

ENDOCRINOLOGY

Glands Stimulated by Amino Acids of Food

► **DISCOVERY THAT** some of the body's glands, such as those that produce anti-arthritis cortisone and ACTH, may be stimulated by the amino acids that build high quality protein food is announced by Drs. Ilmari Vartiainen and Juhani Apajalahti of the University of Helsinki, Finland.

Diets that do not come up to the best in quality of such foods could, therefore, lead to diseases of the endocrine glands and of body metabolic processes the doctors point out.

Their findings were made in tests of the number of white blood cells of the kind called eosinophils following feedings of proteins, such as gelatin and the milk-cheese protein, casein, and of tyrosine, one of the essential amino acids found in casein but not in gelatin.

When healthy volunteers swallowed test meals of casein and tyrosine, the number of eosinophils circulating in their blood dropped. The effect was much weaker when the test meal consisted of gelatin.

American scientists have already shown that the number of eosinophils in the blood is decreased by ACTH from the pituitary gland. Presumably this is because ACTH increases the production of adrenal gland hormones such as anti-arthritis cortisone.

Epinephrine, or adrenalin, another adrenal gland hormone, causes a similar decrease in eosinophil cells. The theory is that epinephrine produces this effect by a circuitous path through which it stimulates the pituitary to produce more ACTH.

A German scientist had suggested that proteins in foods might produce changes similar to those caused by epinephrine and that proteins could be considered as stimulants of the sympathetic nervous system. The Finnish doctors decided to test this theory, with the results reported in the *Journal of Clinical Endocrinology and Metabolism* (Dec., 1953).

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PUBLIC HEALTH

VA Mass Survey for TB Pays Health Dividends

► **HEALTH DIVIDENDS** to the entire nation, now and in the future, are expected from the mass screening tests for tuberculosis conducted by the Veterans Administration over the past four years.

The screening tests consist of chest X-rays taken of every veteran on admission to a VA hospital, of every patient examined at VA outpatient clinics at regional offices unless X-rayed within the previous six months, and of all VA employees. If the hospital patients stay in the hospital for a long period, they are X-rayed every 12 months or oftener if necessary. The employees are X-rayed at the time of employment or sep-

aration or transfer, and again at six- to 12-month intervals or oftener if necessary.

So far, 2,513,000 patients and 704,000 employees have gone through the screening. Among these, 12,740 cases of active tuberculosis of the lungs and 34,470 cases of inactive lung tuberculosis and nearly 91,000 other chest conditions have been discovered. These other conditions included cancers and heart diseases requiring immediate attention.

Advantages cited in the official report are:

The segment of the population covered is so large that the results not only will reduce the incidence of TB infection among veterans and their families, but also should reduce the number of TB cases and deaths among the general population.

The mass survey has made it possible, for the first time, to keep VA installations virtually "clean" from TB infection of others.

Of incalculable value to the economic and physical health of the nation is the fact that the search is turning up so many cases in the early, or minimal, stages of TB, at which time proper treatment has a greater chance of effecting a speedy and lasting cure.

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PSYCHOLOGY

"Fixation" Studied to Improve Traffic Vision

► **IF PSYCHOLOGISTS** can find out more about a phenomenon known as "fixation," the knowledge may reduce traffic accidents and produce better aircraft gunners.

This phenomenon is being investigated by Dr. Irving Maltzman, Dr. Eugene Eisman and William Smith, University of California at Los Angeles psychologists, under an Army Ordnance grant.

They are seeking the answers to such questions as:

Why do a driver's eyes become so fixed upon a straight stretch of lonely road that he doesn't see a car entering from a side road?

What makes an aircraft gunner stick with a target out of range even after another target appears at close range?

The experimental set-up involves tracking a target with a beam of light and measuring the time it takes subjects to change over to a new target suddenly presented. It also involves certain types of written problems which indicate the degree of fixation in subjects.

Preliminary results suggest that the emotional make-up of the individual may be in part responsible for the fixation.

Dr. Maltzman thinks that the study may aid in setting up a training program designed to overcome the problem. This would be particularly suited for gunnery training in the armed forces.

