PHYSIOLOGY

Ragweed Pollen Extract Can Go Through Human Skin

THE ACTIVE principle of ragweed pollen—the part which causes ragweed hay fever—can be transported through the skin, it is shown by experiments reported at the meeting of the Fifteenth Colloid Symposium.

Drs. Harold A. Abramson and Manuel H. Gorin of Columbia University's College of Physicians and Surgeons described their studies of how biologically active materials can be passed through living human skin by electrical current. The problem has interest in interpreting the action of local anesthetics and the chemical known as histamine.

Living skin, report the scientists, can be considered to be a membrane dotted with fine pores. In their tests a piece of absorbent material, saturated with the active solution under study, was placed on the skin. An electrical potential was then applied so that it passed through this pad and on into the skin. Not only were ions carried into the skin by this process but the solution, as a whole, was transported through the skin.

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AERONAUTICS

Real Transatlantic Race Is Airplane vs. Liners

AIR TRAVEL is about to span the most densely traveled ocean, the North Atlantic. Whether the joint American-British service gets under way this summer or next will not alter the fact that the conquest of transoceanic skies is assured. The real race now is between airplanes and express steamers.

Such ships as the Queen Mary and the Normandie are luxury liners in more ways than one. They are expensive to run, piling up a little more deficit with every mile of their wakes. The losses are charged to national prestige of the nations whose flags they fly.

The general idea is that air transportation is always more expensive than water transport. Of particular significance therefore are the computations by experts that show that actually it will cost less to fly a passenger across the Atlantic than to carry him across on a ship like the Queen Mary. The cost per luxury liner passenger is given as $67, while with a 150-passenger plane, such as will undoubtedly be built in the next few years, the cost would be only $37. These are operating costs. The fares to be charged will be higher, including overhead and terminal charges.

Thus, not even considering the advantage of time saved, air travel will be cheaper. A moderate fleet of seaplanes would maintain daily schedules between Europe and America, and it is likely that the whole fleet would cost less than one Queen Mary or Normandie. Contrast this with the five-day crossings and weekly schedules now maintained by the deluxe express steamers.

Obviously those who go to Europe on vacation and desire to combine a pleasant sea voyage with their transportation may prefer to travel by steamer, but already many travelers of this sort are seeking the slower liners in preference to the express steamers.

The United States has not entered the international competition with extreme-sized liners, but American planes will pioneer in the Atlantic as they have to South America and across the Pacific.

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AERONAUTICS

Performance Figures For Famous "Hawker Hurricane"

GREAT BRITAIN'S famous "Hawker Hurricane" pursuit ship in which an English aviator flew recently from Edinburgh to London at an average speed of 408 miles an hour with a favoring wind, has a top speed in the neighborhood of 335 miles an hour.

Finally taken off the Air Ministry's secret list, the speedy craft's actual maximum speed is not known, since speed tests were not included in the trials of the prototype. Its stalling speed is 55 miles an hour and the type of wing flaps with which it is equipped give a six-to-one ratio between top speed and stalling speed.

Armed with eight Browning machine guns in the leading edge of the wing, the Hawker can climb to 15,000 feet in six minutes and has an absolute ceiling of 30,000 feet, it is claimed.

A range of two and a half hours at cruising speed is claimed for the craft. Her fighting radius is said to be 350 miles, but American experience indicates that if the range figure given is accurate, the fighting radius is likely to be only a little more than half the 350-mile figure. The Hawker's top speed is about the same as the Seversky P-35, with which the U. S. Army is now being equipped, and is considerably in excess of the best speed of the Messersmith 109, which the German air force has had for several months.

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IN SCIENC

PUBLIC HEALTH

Pasteurize Custard Pies For Summer Safety

IF YOU must eat custard pies, cream puffs, chocolate eclairs or other such cream-filled bakery goods in hot weather, be sure they are pasteurized. And stay away from hollandaise sauce outside your own home during the warm summer months.

This advice comes from the City Health Department of Baltimore and will probably be echoed by many other city and health authorities as summer comes on. The reason is that Baltimore and many other places in the United States have in recent years experienced outbreaks of food poisonings, chiefly during the warm months, from the consumption of bakery goods with cream or custard fillings and hollandaise sauce.

These foods which tempt your appetite are also good foods for germs of the staphylococcus family. Members of this family recently have been found guilty of causing food poisoning, the so-called ptomaine poisoning. The germs cause this illness by a toxin or poison they form in the custard filling or hollandaise sauce. You cannot taste the poison, but you can get mighty sick from eating it.

The danger of this illness from custard pies or similar pastries can be avoided, it is now known, by pasteurizing the pastry after it is filled with custard. The pasteurization, which consists of placing the pastry, after it is filled, in an oven at 425 degrees Fahrenheit and keeping it there for at least 20 minutes, kills the germs before they can produce any poison. It does not, when properly done, spoil the taste or looks of the pastry. After the pasteurization, the pastry should be cooled quickly.

Hollandaise sauce cannot be handled this way. It is spoiled by cooking and it cannot be kept in the refrigerator because chilling makes the ingredients separate into an unappetizing mess. It is good staphylococcus food and becomes dangerous if left standing in the room for any length of time. So if you are not sure of its being fresh-made just before you eat it, leave it alone.

