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NEUROLOGICAL STAMP

Christjaan Eijkman (1858–1930)

Eijkman was awarded the Nobel Prize for his discovery of the role polished rice played in causing polyneuritis in chickens. This work led to the first real understanding of a possible cure for beriberi and was the starting point of the field of vitamin research.

While a student in Amsterdam he served for 2 years as assistant to the professor of physiology, Thomas Place, under whose guidance he wrote his thesis on *polarisation of nerves*. Immediately after graduation in 1883 he went to the Dutch East Indies and worked in Java and Sumatra as medical officer of health. There he developed malaria, and was so weakened by it, that in 1885 he returned to Holland on sick leave. His young wife died shortly afterwards. In 1886 he returned again to the East Indies with two Dutch physicians CA Pekelharing and C Winkler. They had been appointed by the Dutch Government to study beriberi, an increasingly serious problem, particularly it seemed when people lived closely together such as in army barracks, labour camps and in prisons.

The Pekelharing and Winkler mission demonstrated that beriberi caused a polyneuritis. After a year Pekelharing and Winkler returned to the Netherlands and Eijkman became director of a new laboratory in Batavia (now Jakarta). In July 1889 or 1890 he noted a disease very similar to human beriberi in the chickens in his laboratory. They became restless and unsteady and when a bird descended from its perch it seemed to have to make an effort not to fall and an ascending paralysis occurred over the next few days.

Eijkman noticed that the disease had developed over 5 months when the diet was changed from raw unpolished rice to polished rice. From 10 June, for about a month before the outbreak of the disease the laboratory attendant had been feeding the chickens on polished rice from the kitchen. Five and half months later a new cook refused to supply rice for the chickens, and soon after their return to ordinary chicken food containing raw unpolished rice their disease disappeared.

At Eijkman's request, the medical inspector for Java studied the rice diets in prisons where outbreaks of beriberi had occurred. He found that in prisons where there was beriberi the stable diet was polished rice, whereas in those prisons free of the disorder the normal diet was unpolished rice.

Eijkman, however, failed to recognise that beriberi was a deficiency disease. He argued that the endosperm produced a toxin that was neutralised by the outer hull. He

concluded by eating polished rice the toxin would be released in its unneutralised form.

Although Eijkman had clearly demonstrated how to cure and prevent beriberi it was left to Hopkins to identify its cause as a vitamin deficiency. It was not until the early 1930s that Robert Williams identified the vitamin as vitamin B1 (thiamine). Eijkman was honoured philatelically by Grenada in 1978 (Scott 827, Stanley Gibbons 900).

LF HAAS