

PHYSIOLOGY

Adrenal Gland May Produce Hormone For Salt Control

A NEW discovery in the field of endocrine gland research appears in a report by Drs. Frank A. Hartman, Herbert J. Spoor and Lena A. Lewis, of Ohio State University. (*Science*, March 3)

The adrenal glands, tiny cocked-hat-shaped organs close to the kidneys, produce not merely two but three hormones or chemical messengers, the scientists believe as a result of their latest investigations.

The newly-discovered hormone, the studies indicate, is responsible for keeping the sodium part of salt in the body. This important job has heretofore been attributed to the life-essential hormone from the outer part of the adrenal glands. Dr. Hartman previously obtained a potent extract of this hormone from the outer part of the glands which he called cortin, and which has saved many lives threatened by the adrenal gland disorder, Addison's disease.

He and his associates have now separated from this extract the substance which they believe is another hormone responsible for salt retention. This newly-discovered hormone, however, will not maintain life without cortin, although cortin will keep animals alive without the aid of the salt-controlling hormone.

First of the adrenal gland hormones is the familiar adrenalin or epinephrine produced by the inner portion of the glands.

Science News Letter, March 18, 1939

PSYCHOLOGY

Frustrations Fill Life Leading to War and Hate

THE LIFE of man is filled with obstacles, deprivations, and thwartings. From the time the bottle is taken away from the protesting infant to that dread hour when he unwillingly faces loss of life itself, frustration follows frustration.

War, industrial strife, fierce economic competition, and brutal crime can all be traced to this inevitable series of frustrations, we are told by a galaxy of psychologists at the Institute of Human Relations of Yale University writing in a new book *Frustration and Aggression* (Yale University Press).

In America, babies early learn resentment when they must conform to artificial feeding schedules. All good mothers who read books on infant care know that baby's feeding should conform not to the pangs of hunger but to the clock. It is

not easy to explain this to the infant.

And suppose he discovers a partial satisfaction in sucking his thumb. The baby book says no. His hands are bound, or covered; bitter substances destroy his comfort.

When baby wants to touch and grasp and put into his mouth, again he is hindered. Any number of tempting objects are *verboten*. He mustn't grab the Wedgewood vase or pound blocks on the piano. He mustn't put lighted cigarettes into his mouth. Wise parents will put a toy in his hands to substitute for forbidden things. But not all parents are wise.

In school, freedom is gone; he must learn to sit still. Harder still, he must learn not to talk.

In adolescence, the curbing of desires becomes almost intolerable and storms of protest and insubordination result.

But manhood brings no truce. Marriage must be postponed, loved ones relinquished, jobs lost, ambitions thwarted, and social standing imperiled. Depressions throw millions out of work and reduce them to abject poverty and humiliation.

It is small wonder that resentments smoldering in the breasts of men for a whole lifetime sometimes break into the flames of war and hatred.

If conflict is to be avoided, these psychologists warn, some means must be devised to reduce the frustrations that goad all men.

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MEDICINE

Vitamin C Not Remedy For Rheumatic Fever

ANTI-SCURVY vitamin C, in citrus fruits, tomatoes, or other fruits and vegetables, is good for everyone but the idea that it is a specific remedy for rheumatic fever has been exploded by Dr. M. P. Schultz, U. S. Public Health Service expert on the rheumatic fever problem.

Children with rheumatic fever should not be forced to eat excessive amounts of the foods containing this vitamin, he warned, because they may then not eat enough of other necessary foods.

Rheumatic fever is the most common cause of heart disease in children, but the cause of rheumatic fever is still unknown. One theory is that lack of vitamin C in the diet is an essential factor in development of rheumatic fever. Studies disproving this theory are discussed by Dr. Schultz and associates in a *Public Health Service Report*.

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IN SCIENCE

GENERAL SCIENCE

Chinese Scholars Appeal For Scientific Reprints

AN APPEAL for scientific books and pamphlets for the use of Chinese scholars has been received in Washington. The sender, T. L. Yuan, acting director of the National Library of Peiping, states that since the Japanese occupation of the Chinese capital, the facilities of the library are not available for the use of Chinese scientists.

Emergency quarters have been set up in the city of Kunming, Yunnan province. Mr. Yuan asks that American scientists contribute reprints of their publications as far as they are able, and he appeals also for books and monographs.

Contributors are requested to send their publications to the International Exchange Service, Smithsonian Institution, Washington, D. C., whence shipments to China are made once a month.

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AGRICULTURE

Strawberry Clover Favored For Wet, Alkaline Lands

STRAWBERRY clover, a forage plant that loves wet soil and can tolerate relatively high concentrations of alkali, is recommended for use in seepy and alkaline fields by the Bureau of Reclamation, U. S. Department of the Interior. Tests during the past few years in the West have proven the plant to be of such merit that its general adoption is now encouraged.

Strawberry clover is so named because it propagates itself, after it once gets a start from seed, by throwing out long runners that root at the tips, after the manner of a strawberry plant. Its botanical name, *Trifolium fragiferum*, is a reference to this resemblance: *Fragaria* is the scientific name of the strawberry.

This relatively new clover apparently came to the United States from Australia, in lots of mixed seed intended for pasture sowing. In some of the earlier plantings it has not only persisted after the grasses with which it was mixed but has even driven out salt grass, foxtail and other aggressive weeds.

