

PHYSIOLOGY

Anti-Hemorrhage Chemical Found in Liver Alcohol

ACHEMICAL that counteracts tendency to hemorrhage, in dogs and rats at least, has been found in a solid alcohol obtained from liver.

Whether it will prove useful in treating human patients suffering from hemophilia or other conditions in which bleeding is a dangerous symptom, is not stated in the report of their discovery made by Drs. A. L. Lichtman and William H. Chambers of Cornell Medical College (*Science*, Oct. 14).

The anti-bleeding material, known chemically as a sterol, makes the blood clot faster in animals with a tendency to bleeding. It acts like vitamin K, newly discovered anti-hemorrhage vitamin, but chemical tests show it is not the same as this vitamin.

Science News Letter, October 29, 1938

GENERAL SCIENCE

Increasing Foundation Funds Augur Well For Research

THE DANGER of a drying up of the financial springs that feed the great foundations has worried many educators and scientists during these days of depression, recession and war alarms.

Foundations are an important and typically American phenomenon. In the past decade millions of dollars of foundation giving have been concentrated upon research and the diffusion of knowledge. Just after the war was an era of endowment and current support for special fields of higher education. If conditions shape themselves so that the funds for giving are reduced, many useful projects would suffer.

Reassurance that foundations will have money to dispense in the future comes from a comprehensive study by Dr. Ernest Victor Hollis of the College of the City of New York's School of Education. ("Philanthropic Foundations and Higher Education" published by Columbia University Press.)

The aggregate wealth funded for philanthropic purposes is substantially increasing. Dr. Hollis finds that during 1937 approximately \$600,000,000 was set apart in new foundations—the huge fortune of Andrew W. Mellon leading the list, followed by that of Charles Hayden. This may be contrasted with the approximately \$680,000,000 of contributions with which Dr. Hollis estimates higher education has been influenced in the past by foundations.

The 1937 list of donors indicates that those who control the stable fortunes in aluminum, coal and other mining enterprises, in the automotive and food-processing industries, and in the public utility, merchandising, and banking fields are beginning to follow the 1902-14 example of the steel and oil magnates.

The older industries that gave rise to the Carnegie, Rockefeller and other such foundations may therefore be joined by funds of more recent origin.

With increasingly large and diversified sources of revenue, Dr. Hollis feels that the foundations may do even more in the second than the first third of the 20th century to promote the purposes of higher education.

Science News Letter, October 29, 1938

OCEANOGRAPHY

Sea Plants and Animals Concentrators of Radium

SEA plants and animals may act as living concentrators of radium, and deposit this rare element on the bottom when they die and their bodies settle down to become part of the ooze.

This is the suggestion of Drs. Robley D. Evans of the Massachusetts Institute of Technology, Arthur F. Kip of the University of California, and E. H. Moberg of the Scripps Institution of Oceanography (*American Journal of Science*).

The three scientists point out the efficiency of marine organisms in extracting and concentrating other minerals that exist in very dilute state in the water. Thus, shelled animals take out calcium, seaweeds extract iodine and potassium. One seaweed species gathers the rather scarce element barium.

The researchers carried out tests on kelp and on the small organisms that make up the plankton or drifting population of the sea. They found that the radium concentrations in them were about 100 times that of the water in which they live.

Deep water in the sea contains more radium than water near the surface, and the bottom mud contains still more, it was found. This finding, the investigators state, "supports the view that the high radium content of deep-sea sediment is mainly due to fine particles which have settled down from overlying water."

The three scientists consider it likely that radium in sea water originated in land rocks and was carried down by rivers.

Science News Letter, October 29, 1938

IN SCIENCE

MEDICINE

Rabbits Better Than Horses For Anti-Pneumonia Serum

ANTI-PNEUMONIA serum made from rabbits' blood rather than horses' should be used for treating Type XIV pneumonia, it appears from studies reported (*Science*, Sept. 16) by Drs. Charles L. Hoagland, Paul B. Beeson and Walther F. Goebel of the Hospital of the Rockefeller Institute for Medical Research.

The sugary capsule covering of the Type XIV pneumonia germ is closely related, chemically and immunologically, to the blood group specific substances, the Rockefeller scientists find. The relationship is so close that it might incite in the horse the formation of substances that can cause clumping or agglutination of human red blood cells. It apparently does not incite the formation of these bloodcell-clumping substances in the rabbit.

These studies of the pneumonia germ may explain occasional untoward reactions, and even death, noted after serum prepared from horse blood had been used in treating Type XIV pneumonia.

Science News Letter, October 29, 1938

PHOTOGRAPHY

U. S. To Take Lead In Photography Standards

AMERICA is taking the lead in the work of standardizing the field of photography, it is announced by the American Standards Association.

At the request of the International Standards Association, a new committee on standardization is to be appointed. It will represent 40 different organizations including: federal government departments, user groups, manufacturers of photographic materials, distributors, and some twelve that might be classified as general interest groups.

Duties of the new committee will be to initiate a project on standardization in the field of photography under the leadership of the Optical Society of America and also to take leadership in the international project on photography as well as cooperating in the work.