At present college students are being used as experimental subjects. Military personnel will be tested at a later date according to present plans.

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IN SCIEN

ACOUSTICS

Sound Absorber May Take Throb Out of Planes

► **AN ELECTRONIC** sound absorber has been devised that may take the low throb out of airplane engines.

The device consists of a microphone, amplifier and loudspeaker. It could be attached near the head rest on airplane seats to reduce to a whisper the low beat of the engines near the passenger's ears.

Similarly, the device could be used in automobiles and factories to cut down noise that annoys persons. Several of the absorbers placed on noisy machines also can help cut down the racket the machinery "broadcasts" to persons working nearby.

Harry F. Olson and Everett G. May, both of the RCA Laboratories, Princeton, N. J., report in the *Journal of the Acoustical Society of America* (Nov., 1953) that the electronic absorber is much better in the low-frequency-sound range than ordinary sound-absorbing materials. These materials do not absorb much low-frequency sound.

The electronic sound absorber is designed to cancel out sound by picking it up on the microphone, amplifying it and then feeding it back toward the microphone through the loudspeaker. Sound coming from the loudspeaker is out of phase with sound hitting the microphone.

This tends to cancel out the sound near the microphone. Thus if a person's ears were in the general vicinity of the microphone, the airplane, machinery or factory would seem less noisy at that spot.

The research scientists reported that the device reduces sound 10 to 25 decibels over a three-octave low-frequency range.

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ENTOMOLOGY

Insecticide in Tree Kills Attacking Pest

► **A NEW** way of fighting an insect parasite on Africa's most valuable timber tree has been developed, Dr. John Nicol, West African Cacao Research Institute, Tafo, Gold Coast, has reported in *Nature* (Jan. 2).

The insecticide Hanane is applied to the soil where it is absorbed by the tree roots and carried throughout the tree's circulatory system. When the insect, *Phytolyma lata*, attacks, the insecticide in the tree kills it.

The insect, a psyllid, attaches itself to new shoots on young trees, causing heavy galls or swellings that stunt the growth of the tree. The timber tree is *Chlorophora excelsa* and is found in many sections of tropical Africa.

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CE FIELDS

OPTICS

Vision Reduced Some By Tinted Windshields

► VISION IS cut down slightly at night by tinted windshields for most persons, but a few motorists are able to see a bit better.

James A. Stone and A. R. Lauer, both of the Iowa State College driving research laboratory, told the Highway Research Board meeting in Washington that their experiments definitely show that tinted windshields do not improve night visibility, except for a few persons.

The scientists asked 60 subjects to peer into a darkened tunnel-like device in tests. A moving belt inside, illuminated as if by automobile headlights, simulated the road. Targets placed on the belt could be made to swoosh toward the subjects at speeds up to a proportional 60 miles an hour.

Tests showed that blue-tinted glass did not markedly obscure bluish objects, as was expected. Nor did blue-tinted glass make yellow objects easier to see, as was supposed.

However, it was determined that any sort of filter that narrows or reduces the band of visible light transmitted through the windshield to the driver will cut down seeing efficiency.

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GENERAL SCIENCE

Russia's Polar Stations Outnumber U. S. 60 to 1

► RUSSIA'S POLAR observation stations outnumber those of the U. S. 60 to one, Dr. Norman J. Wilimovsky of the Natural History Museum at Stanford University reported to the Western Society of Naturalists meeting at the University of Southern California.

To study ice and weather conditions in the Arctic, the Soviet Union has a chain of bases across its far northern boundary from the Atlantic to the Pacific, Dr. Wilimovsky stated. The lone U. S. Arctic Research Laboratory is at Point Barrow, Alaska.

"The Russians try to predict from their observation posts when the Arctic ice will break up and when their northern sea route will open," Dr. Wilimovsky said.

"This has been done by sampling plankton, the tiny plants and animals in the sea. The amount and kinds of such food in the ocean indicate how many days or months have passed since the ice broke at distant places and drifted toward the observation stations. Predictions can be made on future breaks.

"Our Air Force radar observations on polar flights can detect openings in the ice

pack, but cannot show how long the ice has been broken."

