BIOLOGY

Vitamin B-12 Needed By Marine Algae

➤ WHETHER or not there is enough available vitamin B-12 in the ocean to support crops of plankton, tiny marine plants and animals that may serve as a possible future food source, is a problem scientists are attempting to solve.

Plankton requires an outside source of the vitamin and M. R. Droop, Marine Station, Millport, Scotland, says there is a "more than sufficient" amount of B-12 in the world's seas.

Studying the marine organism *Monochrysis lutheri* in the laboratory, he reports there is a linear relation between cell numbers and concentration of vitamin B-12. On the basis of known measurements of the vitamin content in some oceans and inshore waters, there should be no deficiency of the vitamin available to plankton.

However, vitamin B-12 in the laboratory and that in the sea water are not the same, K. W. Daisley, of the Unit for Biochemical Research Bearing on Fisheries' Problems, National Institute for Research in Dairying, Shinfield, Reading, England, points out.

In a natural environment, he says, the concentration of nutrient may support "considerable cell division" yet may limit the eventual crop if the amount only compensates for loss of cells.

Furthermore, if the vitamin is bound, or present in combined forms, some plankton may not be able to use it.

"Investigators concerned with marine productivity" should not feel the relationship between the sea's vitamin B-12 and marine life is now completely understood. It remains a "subject of interest," the scientist concludes.

Both reports appear in *Nature* (Nov. 16).

Science News Letter, November 30, 1957

DERMATOLOGY

Deodorant Allergy Causes Tumor Growth

➤ A SKIN REACTION to certain deodorants has led two dermatologists, Drs. Walter B. Shelley and Harry J. Hurley, University of Pennsylvania, Philadelphia, Pa., to the discovery that tumor-like cell masses can be caused by an allergy.

The deodorants contained the metallic element zirconium and caused granulomas to form on the skin. These granulomas are the basic body changes that occur in such chronic diseases as tuberculosis, leprosy and syphilis. They are made up of a mass of closely packed cells. Very little is known about how they start.

Healthy volunteers were given injections of a zirconium compound in and under the skin, to build up sensitivity.

Six months later, one of the test subjects suddenly developed large masses at the site of all the early injections. They were found to be due to a state of allergic hypersensitivity to the zirconium.

Enough zirconium was still in the skin tissue to trigger off the allergic reaction after sensitivity had been built up over the months.

Additional proof of the allergic basis for the granulomas came from tests on six patients who had developed the masses from zirconium deodorants. They were injected with dilute solutions of the zirconium compound and all reacted by forming granulomas at the site of the injections. Normal subjects showed no granuloma formation, since they had not been building up any sensitivity.

Zirconium was the only element that brought on the reaction. None of the other ingredients in the deodorant caused any effect.

"Although an allergic basis for granulomas has been suspected, this, to our knowledge, is the first direct demonstration that the introduction of extremely small amounts of a substance may produce a delayed allergic reaction in the form of an epithelioid cell granuloma," the dermatologists report in *Nature* (Nov. 16).

Further research should tell which of the granulomas found in disease are allergic and which are non-allergic, they conclude.

Science News Letter, November 30, 1957

BIOCHEMISTRY

Insanity Drug's Effects Stopped by Treatment

➤ AN EXPERIMENTAL treatment that protects normal people from the effects of the insanity-producing drug LSD-25 might be able to prevent schizophrenia, the most disabling form of mental illness.

This is reported by Drs. H. A. Abramson, B. Sklarofsky, M. O. Baron, N. Fremont-Smith, Biological Laboratory, Cold Spring Harbor, N. Y., and State Hospital, Central Islip, N. Y., in *Science* (Nov. 15).

The scientists have found humans can build up a tolerance to LSD-25 if they are first given a series of doses of a similar compound called MLD-41.

This new compound produces the same effects as LSD-25 but is only one-third as effective in creating the temporary insanity. Both drugs cause an individual to lose contact with the world around him and experience many of the symptoms of true schizophrenia.

MLD-41 was given to a group of normal volunteers for five or six days in increasing doses, and they quickly built up a tolerance to it as well as the LSD-25.

Then when the LSD-25 was tried on them, even 50 times the dose that usually brought insanity caused none of the psychotic-like effects.

The experiments lend hope to the possibility that schizophrenia, if it is produced by biochemical changes in the body, might be treated or prevented in much the same way.

If true schizophrenia comes from chemical changes like those caused by LSD-25 and similar drugs, there is good reason to believe that comparatively harmless drugs might be given to patients to create a tolerance to the body chemicals causing the schizophrenic state, the scientists report.

Science News Letter, November 30, 1957

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MEDICINE

Drug Stops Body From Retaining Salt

➤ A DRUG to treat heart disease that can stop the body from retaining sodium from salt and other sources is reported by Dr. Grant W. Liddle, Vanderbilt University School of Medicine, Nashville, Tenn., in *Science* (Nov. 15).

The drug is a synthetic steroid called SC-5233 that works against aldosterone, a natural steroid in the body. Aldosterone is secreted by the adrenal glands and causes the tiny tubules in the kidneys to reabsorb sodium. This action is a necessary "conservation" measure when the body is not getting enough sodium.

But it is also believed to cause the abnormal sodium and water storage that occurs in congestive heart failure when the body becomes waterlogged.

The new synthetic drug, and a similar one named SC-8109, appear to travel into the cells of the kidney tubules and compete with natural aldosterone and other sodium-retaining steroids, Dr. Liddle reports.

Used in humans, the drug only works if the sodium-retaining steroids are present. If not, it has no effect on how much sodium is absorbed.

Another important action of the drug is that it does not cause potassium to be excreted along with the sodium. Other compounds, including cortisone, will increase sodium excretion, but at the same time they lower the concentration of potassium in the body.

Science News Letter, November 30, 1957

PHYSIOLOGY

Stomach Ulcers May Be From Heart Disease

➤ STOMACH ULCERS often come as the result of certain kinds of heart disease, Dr. Michael M. Klein, a radiologist from Huntington, W. Va., told the Radiological Society of North America meeting in Chicago.

In a study of 370 heart disease patients who had stomach or intestinal complaints, 115 were found to have gastric ulcers.

Since coronary heart disease is actually an arteriosclerotic disease, it is safe to say that hardening of the arteries is an important causative factor in the origin of gastric ulcer, Dr. Klein explained.

Most gastric ulcers occur in people 50 years or older and this is also the arteriosclerotic age.

The chemical changes found in ulcers are well-known but there must be other important factors causing them since ulcers are frequently found at autopsies of patients who die from seemingly unrelated causes.

Science News Letter, November 30, 1957