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THE PTOMAINÉ ORIGIN OF SCURVY.

A REMARKABLE article appeared in the *Lancet* of 28th April which is of great interest to us in India, where the prevalence of scurvy or at least a scorbutic taint is still very commonly put forward as an explanation of certain phases of ill-health in our jails and not infrequently in our Native regiments.

The article in question is written by Mr. Frederick Jackson (the well-known intrepid Arctic explorer), in conjunction with Dr. Vaughan Harley, and is based upon the Arctic experiences of the crews of the *Windward* and the *Fram* and other recent Arctic explorings. The reaction against the time-honoured view that scurvy is caused by the want of fresh vegetables or of lime-juice may be said to have begun with the publication of the article by Dr. Neale in the *Practitioner* in 1896. Dr. Neale was led to his view by the remarkable escape of the wrecked crew of Mr. Leigh Smith's ship, the *Eira*. After the loss of the *Eira* the crew lived for no less than nine months, including a winter, on Franz Joseph Land under the severest and necessarily the most insanitary conditions imaginable, yet not one of them contracted scurvy, yet they were entirely without lime-juice or fresh vegetables, but they had plenty of freshly killed bear's meat and walrus meat. In the same way Nansen and Johansen lived without lime-juice or fresh vegetables for nine months on Jackson Island on similar food without contracting scurvy. Contrast these experiences with those of the crews of the *Alert* and *Discovery*, in the Nares Polar Expedition, where the crews suffered greatly from this disease, though abundance of lime-juice was served out daily to all hands during the whole of the expedition.\* To these experiences Mr. Jackson adds some of his own

\* It may, however, be remembered that in the discussion on the scurvy of the Nares Expedition the *British Medical Journal* challenged the correctness of this statement and maintained that alcohol was substituted for lime-juice, which was not regularly administered.—ED., I. M. G.

he tells us that while living among the Samoyads on Waigatz Island he observed some striking facts as to the causation of scurvy. The Samoyads who winter on this island never take vegetables and never heard of lime-juice, yet scurvy among them is unknown; they live however entirely on fresh reindeer meat. On the other hand some of the Samoyads who migrate south for the winter and live with the Russian traders, near the Yugor Straits, almost entirely upon tainted salt fish, suffer severely from scurvy. Again a party of Russian priests who lived one winter among the Samoyads, but whose religion prevented them from feeding on fresh reindeer meat, all died of scurvy before the summer came round. Another experience Mr. Jackson considers of special importance in supporting his own theory of the origin of scurvy, is that of the two parties belonging to the Jackson Expedition of 1894-7. The party which remained on board the ship for two winters had taken their daily tot of lime-juice with unflinching regularity, yet they suffered severely from scurvy, whereas the party which lived on shore took no lime-juice and lived for two years without a trace of scurvy, but (and this Mr. Jackson considers is the important point) the party on board the *Windward* lived all the time on tinned meats and salted meats, whereas the party on shore lived chiefly upon fresh bear's meat, and if they used tinned foods, they always very carefully scrutinised them to make sure that they were quite fresh. From these facts our writers conclude that neither lime-juice nor fresh vegetables prevent scurvy nor cure it, and that it is not a disease produced by the absence of these articles, but is produced by the eating of tainted food.

This view that scurvy is essentially due to poisoning by the ptomaines of tainted animal food is one which was first propounded by Professor Torup, of Christiania. Our authors say that in the many instances of scurvy which they have investigated in no instances have the circumstances rendered inadmissible or even improbable the theory that the disease is due to ptomaine poisoning. Before giving lime juice the credit for banishing scurvy from the Royal Navy and Mercantile Service we must remember, they tell us, that at the same time many other sanitary improvements were effected, and above all there was an improvement in the nature of all the food supplied to sailors.



So much then for the historical evidence in favour of the ptomaine poisoning view of scurvy; our authors next proceeded to test their theories by experimenting upon monkeys. The monkeys were divided into three groups,—(1) the first batch were given daily boiled rice and 50 grammes of meat from a freshly opened tin; (2) the second batch got the same amount of food, but the meat was taken from tins which had been open in the Laboratory of University College for several days, and it had a distinctly sour smell; (3) the third batch of monkeys were fed on the same tainted food as in No. 2 batch, but in addition each monkey received either an apple or a banana daily.

In the first group the only symptom noted was a diarrhoea, and none of them showed anything of the muscular feebleness or general ill-health noted in the scorbutic monkeys of the other groups. In the second group, fed on the tainted meat, the monkeys showed a much greater prostration, and six out of the eight passed blood and mucus in their motions, and in the third group (which received an apple or plantain in addition to the *tainted* meat) the same symptoms of blood and mucus in the stools appeared. As regards the conditions of the gums in the three groups:—in the first batch not one showed any trace of spongy gums, whereas in the second batch no less than five monkeys showed sponginess and even ulceration of the gums, and in the third batch, in spite of the fresh apple or banana each day, four out of five had bloody mucus in their stools and two of them had spongy and bleeding gums.

Our authors, therefore, conclude that these experiments on monkeys confirm their views on scurvy, which is according to them a form of slow ptomaine poisoning, produced by the continued consumption of tainted meat, and that the state of preservation of the meat is the essential factor in the etiology of the disease.

We cannot, however, leave the question in this state, for it must be considered how the facts and observations here set forth are in accordance with what is known of the occurrence of scurvy in India. We are not aware of any distinction ever being made between what is known as sea and land scurvy—both have been considered as identical in their symptoms. We are at once, therefore, met with the objection that ptomaine poisoning from tainted meat will certainly not explain the presence of what is usually consider-

ed as scurvy in our Indian jails or in Native regiments on field service. Nor will it explain the occasional occurrence of what is called scurvy in cachectic but certainly well-fed British soldiers. We have on former occasions expressed the opinion that much of what is called "scurvy," in Bengal jails at least, is not really scorbutic, but due rather to neglect of the teeth and to the debilitating effects of fevers; but we are bound to admit that in the jails of other provinces there is a good deal of what the medical officers have no hesitation in calling scurvy, and it is a condition which numerous medical officers have noticed to disappear on the issue of fresh vegetables in the cold weather. The ptomaine theory may possibly explain the origin of the scurvy which existed in the famous beleagured garrisons of Ladysmith or of Mafeking, but it will not explain the undoubted occurrence of scorbutic symptoms among the Native troops on field service, such as we saw for ourselves on the Chin-Lushai Expedition of 1890; these troops at times suffered from a want of vegetables, but they certainly never suffered from the effects of eating tainted tin meat. Another criticism will occur to the reader, that is, how the meat turned bad in the cold microbeless atmosphere of the Arctic regions, nor is it clear why tainted tins were eaten when from all we have heard of the Jackson Expeditions there never was at any time any shortness of provisions.

The theory as worked out in the article before us is a plausible one, and it has apparently many facts to support it, but it most certainly will not explain land scurvy among the cereal-eating nations of the earth, many of whom never touch meat, fresh or tainted, in any form.

#### ON TAPPING OVARIAN CYSTS.

To call attention to the manifold evils of tapping ovarian cysts within a few months of the commencement of the twentieth century, may appear to many as "wasteful and ridiculous excess," were it not that we have good reasons to believe the practice is still adopted by some of our native subordinates and even, as will be seen by an article in another column, in some of the Dufferin Hospitals. For diagnostic purposes the removal of fluid is useless, since we can only say with Grieg-Smith "that a fluid is ovarian with a greater probability of truth than