The ocean under the polar ice pack teems with life, Dr. Wilimovsky said. Seals and fish feed on minute organisms in the ocean, and birds eat the fish. Bears feed only upon seals. All the animals and birds feed on each other in a relentless life cycle originating in the sea.

The longer ice stays in the Arctic ocean, the more fauna it picks up, just as a log floating in sea water becomes increasingly covered with barnacles and microscopic organisms, he said.

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AGRICULTURE

Asphalt Spray Holds Soil Until Grass Grows

► ASPHALT SOON may be widely used to hold down loose soil on freshly graded lawns and newly-plowed fields until grasses or crops become established to prevent erosion.

The material, commonly used in road surfacing, was tried on a newly built waterway at a University of Wisconsin farm early in the fall of 1953.

The 1,200-foot, six percent slope waterway was seeded with oats, alfalfa-brome mixture and annual rye grass, and was then sprayed with a light coat of water emulsion type asphalt heated to 125 degrees. It formed a thin, open honeycomb layer over the loose soil.

A heavy rain that fell shortly after the waterway was finished ordinarily would have caused severe damage to the waterway by washing away the loose soil, making re-grading and re-seeding necessary. However, the protective cover of hardened asphalt kept the soil in place and the seeding came up in good condition.

Farm manager V. W. Matthais reported that after several months of growth, the seeding was in good condition still and had shown no bad effects from the asphalt.

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TECHNOLOGY

Compressed-Air Saw for Hazardous Locations

► POWER SAWS that run on compressed air have been created by German engineers. They are designed to work in places threatened with fire hazards.

The compressed-air chain-tooth saw, made by a company in Wuerttemberg, thus can be used in areas forbidden to saws driven by gasoline engines or electric motors—areas where a backfire or spark might trigger a major explosion.

Pneumatic saws in two varieties have been produced so far by the company. The first is a one-man cross-cut saw that makes cuts up to 23.6 inches long. The other is a one-man bowsaw that handles wood up to 13.8 inches thick. Respectively, the saws weigh 33 and 44 pounds.

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FORESTRY

Forest Service Reports 1,027 Different Trees

► THE GOVERNMENT has just completed an extensive tree hunt. There are 1,027 different species of trees known to grow in the United States and Alaska. The U. S. Forest Service spent nine years preparing the listing.

Trees, as far as the Forest Service is concerned, are woody plants with a single erect stem or trunk, three inches or more in diameter at four and a half feet above ground and at least 12 feet high.

Dr. Elbert L. Little Jr. of the Forest Service prepared the 450-page check list, "Native and Naturalized Trees of the United States Including Alaska." The new listing replaces a list made in 1927.

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PUBLIC HEALTH

Prevent Sickness to Reduce Medical Costs

► GREATER EFFORTS to prevent sickness may be one means the Eisenhower administration will push for solving the controversial problem of government versus private health insurance to meet the costs of medical care.

In a speech at the New York Academy of Medicine, Dr. Chester Scott Keefer, special assistant to the Secretary of Health, Education and Welfare said:

"Many of a family's most severe and prolonged costs of medical care can be forestalled by greater emphasis on prevention and by continuing health counseling on the part of the family physician."

He pointed to mass screening for signs of one or more chronic sicknesses as a "significant development" in preventive medicine and health education. Often through these screening tests, he pointed out, diseases such as diabetes or high blood pressure, or both, can be detected early enough for medical attention to keep the diseases under control. Presumably he also meant to imply that early treatment would help keep the diseases from developing to a stage that threatens life or requires costly medical care, or both.

Expansion and improvement of private voluntary health insurance, he said, will "go a long way toward reducing the future problems of meeting the costs of medical care for all groups in the population."

Dr. Keefer said he agreed with an Academy of Medicine statement that efforts to cure the world of its ills by "massive" doses of social legislation were fraught with great danger.

He pointed to the need for teamwork between private practice of medicine and public health, and stressed again the need for preventive medicine through five steps, from health education to rehabilitation, to "forestall complete disability and dependence and to help the patient make the maximum use of his remaining capacities."

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