

NUTRITION

Vitamin B₁ Content of Wheat Affected by Weather

► VITAMIN B₁, or thiamin, content of wheat is significantly affected by weather, variety of grain and crop location. These results are revealed by a two-year research project reported to the American Association of Cereal Chemists in St. Louis by W. W. O'Donnell and E. G. Bayfield of the Kansas Agricultural Experiment Station at Manhattan.

The vitamin studied is needed in the diet to prevent beriberi and certain other nervous disorders.

Influence of climate was judged from similar wheat stands of the two seasons which varied 15% in thiamin content.

Seven wheat varieties grown at eleven Kansas experiment stations and fields during 1941 and 1942 comprised the tests.

Further studies revealed that there is no relationship between the thiamin content of wheat and the flour made from it. The scientists warned that a wheat of high thiamin content does not necessarily mean a superior flour when milled.

They caution that, although the conclusions are significant, they should not be regarded as fact until confirmed by a four- or five-year investigation.

Science News Letter, May 29, 1943

NUTRITION

Potatoes Lose Vitamin C When Mashed and Kept Hot

► DON'T MASH the potatoes (when you have any) if you want to get vitamin C from them. This new diet tip comes from studies by Dr. G. N. Jenkins, of St. Bartholomew's Medical College at Cambridge, England (*Nature*).

The advice applies particularly to cooks in restaurants, cafeterias, boarding houses and the like, where large amounts of potatoes are mashed at one time and then kept hot for periods ranging from 15 minutes to an hour or more before being eaten.

When a large batch of potatoes was mashed by hand under large-scale catering conditions, Dr. Jenkins reports, the time required was 10 minutes. About one-third of the vitamin C content was lost. After being kept hot for 30 minutes, mashed potatoes had only one-tenth of the vitamin C they had immediately after being mashed, he found in another experiment. Whether the mashed pota-

atoes or other vegetables are kept hot in bulk or in small helpings does not seem to make any difference in the amount of vitamin C lost through being kept hot for a period before serving.

Mashed potatoes for the family dinner apparently would be given scientific OK if the family is small enough and the cook efficient enough so that the potatoes could be mashed within two or three minutes and served immediately.

Vitamin C is the scurvy-preventing vitamin found abundantly in oranges and other citrus fruits, and in tomatoes. Potatoes are also a good source of this vitamin, particularly for those on limited food budgets who cannot have much citrus fruit and who eat large quantities of potatoes as a cheap and filling food.

Science News Letter, May 29, 1943

BACTERIOLOGY

Electron Microscope Turned on Syphilis Germ

► NEW pictures of structural details of the syphilis germ, never yet seen by human eye even with the highest-powered microscope, are shown and discussed in the *Journal of the American Medical Association*, (May 15) by Prof. Udo J. Wile of the University of Michigan Medical School and Miss Edna B. Kearney of the University's Hygienic Laboratory.

The extremely small, corkscrew-shaped bacterium, known to science as *Treponema pallidum*, is shown to have very fine, hair-like appendages called flagellae, which lash about to propel it through the fluids in which it lives. These flagellae were made evident in photographs taken with the new electron microscope, at an enlargement of 9,000 diameters, and the resulting pictures then given an additional tenfold enlargement. These brought out the images of the appendages very clearly.

Earlier examination of electron microscope images of the same germs by direct vision, using a fluoroscope screen, had failed to show flagellae, although there had long been reason to suspect their existence, from their behavior when viewed under the highest powers of an ordinary microscope with special lighting conditions.

Dr. Wile and Miss Kearney used germs obtained directly from infections in human cases. Two earlier investigators had also been able to photograph flagellae, but their specimens were taken from laboratory cultures.

Science News Letter, May 29, 1943

IN SCIENCE

PSYCHOLOGY

Brain Metabolism Linked With Some Mental Defects

► THE RATE at which the brain cells make use of oxygen is linked with intelligence, in some forms of mental deficiency, it was reported to the American Association on Mental Deficiency in New York by Dr. Harold E. Himwich, J. F. Fazekas, H. C. Herrlich and Edith Rice, all of Albany Medical College.

In normal persons, the brain metabolism is lowest in infancy and gradually increases with age until it reaches a peak between the ages of 20 to 29. It remains at this maximum until old age, when there is a decrease.

In the type of mental deficiency known as mongolism, however, the increase in brain metabolism is stopped short at the age of 10.

In most other types of mental deficiency, the brain is supported by normal metabolism, but the energy so produced is supplied to brain tissues that are incapable of normal action.

Science News Letter, May 29, 1943

RESOURCES

Cow's Tail-Switch Important to Army

► THE LONG HAIR in the switch of a cow's tail, used for some time as a filter for the air-conditioning in railway cars, is now being used as a filter in machinery of Canadian men-of-war, Dr. D. J. McLellan of the Dominion Department of Agriculture states.

In the United States, the sale of cattle tail hair is restricted to the armed forces. Its use is confined to Navy mattresses, parachute packs and saddle pads. Because of its sponginess and low susceptibility to moisture, the hair is ideal for padding material.

In the past, the hair was used largely in carpet sweepers and hair brushes. Only about eight inches of the cow's tail is used. At Forth Worth, Texas, nearly 150 tons of cattle tail hair was marketed annually.