Science News Letter, October 29, 1938

E FIELDS

PHYSIOLOGY

Fertility Vitamin Dose Expressed Mathematically

How much of the fertility vitamin E ingested to save rare native quail and to enable her to produce offspring?

Answer to this question, obviously of importance in agriculture and possibly of eventual significance in human family life as well, has been sought by A. L. Bacharach, of the Glaxo Laboratories in Greenford, Middlesex. Mr. Bacharach offers (*Nature*, Oct. 8) a mathematical formula for the proper dose, which he has worked out after breeding experiments with between 200 and 250 laboratory animals. More detailed technical publication is promised later.

Science News Letter, October 29, 1938

POPULATION

We Have Migration Problem But Not of a Minority

AMERICA, like Europe, has her problems of transfer of population. But here the trouble is with majorities, not minorities. And the need arises not from national or racial origins, but from lack of employment.

The productivity of the individual farm worker increased 41 per cent in the two decades from 1910 to 1930. The output of the manufacturing worker increased 63 per cent between the turn of the century and 1930.

Naturally, unless new markets can be found to absorb the goods produced by modern efficiency methods, unless hours are shortened, large numbers of men will be looking for jobs.

In agricultural regions, this problem is acute. At least 2,500,000 workers now on farms, and all the increase that this greatest of American child-bearing regions may provide in the future, must find non-agricultural employment. This is the estimate of the "Study of Population Redistribution" conducted for the Social Science Research Council and quoted in a new "Research Memorandum on Population Redistribution Within the United States" just made public.

Where can they go? This question is basic to any national population policy. Normally, in good times, the rural sur-

plus gravitates to the city. But can we hope that the future will hold any expansion of industry sufficient to absorb such numbers in addition to those released from industrial employment through greater worker productivity?

Exploration of reemployment opportunities is the purpose of a National WPA Research Project. Research in this field is needed and needed badly in order to relieve the United States from the horrible paradox of empty stomachs amid overflowing fields, of idle men unable to build for homeless children.

The predicament of some 3,500,000 men in an undesirable social situation was sufficient to take all Europe to the brink of war.

The problem of millions of young Americans seeking a means to earn their bread is one worthy of cooperative intellectual effort in our nation.

Science News Letter, October 29, 1938

PLANT PHYSIOLOGY

Plant Cells Survive Freezing in Liquid Air

QUICK freezing in liquid air does not kill plant cells, if they are deprived of part of their water first and then frozen quickly enough. Thawing out must be rapid, too.

These results of low-temperature biological experiments are reported by Drs. Basile J. Luyet and Gregory Thoennes of St. Louis University. (*Science*, Sept. 23)

They worked with the living cells in the outer layer (epidermis) of onion skin, and liquid air at the temperature of about 190 degrees below zero Centigrade. When the cells were immersed in completely fresh condition they were all killed. But when part of the water was drawn out of them by preliminary chemical treatment part of the cells survived the frigid bath.

Drs. Luyet and Thoennes found that the chief mischief to living cells is not done at the extreme low temperature, but in the first 15 degrees Centigrade below the freezing point. If crystals are going to form in the cell sap, they will form at this relatively high temperature, and it is ice crystals that do the mischief. The glassy, non-crystalline state of frozen water at extremely low temperatures seems to be less harmful to life.

The nearer to pure water is the cell sap, the more likely the fatal crystals are to form. "Thickening" the sap by the chemical withdrawal of water enabled it to pass the dangerous crystallizing stage more easily.

Science News Letter, October 29, 1938

INVENTION

New Type Aerial Bomb Among Latest Patents

A NEW type aerial bomb, with a tiny, spinning propeller in its nose, was among the 703 inventions awarded patents by the U. S. Patent Office.

The new bomb patent of Harold M. Brayton of Westfield, N. J. (No. 2,131,037) provides an easy and low cost method of putting the missile into firing position shortly after it is dropped from a plane. Present fuses, states the patent, are ingenious, complicated devices costly to make and requiring a great many machine operations.

The new propeller fuse automatically goes into operation when the bomb is dropped. The spin of the tiny propeller gradually turns a screw which brings the firing pin back into the proper position for firing at impact.

For practice in the firing of chemical trench mortars is the patent (No. 2,131,048) of Master Sergeant Merriell Dale Keyser of Edgewood Arsenal, Md., which fires tiny dummy shells at miniature terrain. Rubber bands supply the propellant force.

Real chemical mortars are fired, states the patent, by placing rings of powder in the gun, up to eight in number. The latter gives maximum range. Lesser distances each require their own specific charge. Training is needed in estimating the amount of charge for a given distance and it is to give practice in this art, without actually firing real mortars, that the invention relates.

Instead of a choice of charges of powder there is a choice of rubber bands up to eight in number. The small device may be attached to a real mortar and a gun crew trained in a sequence of parallel actions, at the gun, without actually firing a shell.

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PHYSICS

Radio-Heated Rivet in World's Fair Building

HERALDING, perhaps, a day when radio waves will be used for purposes other than just communication, the last rivet to be driven into the frame for the Radio Corporation of America's World Fair exhibit building in New York was brought to white heat by means of radio waves.

Held in a concentrated field of radio waves, the rivet was brought to white heat in a little more than a minute.

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