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E FIELDS

AVIATION

Britain's Flying Bombers Faster Than U. S. Navy's

GREAT Britain's flying boat bomber, the Short Sunderland, largest in regular military service in the world, is faster than the corresponding, but older, U. S. Navy type, the twin-engined Consolidated PBV, Air Ministry figures disclose.

The Sunderland's four engines pull it through the air at a top speed of 210 miles an hour, it is claimed, considerably in excess of the PBV's performance. Two experimental four-motored naval bombers, built by Sikorsky and Consolidated for the U. S. government, are believed, however, even to outperform the Sunderland.

The British naval bomber, whose gross weight of 45,000 pounds makes it twice as large as the Consolidated two-engined planes, but 15,000 pounds lighter than the two new American boats, is a military version of the Empire flying boat. The Cavalier, as well as its expected successor, the Champion, was of the Empire type.

The Sunderland is Great Britain's first patrol bomber on the American style. It can carry nearly a ton and a half of bombs about 1650 sea miles.

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CHEMISTRY

Research Speeded To Aid King Cotton

WIDESPREAD announcements of new research that produces fibers rivalling natural silk and wool may seem to fashion the erroneous picture that scientists are doing but little to find new and better ways of utilizing cotton. Scientific research aid for King Cotton, however, is rapidly being developed.

Directed by Dr. Lawrence W. Bass of famed Mellon Institute for Industrial Research at Pittsburgh, new ways of using cotton are being found through research.

One new application of cotton, and an important one potentially, is the use of cottonseed hulls as the basic ingredient of a better sweeping compound. Thrown

on the floors of office and factory buildings the mixture is swept up with a broom and gathers—as it is pushed about—the fine particles of dirt and dust.

Past mixtures for sweeping compounds have been made of sawdust or of mixtures with many ingredients like sand, salt, mineral wool, molasses, ground cork, corn cobs and so on.

To Dr. Bass and his colleagues it seemed that cotton hulls, with their fine fibers, might act like a dust cloth and catch the dirt. Experiment showed that hull bran from cotton seeds made a very satisfactory sweeping compound. Over a ten-year period the price of hull bran has been very low, only \$5 a ton, so that the cost of the sweeping compound should be low when it goes on the market in commercial quantities.

Best mixture so far found is one containing 95.6 per cent. cottonseed hull bran and 4.4 per cent. paraffin oil. In tests on pulverized talc the cottonseed sweeping compound picked up all particles. Comparable tests with a sawdust base compound showed a pickup of only 40 per cent.

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ETHNOLOGY

Study of Indians Shows What Hard Times Were Like

ROVING Indians who tried to wrest a living from the sagebrush country west of the Rockies offer modern America a striking picture of hard times.

A 12-year study of these Ute, Paiute, and Shoshoni Indians has just been reported by Dr. Julian Steward of the Smithsonian Institution. His investigation took him among some isolated groups never before studied by ethnologists.

Until a few generations ago, he reports, this area supported just about the most elementary form of society known to mankind. The people lived by gathering nuts and fruits and by hunting deer, mountain sheep and antelopes when they could get them, or if not, by eating rabbits, gophers, rats and mice.

There was a comparative famine belt, where starvation and cannibalism were real problems. The individual family or a few related families formed the largest permanent unit of society, because there was too little food for large groups. In a few fertile areas, from 50 to 100 persons established themselves in a fortunate band, working and dancing together, with permanent leaders.

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ENGINEERING

Cylinder Fuel Injection Produces Greatest Power

INJECTION of fuel directly into the cylinders of an aircraft engine produces the greatest output of power, two National Advisory Committee for Aeronautics scientists have determined at the N. A. C. A.'s Langley Memorial Aeronautical Laboratory.

Tests conducted on a single-cylinder experimental engine proved that the greatest amount of air and fuel can be put inside a cylinder by this means, as compared with manifold injection and carburetion.

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ENGINEERING

Chinese Building Railroads In Midst of Japanese War

WAR with Japan is bringing China at least four more railroads than have been previously reported, some of them almost under the noses of the Japanese invaders, Norman D. Hanwell, Far Eastern expert of the Institute of Pacific Relations, said.

A branch line of the long line connecting Kweilin in southwest China with Chuchow, near the central Chinese coast, will connect Hunan and Kweichow provinces in western China. Two hundred kilometers, about 125 miles, are already reported under construction, Mr. Hanwell declares.

Sian, where Chiang Kai-shek was held prisoner by Marshal Chang Hsueh-liang more than two years ago in an episode of importance on the road to the Sino-Japanese war, is to be connected with Lanchow, capital of Kansu province in the northwest. Rails are being pushed westward from Paoki, which is already connected with Sian. The line may facilitate shipment of Russian munitions to the Chinese.

A line is being pushed south from a point south of Wuhu, Yangtze river port now occupied by the Japanese.

Fourth, the Kweilin-Chuchow line itself is partially new, for the stretch Nanchang to Chuchow was opened on Jan. 9 of this year.

Equipment from another railroad which has figured in the news—the narrow-gauge French line from Djibouti to Addis Ababa in Ethiopia—is also to be brought into China to provide additional rolling stock for the overworked narrow-gauge road from Indo-China to Yunnan, Mr. Hanwell also reports.

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