Science News Letter, May 29, 1943

CE FIELDS

ENGINEERING

Cargo Ship Turbines In Mass Production

See Front Cover

► STEAM TURBINES for cargo ships are now being produced on a mass basis at the new Merchant Marine division of Westinghouse. The illustration on the front cover of this week's SCIENCE NEWS LETTER shows the low pressure unit and the high pressure unit of one of these steam turbines being test-assembled before the spindles are in place.

The low pressure unit, shown on the left, develops its power from steam which has already served to develop power in the high pressure unit. Together the two units provide 4,000 horsepower for a cargo ship propeller.

Science News Letter, May 29, 1943

CHEMISTRY

Wheat Gluten May Become "Stickum" for Envelopes

► GLUTEN, the stuff in wheat flour that sticks the bread-loaf together, may do the same for our envelopes some day. It appears to be a versatile substance: another possibility is a compound that gives a meaty flavor to dried soups.

These and other promising industrial futures for wheat gluten were discussed before the meeting of the American Association of Cereal Chemists, by Dr. H. S. Olcott and Dr. M. J. Blish, who conducted their researches at the Western Regional Research Laboratory of the U. S. Department of Agriculture at Albany, Calif.

Wheat gluten is a byproduct in the manufacture of wheat starch. At present it is not produced in large quantities because corn starch is underselling wheat starch; but this situation is not necessarily permanent, and the research was undertaken with the idea of being prepared for any possible change.

Gluten makes a good adhesive, Dr. Olcott stated, if it is dissolved in dilute ammonia. The solution forms a dry, even film on paper, does not tend to crack

readily, and when moistened seals paper in a few seconds.

Gluten was also tried out as a possible raw material for synthetic fibers. It does not do well alone, but in combination with other proteins it can be spun into fibers.

Most promising of gluten uses, already absorbing most of the commercial gluten not going into the baking industry, is its conversion into the soup-flavoring compound, monosodium glutamate, through treatment with strong hydrochloric acid. At present, Dr. Olcott reported, the demand far exceeds capacity to meet it. It is not possible at present to expand production capacity because of priority restrictions. Beet sugar waste is another source of glutamic acid used in preparing this product.

Science News Letter, May 29, 1943

MEDICINE

Lack Pep? Soldiers Can Blame It on Tropics

► SOLDIERS and sailors in the tropics who, after serving there for a time, feel listless, low and pepless can blame it on the climate. Justification can be found in a report by Commander James L. McCartney, Medical Corps, U. S. Naval Reserve, to *War Medicine*, published under the auspices of the National Research Council and the American Medical Association.

Low blood pressure and a low basal metabolic rate are likely to develop sooner or later after residence in the tropics, Commander McCartney states, quoting reports from a number of physicians who have studied the problem. The metabolic rate is that at which energy interchanges in the body proceed. The basal metabolic rate is that for the energy of mere existence.

Low blood pressure affects many but not all persons in the tropics. It does not, however, appreciably affect those with high blood pressure. This lowering of the blood pressure resulting from life in the tropics without such other causes as debilitating tropical diseases like dysentery is due, according to one authority, to the following conditions:

Constant dilatation of the small blood vessels near the surface of the body.

Increased secretory function of the skin, such as sweating.

Visceral influences.

Constriction of the small superficial veins.

Variations in the volume and viscosity of the blood.

Science News Letter, May 29, 1943

MEDICINE

Film Reported as Advance In Protection Against Gases

► A "DECIDED advance" in protection against two war gases, Lewisite and mustard gas, is announced by Dr. C. Jelleff Carr, of the University of Maryland School of Medicine, in a report to the Society for Pharmacology and Experimental Therapeutics.

A sorbitol-gelatin film, he has found in rabbit experiments, gives protection against Lewisite vapors and liquid. Judging from preliminary experiments on humans, it protects against mustard gas as well.

Sorbitol is a sugar alcohol. The complex formed when it is heated with gelatin has found wide industrial use. The gas-impermeable character of a film of this complex suggested to Dr. Carr that it might be useful as a protection against both chemical warfare agents and industrial chemicals and solvents.

"The protection against Lewisite afforded by these films," he reports, "far exceeds in value the protection afforded by washing with soap and water alone after the period of exposure (to the gas). The use of this material by workers exposing themselves to Lewisite offers a decided advance in routine prophylaxis. The value of washing with soap and water alone after exposure to Lewisite has been amply demonstrated in these experiments," Dr. Carr adds.

Science News Letter, May 29, 1943

NUTRITION

Food Yeast for Humans Developed in England

► DEVELOPMENT of a yeast powder suitable for human food and plans for the first manufacturing plant for its production, to be set up in Jamaica, are announced in reports just reaching the United States from England.

The yeast food was developed from a strain of *Torula utilis* by Dr. A. C. Thaysen and colleagues of the Department of Scientific and Industrial Research at Teddington, England. In the *Lancet*, English medical journal, the yeast food is described as having a "slight, not unpleasant taste," and as growing rapidly and being a source of good protein as well as all the B vitamins.

The first plant for its manufacture is to be set up in Jamaica, *Monthly Science News* reports.

Science News Letter, May 29, 1943