

Takaki K (1906). On the preservation of health among the personnel of the Japanese navy and army. Lecture II: The methods for investigating the cause of beri-beri. *Lancet* 1:1451-55.

Key passages

Three Lectures

ON

THE PRESERVATION OF HEALTH AMONGST THE PERSONNEL OF THE JAPANESE NAVY AND ARMY.

*Delivered at St. Thomas's Hospital, London, on May 7th,
9th, and 11th, 1906,*

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IMPERIAL JAPANESE NAVY.

LECTURE II.¹

Delivered on May 9th.

MR. PRESIDENT AND GENTLEMEN,—On Nov. 29th, 1883, I had the honour of being presented to his Imperial Majesty at Akasaka Palace, and on this occasion explained my views as regards the cause of, and preventive measures for, beri-beri.

THE METHODS FOR INVESTIGATING THE CAUSE OF BERI BERI.

1. As we could not discover the true origin of beri-beri in spite of examination of symptoms, pathology, &c., we must use some other means. 2. In order to examine the food necessary for nourishing the human body it is important to know the comparative scale of nutritive elements—that is, proteids, fat, carbohydrates and salts, and of carbon and nitrogen. 3. On examining the food taken by those suffering from beri-beri it is found that the proportion of these elements is not correct. 4. The causes of this disease are due to the loss of equilibrium in the proportion of nutritive elements and also to the deficiency of a certain element—that is, the composition of food is not correct. 5. The occurrence of beri-beri due to the deficiency of a certain element—that is, proteids—is shown in the examples of the long voyages of the *Asama*, *Tsukuba*, *Ryujo*, &c. The disease does not occur if the food is well supplied; for example, it does not occur among men having a sufficient supply of food or among officers, and in voyages with long stoppages at ports and short sailings. From 1882 to 1883

when the *Ryūjo* went for long voyages, the disease disappeared completely as soon as she arrived at Hawaii and was supplied with fresh articles of food. 6. High temperature, moisture, marshy air, over-crowding, hard labours, nervous exhaustion, coarse food, &c., cannot be considered the chief causes of beri-beri, because if they are the causes both Europeans and Americans ought to suffer, but on the contrary they do not. 7. On considering the question both from theoretical and practical points it seems quite reasonable therefore to suppose that the true cause of beri-beri lies in a wrong method of diet. In December, 1883, instead of the very simple rules of the previous year, I compiled a new book of instructions consisting of 77 articles and 22 blank forms, and had it used throughout the navy, with the approval of the Minister of the Navy. This book, since several times revised, is still in use. On Jan. 15th, 1884, Jungi Kawamura, the Minister of the Navy, issued the following notification to the navy:—"It is hereby ordered that the following regulations in regard to the supply of food to the petty officers and men in ships and barracks shall be observed from Feb. 1st, 1884."

In 1883, after my proposal to reform the diet system on Nov. 26th, I made a great effort in order that the *Tsukuba* should go over the same route as the *Ryūjo*. There was opposition to this from various points and the permission could not be obtained easily but in the end after much discussion all difficulties were overcome, except that of expense. So with the knowledge of the Minister of the Navy I consulted Hakubun Ito, Councillor of the Imperial Household, and Seigi Matsugata, the Minister of Finance, and finally obtained my object by the special allowance of 60,000 yen (about £6000) from the Treasury. Before the sailing of the *Tsukuba* a special committee for investigation was put on board and consisted of the following gentlemen: Captain S. Arichi, Lieutenant Y. Matsumara, Surgeon T. Aoki, and Paymaster N. Kataoka. The food-supply was ordered according to the new system. The vessel sailed on Feb. 2nd, 1884, and returned to Shinagawa on Nov. 16th. The result obtained was good and is shown in the next table, comparing it with that of the *Ryūjo*.

When the good report ("no beri-beri") of the experimental voyage of the *Tsukuba* became known the principal men in the navy for the first time began to support me in my fixed purpose. They said that they had always opposed me in their hearts and only obeyed the new regulations because they were ordered by the Minister, but they would give in now after such powerful practical proofs. In January, 1885, on looking through the reports of 1884 I was greatly satisfied with the results as shown in Table I. The number of general diseases was nearly halved and that of beri-beri was considerably decreased without a death.

食事の改善と脚気の予防^{*1)}

松 田 誠 訳^{*2)}

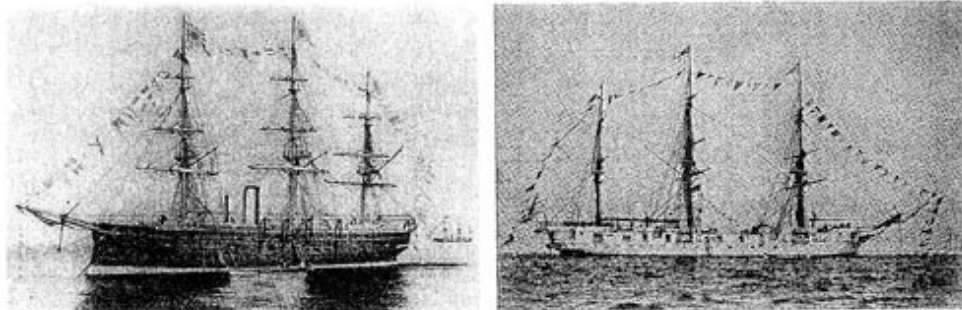
講演 その二 (1906 年 5 月 9 日)^{*1)}

表

艦 名	脚気患者数	死亡者数
竜 驤 (旧食事体系)	169	25
筑 波 (新食事体系)	14	0

両艦とも乗組員は約 300 名であり，食事以外の条件は同じであるから，新食事体系（筑波の方）が如何に優れているかは明白である．しかも新食事体系の 14 名の患者も，実は規定通りの食事を摂っていなかった．

松 田



練習艦竜驤 (左) と同じく筑波 (右)
(原著にはないが参考のため掲載した)