

CHRISTIAAN EIJKMAN  
1858-1930

Eijkman was born in Nijkerk on 11 August 1858, the son of a school proprietor who became director of a secondary school (MULO)\* in Zaandam. After finishing his father's school and additional study of mathematics and classical languages, Eijkman was admitted to the Military Medical School which was attached to the Athenaeum Illustre at Amsterdam (shortly thereafter the University of Amsterdam). There he received his doctorate in medicine in 1883, under the physiologist Thomas Place, whose assistant he had been for two years. That same year, he married Aaltje Wigeri van Edema with whom he went to the Dutch East Indies. There he served as medical officer on Java and Sumatra before returning to the Netherlands in 1885 because of a severe bout of malaria. A year later his wife died.

From 1886 onwards Eijkman specialized in bacteriology, first in Amsterdam under Josef Forster, then with Robert Koch in Berlin. In October 1886 he went to the East Indies once more, this time as an assistant to a government commission to study the beri-beri disease that caused many casualties, especially in closed communities. In 1887 the commission concluded that the disease was a polyneuritis caused by a micrococcus. While the other members of the commission returned home, Eijkman stayed as director of the Javanese Medical School (Stovia). There he taught physiology and organic chemistry. He also obtained a small laboratory for further beri-beri research.

In 1893, Eijkman founded the *Tijdschrift voor inlandsche geneeskunde* (Journal for Indigenous Medicine). His continuous research on beri-beri led him to the observation that a similar disease could develop in poultry. The disease, however, abruptly disappeared when the animals were fed unpolished rice instead of remnants of boiled rice originally meant for humans. Eijkman proved experimentally that unpolished rice had both a preventive and a curative effect. But he remained very cautious about the causes of the disease, believing that neither a bacterial nor a nutritional etiology for beri-beri was supported strongly enough by experimental research.

In 1896 Eijkman (who had remarried in 1888 to Berthe Julie Louise van der Kemp, with whom he was to have one son) returned to the Netherlands for good. Two years later he was appointed pro-

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\* Meer Uitgebreid Lager Onderwijs, more extended primary education.

fessor of public health and forensic medicine at the Institute of Hygiene of the University of Utrecht. There he organized many studies in tropical health care, tropical physiology, and bacteriology. His own research dealt, among other things, with tropical anemia, rabies, the bacteriological analysis of drinking water, and the influence of seasonal changes on human metabolism. The importance of his scientific work was recognized by many scientific societies and the health care commissions of which he was a member.

In the meantime, in 1901, his successor in the East Indies, G. Grijns, had advocated that beri-beri was caused by a nutritional deficiency, which was counteracted by an as yet unknown substance from the pericarp of unpolished rice. Only in 1916 was this idea grudgingly acknowledged by Eijkman. Nevertheless, it was the researches of Eijkman that formed the basis of the understanding of the role of vitamins in nutrition, and that led to the discovery of thiamin (vitamin B<sub>1</sub>) in 1926 by B.C.P. Jansen and W.F. Donath. This substance appeared to be the nutrient factor that could prevent and cure beri-beri. For this achievement, Eijkman shared the Nobel prize for physiology with F.G. Hopkins in 1929.

Eijkman died on 5 November 1930 in Utrecht.

#### *Primary works*

Poggendorff, vol. 6, 647; complete bibliography in Jansen, *Eijkman*, 188-199 (see below).

#### *Secondary sources*

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[L.C.P.]