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E FIELDS

ENGINEERING

Coiled Springs Now Damp Vibrations in Buildings

MULTIPLE coiled steel springs are now being used to damp out engine vibrations on ships and in buildings, it was reported to the Oil and Gas Power meeting of the American Society of Mechanical Engineers.

Major improvements in this long-tried method of vibration damping have now made it possible to support loads up to 900,000 pounds on coiled springs and thus isolate—from the vibration standpoint—huge machinery.

One well-known New York department store has its large Diesel power plant, in the basement, completely "floating" on 36 giant springs, each having a load capacity of 25,000 pounds, it was reported by S. Rosenzweig, engineer of The Korfund Company, Long Island City, N. Y., which made the installation.

The springs not only prevent the passage of annoying vibrations to buildings and the hulls of ships, but it has been found that the power plants show less wear and better performance, said Mr. Rosenzweig.

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ANTHROPOLOGY

Nerve Maladies Plagued Prehistoric Americans

DID you ever think of a prehistoric man having a nervous breakdown? Or succumbing to the jitters?

It is an idea that surprises some moderns, accustomed as we are to the platitude that nerve maladies are a sad evil of our too, too speedy civilization.

It is not easy to trace anything so elusive as mental and nervous ailments in people dead for centuries. But Dr. Juan B. Lastres, professor at the School of Medical Sciences in Lima, Peru, has rounded up a good many clues indicating that bad nerves were frequent in the prehistoric empire of the Incas. From his report to the National Museum of Peru, we may sum up these ancient causes of nerves:

Government—the high caste Incas, Indians with a genius for political organization, kept millions of Indians in South America in a sort of fascist state so complete that each Indian had to live where he was told, even wear what he was told. Strain and fear of offending political overseers was enough to produce many a nervous breakdown, Dr. Lastres believes.

War—since fighting was a major industry in Inca land, there were shattered nerves and damaged brains and all the queerness and instability that go with them.

Drug addiction—Incas knew how to deaden pain by chewing coca leaves, and the habit-forming drug cocaine may have won some victims.

Drink—a religion of formidable idols was reason enough to drive these Indians to chica or other stupefying concoctions bad for the nerves.

Inter-marriage—like Egypt's pharaohs, the Incas married sisters or other women relatives. Dr. Lastres regards this as an insidious source of hereditary degeneration in the nervous system and also the thyroid gland.

Literature—Incan legends were shockers, and Dr. Lastres condemns them as "very favorable to the development of numerous nervous ailments, chiefly functional."

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RADIO

Clock Is Controlled By Signals Over Radio

A RADIO clock, built either as an auxiliary or as an integral part of an otherwise ordinary radio receiver, and controlled by signals sent out from the broadcasting station along with the regular program, has been patented.

Designed by Walter van Braam Roberts of Princeton, N. J., the device as described tells time to the nearest five minutes, but can be modified to tell time to the nearest minute and second. It is covered by patent No. 2,118,109.

Controlled by a master clock at the radio station, signals are sent out at the selected interval. The signals consist of low frequency modulations, below the range audible to the human ear. Received by the receiver at the same time the regular program is coming in, the signals cause reeds to vibrate. The reeds in turn permit to pass or do not permit to pass a beam of light directed toward a screen. The position of the light beam indicates the time. The patent has been assigned to the Radio Corporation of America.

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INVENTION

Music Typewriter, Decimal Point Calculator Patented

A MUSIC typewriter distinguished from previous machines in that it types the staff or ruled lines as well as the notes and whose keyboard can be substituted for the keyboard of an ordinary writing machine is covered by Patent No. 2,117,363, granted to Gust Rundstatler, a Berlin inventor.

People who work out lengthy problems on slide rules and then have to stop and figure out where that all-important decimal point belongs now have, as a result of the work of Howard Gilmore of Brookline, Mass., a device which determines the decimal point's location for them. It is protected by Patent No. 2,117,413.

Science News Letter, June 18, 1938

GENERAL SCIENCE

New Carnegie Institution President Is Engineer

DR. Vannevar Bush, elected to the presidency of the Carnegie Institution of Washington to succeed Dr. John C. Merriam, who is retiring, is one of America's leading electrical engineers. For the last 15 years he has been connected with the Massachusetts Institute of Technology.

As vice-president and dean of engineering of that university, he has won world fame for his leadership in research. He built the famous differential analyzer, a mathematical robot that solves in a short time complex differential equations that would tax the patience and skill of unaided brains.

As head of the Carnegie Institution, Dr. Bush will have responsibility for one of the largest research budgets the world has seen outside of a government agency. With far-flung research activities ranging from the great 100-inch Mt. Wilson telescope in California to archaeological diggings in foreign lands, the current yearly expenditures of the Carnegie Institution are well over $1,500,000. In addition to large staffs in its permanent scientific establishments in Washington, Baltimore, Boston, Pasadena and elsewhere, dozens of investigators are given grants each year.

Dr. Bush brings to the Carnegie Institution experience from the engineering and physical sciences, whereas Dr. Merriam, present president, is a biologist and one of the world's leading students of early animal life.

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