

CHEMISTRY-PHYSIOLOGY

## Succeed In Making Vitamin B<sub>1</sub> By Laboratory Methods

**A**RTIFICIAL production by chemical methods of vitamin B<sub>1</sub>, the beriberi preventing vitamin, has finally been achieved by Dr. R. R. Williams of the Bell Telephone Laboratories and Dr. J. K. Kline of the Research Laboratories of Merck and Company. Collaborating in the research leading up to the vitamin synthesis, part of which was done at Columbia University and part at the laboratories of Merck and Company, were Prof. H. T. Clarke, Dr. E. R. Buchman and R. E. Waterman and A. E. Ruehle.

The vitamin, it is claimed, can be produced much more cheaply by the synthetic process, difficult though it is, than by previously developed methods of extracting it from natural sources.

All higher plants synthesize vitamin B<sub>1</sub>, but Dr. Williams and co-workers did not follow the plant method of

manufacture in producing the vitamin in their laboratories. Instead they worked from simple chemical molecules, building them up step by step into the complicated molecule that is vitamin B<sub>1</sub>. The synthetic product they achieved confirms the chemical picture of the vitamin molecule which Dr. Williams recently announced.

The synthesis is effected by combining 2 methyl 5 brom methyl 6 amino pyrimidine with 4 methyl 5 beta hydroxy ethyl thiazole. The former is somewhat related to the hypnotic Barbitol; the latter is a pyridine-like sulfur containing substance more or less akin to certain of the agents used in accelerating the vulcanization of rubber and in the sensitization of photographic plates. Each of these, however, is a new substance and every atom must be in its proper place.

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kind of drug in treating these poisoning cases.

Carbon monoxide is an odorless gas which gives its victim no warning but kills by asphyxiating. The gas drives oxygen out of the blood by combining with the oxygen carrier hemoglobin. Carbon monoxide combines chemically with hemoglobin just as oxygen does but 300 times more readily. It does no evident harm to the blood itself and, as Dr. Drinker emphasized, the patient who recovers very rarely suffers any ill effects. This point is of importance in connection with damage suits which are sometimes brought by those who have been poisoned in the course of their work, bus drivers or garage workers, for example.

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MEDICINE

## New Method Found for Treating "The Bends"

**A**N IMPROVED method of treating a compression illness or the bends which frequently occurs when divers and others who have been working under high atmospheric pressure return to normal atmosphere was described by Louis A. Shaw of the Harvard School of Public Health at the symposium held as part of the Harvard Tercentenary Celebration.

In this disease nitrogen gathers in the blood vessels and forms bubbles there. If these bubbles are not dissipated they will stop the blood circulation. Prevention of the disease is sought by returning the worker slowly to normal atmospheric pressure. Sometimes, however, in spite of this preventive measure symptoms of the disease appear several hours after the worker has been decompressed or returned to normal conditions.

Recompression, putting the patient back under the high pressure, is the method generally used for treating recurrence or late appearance of the bends. Mr. Shaw suggested that instead of this, the patient should be put in an atmosphere of no more than 30 pounds pressure to the square inch, for from two to three hours.

Then the pressure is lowered to 20 pounds for an hour and a half during which period the patient breathes pure oxygen instead of air. This method will promote the absorption of the nitrogen bubbles.

Mr. Shaw reported studies on dogs which showed the value of substituting oxygen for ordinary air in treating compression illness.

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MEDICINE

## Monoxide Poisoning Seldom Causes Nervous Illness

**C**ARBON MONOXIDE poisoning almost never causes mental or nervous illness, Dr. Cecil K. Drinker, dean of the Harvard School of Public Health, told public health experts at a symposium held as part of the Harvard Tercentenary celebration.

This is contrary to the general medical and legal opinion but Dr. Drinker presented figures from a ten-year experience in New York City to prove his point. Between 1925 and 1934 there were 21,000 cases of carbon monoxide poisoning in that city. Of these only 39 persons subsequently showed signs of mental or nervous derangement.

"Following carbon monoxide poisoning a person either dies or gets wholly well, except in very rare instances," Dr. Drinker said.

If carbon monoxide poisoning resulted in mental or nervous illness the New York mental disease hospitals would be filled with such patients, Dr. Drinker commented, but this is not the case. About 1,500 carbon monoxide

deaths occur yearly throughout the United States. About two thirds of these are probably suicides, though there are no accurate figures on this point.

Improved methods of treatment reduced the yearly carbon monoxide deaths in New York City from 600 to 200 within the last ten years.

The method of treatment which has been so successful consists in having the patient breathe as soon after the accident as possible a mixture of 7 per cent carbon dioxide and 93 per cent oxygen. Fire and police department ambulances and the gas company emergency trucks all carry tanks of this gas mixture routinely. In addition to inhalations of this carbon dioxide-oxygen mixture, prone pressure artificial respiration is given to patients whose breathing is very bad.

Methylene blue injections into the veins has not justified itself as a method of treating carbon monoxide poisoning, Dr. Drinker declared. In Dr. Drinker's opinion it is not necessary to use any