

PHYSIOLOGY

New Vitamin, Choline, May Aid In Diabetes Control

Present in Meat, Egg Yolk, and Yeast, It Is Needed For Liver Functioning; Lack Causes Fatty Liver

A NEW vitamin which is essential for liver function and which may play an important role in controlling diabetes was described at the meeting of the American and Canadian Medical Associations by one of its discoverers, Dr. C. H. Best of Toronto, co-discoverer of insulin, the life-saving remedy for diabetes.

The new vitamin has a real name, choline, instead of a letter as do most other members of the vitamin family. It is found in many foods, but the best sources are meat, egg yolk and yeast.

Dr. M. Hershey and Miss M. E. Huntsman, of the University of Toronto, were responsible for many of the fundamental observations that led up to the discovery of the significance of choline, Dr. Best stated.

Lack of this vitamin causes the serious condition of fatty liver, Dr. Best said. When the liver becomes fatty, it fails to make sugar or handle bile or do many of the things it should do, he explained.

The vitamin was discovered in the course of insulin investigations. Dogs that had no pancreas, the insulin-secreting organ, failed to live for more than a few months, even when given insulin injections. When they were fed minced pancreas, in addition to the insulin, they lived for years.

However, chemical studies of the pancreas showed that in addition to producing insulin and a digestive ferment, this organ contained choline, and that it was the choline in the diet of minced pancreas that kept the dogs alive after they had lost their own pancreases.

Serious in Humans

Cases of fatty liver in human beings, a serious condition of ill health, may be due to lack of choline in the diet; but Dr. Best did not discuss this point.

The choline discovery has thrown further light on the diabetes problem. The latter condition is a liver disorder rather than a disorder of the insulin-producing pancreas, it now appears.

"The pancreas is not always to blame in cases of diabetes," Dr. Best declared.

Diabetes may be caused in three dif-

ferent ways: the liver, as the result of injury or disease, may become too active and make too much dextrose sugar from the starches, sweets and proteins eaten; or the liver may become overactive due to lack of insulin (the usual explanation though not necessarily the usual cause of diabetes); or, finally, the pituitary, thyroid and adrenal glands, either alone or in combination, may become overactive and affect the liver through their relation with the insulin-producing part of the pancreas.

The pancreas was evidently at fault in the first case of diabetes treated with insulin, that of Leonard Thompson, of Toronto. Following Mr. Thompson's death from pneumonia in April, 1935, autopsy examination showed remarkably few of the insulin-producing islet cells in the pancreas.

This patient, who as a lad was dramatically rescued from danger of diabetes by treatment with some of the first insulin ever produced, grew careless about his diet when he grew older. As a result, he developed diabetic coma and then pneumonia. The physicians were able to relieve the diabetic condition again by insulin but they could not save him from the pneumonia.

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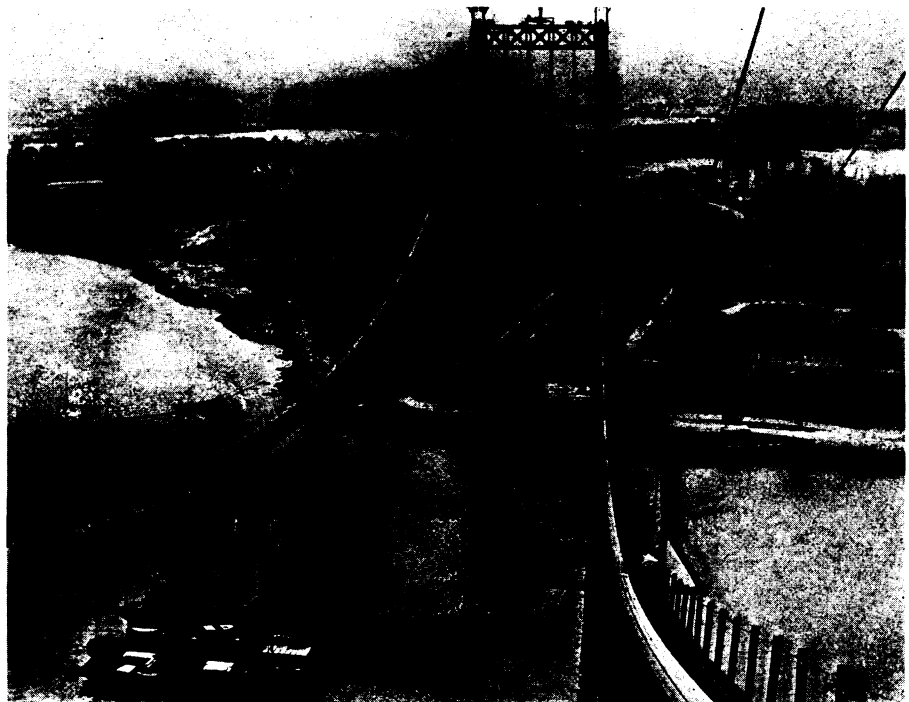
NUTRITION

Destiny of Man Can Be Controlled Through Diet

"MAN'S place in future history will depend in no small degree on the food he eats."

This prophecy was made by Dr. James S. McLester of Birmingham, Ala., president of the American Medical Association, in his presidential address before the joint sessions of that organization and the Canadian Medical Association.

