

# Key to Riddle of Anemia Found

Medicine

**A** HITHERTO unknown substance found in the secretions of normal human stomachs but conspicuously absent from the stomach contents of those suffering from pernicious anemia may be the key to the medical riddle of the cause of pernicious anemia. Through researches of Drs. William B. Castle, Wilmot C. Townsend and Clark W. Heath of the Thorndike-Memorial Laboratory, Boston City Hospital, it is now known that by an interaction of certain proteins contained in beef muscle and a new substance secreted by the normal stomach this peculiar anemia may be promptly alleviated.

From the standpoint of the anemia sufferer, the disease came under medical control four years ago when Dr. George R. Minot and Dr. William P. Murphy of the Harvard Medical School showed that the eating of liver in large quantities allowed the formation of red blood cells by the person with pernicious anemia. Thousands were benefitted by this discovery which was followed by a collaboration with Dr. Edwin J. Cohn of the Department of Physical Chemistry of the Harvard Medical School with the result that now small daily doses of liver extract supply the necessary principle which in the early days of the treatment could only be obtained through the consumption of more liver than pleased the palate of the average patient.

One incidental result was that beef liver, that once was mere cat food, became a high-priced meat since normal red-blooded people who really did not need it thought it would benefit them. Recently Dr. Cohn has been able to prepare experimental fractions of liver which have been successfully used for intravenous injection, the effect of a few tenths of a gram of this material equaling that of many grams of liver.

Not content with producing a virtual cure for the disease, science has pushed onward to determine the na-

ture of the substance that prevents this type of anemia and the reason for the development of the disease. Dr. Castle and his associate found that beef muscle acted upon by normal human stomach juice formed a curative substance. In a recent report to the American Society for Clinical Investigation, Dr. Castle discusses the meaning and possibilities of this new work.

The known constituents of normal human stomach secretions are hydrochloric acid and the ferments, pepsin and rennin. Although all these are conspicuously absent from the stomach contents of pernicious anemia sufferers, Dr. Castle proved by experiments that no one of these can react with beef muscle to produce a curative substance. An unidentified substance appears then to be responsible for these results.

Dr. Castle called the new substance, shown to occur in the normal stomach, "the essential factor of the normal gastric juice," and observed that none of the existing tests for stomach function would detect its presence specifically.

When the new substance is given to the patient with beef muscle in a solution that is neither acid nor alkali-

line, an effect is produced which promptly benefits pernicious anemia exactly as does liver.

Interesting experiments that may lead to a test for the potency of liver extracts have been made by Dr. Janet M. Vaughan of England who has been working at the Thorndike Memorial Laboratory with Dr. Gulli Lindh-Muller and Dr. George R. Minot, of Harvard University Medical School.

A suggestive resemblance to the characteristic condition of the bone marrow in pernicious anemia is found in healthy grain-fed pigeons. This condition in man is changed when the anemia is relieved by feeding liver or potent liver extract. If the condition can also be changed in pigeons by feeding the liver and liver extracts, this would be a method of testing the anemia-relieving power of the extract, it was thought.

Dr. Vaughan's preliminary studies indicated that this might be possible, but the results were not as yet consistent enough to allow final conclusions to be drawn as to the value of such experiments as a test for the potency of liver extracts.

*Science News-Letter, June 14, 1930*

## Ethyl in Britain

**E**THYL gasoline has been given a good bill of health in Britain, provided its handling is attended by ordinary precautions. The questions raised regarding its safety have been investigated by a Departmental Committee on Ethyl Petrol.

The committee worked along lines somewhat similar to those followed in the earlier investigations in the United States. The aspects of the tetra ethyl lead problem on the committee's agenda included danger from lead in street fumes and dust, spillage on the skin, and evaporation and combustion fumes in closed garages. Danger of lead poisoning in the latter case was considered as considerably less than the well-recognized menace of carbon monoxide.

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