season starts.

The antihistamine drugs bring relief to many hay fever victims, but physicians usually advise desensitization treatments in addition. Some authorities believe the best results are obtained when the antihistamines are used with the desensitization measures to prevent reactions from these.

Science News Letter, April 14, 1951

ENGINEERING

Factory Economies From Study of Variables

► STARTLING economies in factories can often be obtained by allowing experts to study uncontrolled "random" effects in production.

Uncontrolled variables can be allowed consciously to affect a test for better methods, Dr. Leonard A. Seder, engineer of Gillette Safety Razor Co., Boston, explained to the American Chemical Society. Attempting to hold rigidly constant several factors in plant-size operations just will not work.

Dr. Seder warned against trouble-shooting of three methods: "Squeaky wheel" that treats only the trouble, "rabbit's foot" that assigns an effect to a false cause, and "guinea pig" that extends a conclusion to new conditions to which it is not adapted.

Science News Letter, April 14, 1951

E FIELDS

MEDICINE

Acid Studies May Lead to Earlier Cancer Detection

► EARLIER DETECTION of some forms of cancer may result from experiments on the body's use of a compound called glucuronic acid which were reported by three Tufts College scientists at the American Chemical Society meeting in Boston.

Among patients suffering from cancer or arthritis a significant number do not utilize glucuronic acid at a normal rate, Drs. W. H. Fishman, C. D. Bonner, and Freddy Homburger, of Tufts Medical School reported.

"This is a new fact and opens up an important field of investigation aimed at finding the explanation and the significance—as it concerns cancer and arthritis—of this defective rate of utilization of glucuronic acid," the investigators stated. "It also suggests the possibility that further studies might lead to a laboratory procedure of value in the diagnosis of gastrointestinal and pancreatic cancer. Cancer of the pancreas is one of the most difficult of all diseases to diagnose accurately, and this difficulty accounts in large part for the high mortality of patients with this disease, since the diagnosis can often be made only after it is too late to treat the disease surgically."

Glucuronic acid is derived from glucose, the type of sugar which circulates in the blood and which is burned by the body tissues to provide the energy which enables a person to work.

Science News Letter, April 14, 1951

ZOOLOGY

Shark Bite as Unlikely as Being Struck by Lightning

► YOUR CHANCES of being attacked and bitten by a man-eating shark while swimming off the Massachusetts coast are about even with your chances of being struck by lightning in the same area.

So concludes Dr. E. W. Gudger, of the American Museum of Natural History, New York, from a study of the only known case of such an attack. The facts concerning the man-eating shark's assault, which occurred in July, 1936, were gathered by the late Dr. Hugh M. Smith who was then at Woods Hole, Mass.

A man and a young boy were swimming about 150 yards offshore in water 10 or 15 feet deep when the shark, suddenly and without warning, attacked the 16-year-old boy, possibly because his crawl stroke was making considerable commotion in the water. Turning somewhat belly up, the

shark laid hold of the lad's left leg and carried him under the water before he could make an outcry.

The man shouted for help, treading water and supporting the boy after he had broken away from the shark. Although they were rescued without further attack by the shark, the boy, after being taken to a hospital, died from injuries he received.

Dr. Gudger also reports on the only other shark attacks known in the Western North Atlantic region—in 1916, when the so-called "mad shark" ranged along the northern New Jersey coast, killing a number of people. His report appears in the American MIDLAND NATURALIST (Nov. 1950).

Science News Letter, April 14, 1951

AVIATION

Giant Aircraft Propeller For Powerful Engines

► A GIANT aircraft propeller, a 19-foot affair developed by the Hamilton Standard Division of United Aircraft Corporation, East Hartford, Conn., has completed local tests and is now being tested by the U. S. Air Force at the Wright-Patterson Base, Dayton, Ohio.

This propeller, a four-bladed type with square tipped blades, was developed under Air Force sponsorship for airplane power plants delivering over 5,000 horsepower. It is the largest ever built by Hamilton for turbine engines. It can be used on the highest horsepower piston engines now being considered as well as on so-called "medium" horsepower turbines.

Science News Letter, April 14, 1951

PSYCHOLOGY

Glutamic Acid Is Found No Aid to Intelligence

► HOPE THAT doses of glutamic acid would raise the intelligence level of mental defectives was dimmed by a report by Drs. Ralph N. Zabarenko and Guinevere S. Chambers, of the Western Psychiatric Institute and Clinic, Pittsburgh, to the Eastern Psychological Association, Brooklyn, N. Y.

Fifty-eight mental defectives took part in the study conducted by these investigators. About half the group remained at Polk State School where they had been for a long time. The rest were moved to Western Psychiatric Institute and Clinic to see what a change in environment would do for them. After a six-month study period some were given 40 grams of glutamic acid a day for periods up to six and a half months while the rest were given sugar pills.

No difference could be observed between those who got the glutamic acid and those who had only the sugar pill.

The change in environment did, however, serve to stimulate the mental functioning.

Science News Letter, April 14, 1951

RADIO

New TV Beaming Device Eliminates Costly Antenna

► THE SIGNAL Corps' "G-string" for sending television programs over a single wire, announced a year ago, is the basis of a new and inexpensive method of beaming television, radio and radar waves through the air. Elimination of costly and bulky antenna structures is promised.

A simple antenna mast, from 50 to 200 feet in height, is used in the new method. It serves as the G-string. The signals travel along the surface of the mast rather than inside a cable, and then are reflected toward their destination by a pair of flat plates mounted at a 45-degree angle on top of the mast.

The original G-string, designed for use in transmitting television signals and suggested as a substitute for coaxial cable, is a single wire with a special insulation and funnel-shaped terminals. The thin layer of dielectric material used on the wire "shrinks" the electric field surrounding the wire, which ordinarily would extend far from the conductor. The horn-like terminals help concentrate and gather in the field.

The G-string takes its name from Dr. Georg Goubau, of the U. S. Signal Corps Laboratories, Ft. Monmouth, N. J., who is responsible for its development. It has possible uses in telephony and in radar systems. The measured transmission loss with microwaves is a fraction of that in coaxial cables, according to Dr. Goubau.

With this "G-string" antenna mast, complicated rotating joints otherwise needed to change a radar signal's direction, as in "sweeping" the sky, are done away with. Maintenance costs will be low, and the new antenna system is less apt to be affected by snow, hail and other weather conditions.

Science News Letter, April 14, 1951

OPHTHALMOLOGY

Anti-Arthritis Drug Works Also Against Eye Disease

► ACTH AND cortisone, famous arthritis remedies, are giving doctors the first successful method of directly treating one blinding eye condition. Sympathetic ophthalmia is its name. It is the loss of vision in one eye that sometimes comes after serious injury to the other eye. The new hope for successful treatment of this condition with ACTH and cortisone was reported by Dr. John M. McLean of the New York Hospital-Cornell Medical Center at the meeting in New York of the National Society for the Prevention of Blindness.

ACTH and cortisone may also make possible successful grafting of corneas on eyes that could not otherwise take the graft, early experiments show.

Science News Letter, April 14, 1951