THE CHEMISTRY AND BIOLOGICAL SIGNIFICANCE OF THIAMIN

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Somewhere more than fifty years ago the Japanese Navy annually suffered an incapacitation of from 23 to 40 per cent. of its effective. The disease which the Japanese called kakke was also prevalent among the civilian population, not only of Japan but of Asia generally. In China it was recognized more than 300 years ago. Its devastations among the Malay peoples of the peninsula and of the great islands of the East Indies is attested by the fact that the world at large has adopted the Malay term beriberi for the disorder. It is, however, no stranger in India, Siam and Burma.

It was the Japanese, however, who first afforded convincing evidence regarding its general nature. Takaki, in effect surgeon general of the Japanese Navy, observed in 1883 a disastrous outbreak during a six months' voyage of the training ship, Riujo, and being convinced of the nutritional nature of the disease ordered an experimental duplication of the cruise with the sole alteration of a change of ration. The comparative results of the two cruises were so striking that the changes in ration were presently made effective for the entire Navy with the result that the incidence of beriberi has never, since 1885, risen to as high a figure as one half per cent. of the force.

Takaki had little notion of the specific nature of the shortage in the diet. The beginnings of this disclosure were left for Eijkman, medical officer in the Dutch colony in Java. In the course of experiments aimed at a study of the disease, he encountered its counterpart in chickens which for the sake of economy had been fed on waste rice from the hospital kitchens. He published his results in 1897. There followed many further studies from his laboratories, studies to which neither the world at large nor even the medical profession of the Orient paid prompt attention. A few discerning persons took them seriously. These were mostly Englishman in overseas service, Braddon,
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