Longer life, larger stature, greater vigor and a higher level of cultural attainment are promised to those races of man that take advantage of the new knowledge of nutrition, Dr. McLester said. Man is no longer a puppet of Fate but through scientific advances in the study of foods and health he can now to



NEW YORK'S NEWEST BRIDGE

Triborough Bridge, linking New York's Boroughs of Queens and the Bronx, takes shape. View above shows workers' catwalks on bridge structure spanning famous Hell Gate channel. Financed with PWA funds, the new bridge will be the fifth crossing the busy East River which separates Long Island from the rest of New York State. Others include the Brooklyn, Manhattan, Williamsburgh and Queensborough Bridges.

a considerable degree be master of his own destiny.

Scientists have pointed the way for man to attain this mastery. The problem now rests with those responsible for education and government, Dr. McLester indicated. People must be taught what foods to eat and they must be insured an adequate supply of food.

Something like twenty million American people are probably getting barely enough, or in some cases not even enough, food of the kind to keep them healthy, Dr. McLester said in taking up the economic aspect of the problem.

"This condition, if continued, will

surely affect the health of the race. To make agriculture profitable to the extent that a good rural population can be maintained and at the same time the rest of the population supplied with cheap food is a problem that confronts the nation."

While he did not himself offer a solution of the problem, he quoted the report of the Elgin Committee, appointed to determine a national agricultural policy for Scotland, as follows:

"It is in the interest of the state that the price of food be kept so low that the poorest can obtain an adequate dietary."

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MEDICINE

Insulin Finds New Use As It Conquers "Hungry Disease"

INSULIN, gland product that keeps diabetic patients alive and well, can bring health to persons suffering from the "hungry disease," which is the exact opposite of diabetes.

This new, paradoxical use of insulin was described by Dr. Henry J. John of Cleveland at the meeting of the Association for the Study of Internal Secretions.

Heretofore the "hungry disease" was treated by surgical removal of a large part of the pancreas, a radical operation, hazardous even when performed by the most skilled surgeons. Now, instead of removing the pancreas or a large part of it, Dr. John "puts the organ to sleep" by giving a dose of insulin, the very same stuff that is produced by the pancreas in too great amounts in this disease.

The contradictory-sounding treatment was explained by Dr. John somewhat as follows:

Food is the trigger that starts insulin production in the pancreas. In diabetes, not enough insulin is produced and the amount must be supplemented by giving the patient more insulin. In the "hungry disease," known medically as hyperinsulinism, the pancreas goes on pouring insulin into the blood long after there is any need for it. As a result, these patients get very hungry, nervous, irritable and may lose consciousness.

Rests the Pancreas

Eating seemed to take care of the condition temporarily by using up some of the extra insulin, but the only way to shut off the production was by removal

of a large part of the pancreas. Dr. John's method is to give insulin soon after a meal and before the pancreas has received the signal to start its own insulin production. The insulin dose is calculated to take care of the sugars and starches the patient has eaten, while his own over-active insulin factory gets a rest.

The insulin treatment for this "hungry disease" is continued for three months, by which time the condition seems to be permanently relieved. The long rest evidently puts the pancreas back into a normal state and it can go on functioning on its own after that.

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PUBLIC HEALTH

Birth Control Investigated By Medical Association

THE American Medical Association's House of Delegates, meeting at Atlantic City, has just appointed a committee to study problems of birth control, apparently including methods and effect of contraception generally on population's health and to make at least a preliminary report to the Association at the meeting next year.

This is "not to be interpreted as a declaration either for or against birth control." It is the first time, however, that efforts to have such a committee appointed have succeeded or that the Association ever took note of the matter officially as a medical problem.

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PLANT PHYSIOLOGY

Boron and Manganese Important in Plant Growth

LABORATORY experiments with two minor soil elements, boron and manganese, may bring about radical changes in the fertilization of several vegetable crops in the near future, an announcement by the New Jersey Agricultural Experiment Station at Rutgers University reveals.

Research conducted by Dr. John W. Shive, the institution's plant physiologist and professor of plant physiology for the New Jersey College of Agriculture, has demonstrated that vegetable growers are not entirely correct in assuming the addition of nitrogen, potassium and phosphorus to the soil through fertilizer applications will supply all of the elements needed for satisfactory plant growth.

Dr. Shive has shown, through experiments in sand made absolutely "pure" by the removal of all plant nutrients, that deficiencies in either boron or manganese may kill an entire plant. Growers have not previously considered these elements in ordering specific fertilizer formulae for their crop.

Scientists and growers alike have been puzzled by the obvious nutritional deficiencies in fields where time-honored fertilization practices had been properly followed. Dr. Shive's laboratory accomplishments have now focused the spotlight upon the necessity of these two minor elements.

The Rutgers scientist secured "pure" sand for his experiments by washing the sand and then treating it with hydrochloric acid. After a second washing, all soluble material had been removed and it contained no plant nutrients of any kind.

Dr. Shive grew radishes in two-gallon crocks filled with this "pure" sand. To both crocks he provided a nutrient solution containing all the necessary major elements required for plant growth—potassium, calcium, magnesium, nitrogen, sulphur and phosphorus. To one of these crocks he added one-half part per million of boron and manganese.

The radishes receiving boron and manganese thrived. The terminal buds of those not given the additional applications turned brown within a few days; in three weeks they were practically dead.

Dr. Shive secured similar results with other plants such as tomatoes, corn and peas. Nasturtiums were killed by boron deficiency.

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