

On the new theories and experiences of scurvy : read before the Bombay Medical and Physical Society, with additions from the author's contributions to the Lancet &c.; / by Cameron Macdowall.

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ON THE NEW THEORIES AND EXPERIENCES
OF SCURVY.

READ BEFORE THE BOMBAY MEDICAL AND PHYSICAL SOCIETY.

With additions from the author's contributions to the *Lancet* &c.

BY BRIGADE SURGEON CAMERON MACDOWALL, 1884

H. M's BOMBAY ARMY. M.R.C.S. Lond & F.R.C.S.

I WOULD not think of troubling the Medical world on what we are apt to consider a worn-out topic, but that I think it my duty to do what in me lies towards modifying some current impressions about scurvy in Afghanistan (or Beloochistan), which seem lately to have gained implicit and unlimited credence.

One impression, then, is that the natives of these regions escape scurvy,* because they live almost entirely on fresh meat. On arrival here I immediately began to investigate the grounds for such a sweeping assertion. Now, from the highest downwards, I have consulted most of the civil authorities here, men who have been long intimately acquainted with the people and the country. Of course, also, I consulted the inhabitants themselves when I could (specially on the line of march), either through interpreters or by means of their broken Hindostanee. By one and all I am assured that *milk* and unleavened wheaten (and other grain) bread are the staples of their diet, as it is indeed of most pastoral peoples. Being also a nomadic people, at least a hill tribe (although the "Pathans" settle in the valleys), they roam with their flocks over the hills and back again, cultivating some of the valleys in the proper seasons, and in patches sufficient for their wants.

* But indeed they do nothing of the kind. Since this paper was written I have acted in charge of the Civil Hospital at Quetta and seen cases of scurvy among the Afghans from far and near. Dr. Fullerton showed me the back Registers of this Hospital. Scurvy was a common entry, even

among the Rich who have plenty of meat especially in winter

Meat they appreciate thoroughly, but even ewe's milk is so precious that they cannot afford to kill and eat meat often—at the very oftenest once a week or so. Seeing the scarcity in and barrenness of the land, I had long felt that such must be the case. How could it indeed be otherwise under the circumstances?

Another impression prevails also that these tribes eat no vegetables. Now, during a late march, my guide pointed out some of the *cruciferae* growing wild (which made excellent substitutes for spinach at my dinner). Three or four sorts have been already brought to supply my table from the environs, as well as wild shallots, onions, &c. He told me his people were very fond of them, and that there were many wild plants like them on the hills. I have watercress for breakfast almost every morning, brought from the nearest spring.

One may see men and boys stop by the roadside to gather and eat (raw) various species of *umbelliferae* (*anethum*, &c.), *liliaceae*, *fabaceae*, leaves and all besides *cruciferae*. I have no doubt that a good botanist would find that, barren as the hills appear, many more herbs are eatable and are used as food by the natives. The Englishman is too apt to summarise all vegetables as consisting only of potatoes and green peas.

During at least one season of the year some fruit is gathered here, whilst melons and pumpkins (less useful) are almost too plentiful, for health, in some places.

A great deal has been said about Laplanders and Greenlanders having next to no vegetables. It must be remembered however, that the milk of the reindeer is plentiful, (also the vegetable contents of its first stomach, which is carefully preserved and eaten), and that in summer *cruciferae*, lichens, &c., may be found, in addition to the fresh meat of the walrus, &c. It must be also remembered that in Iceland, Greenland, Lapland, and Canada even, scurvy is common enough. (*Bouchardat*) But what shall be said of a commander who, although having no chance of fresh milk and an uncertain chance of fresh meat, refuses to carry limejuice on his sledges? The

Captain of the *Eira* was wiser, he gave the very best (Dutch) preserved vegetables, to the amount of about half a pound *daily*, although *he had* fresh *walrus*.

But cases are cited where neither milk nor vegetables were procurable, and where nevertheless scurvy was avoided. Let us glance at these. Milman (cited in Bouchardat's Essay—see *Annuaire Therapeutique*, 1881,) at page 18 (of Millman) believes that in 1630 (a long time ago for reliable evidence) eight English sailors were “accidentally left on the coast of Greenland.” They are said not to have got scurvy during about ten months' sojourn, and to have lived by the produce of the chase—deer, walrus, fish, &c. It, however, is not denied that in Greenland there may be frequently reindeer's *milk* procurable, and some cruciferous plants, lichens, &c. Besides, scurvy *spares* *hundreds* of individuals, even during real epidemics. There is nothing wonderful in the fact that fresh (and raw ?) walrus meat in enormous quantities, supplemented by preserved vegetables, as in the *Eira* expedition, should keep off scurvy. It is certain, however, that bacon and pemmican and preserved meat *alone* will not do so; nor will even a pretty liberal allowance of mutton and beef (as in the Crimea), without limejuice or fresh vegetables. The sledge parties of 1875, which were almost decimated by scurvy, recovered rapidly when supplied with limejuice on their return. (Parkes.)

Mr. Neale's statement, *viz.*, “I do not think that spirit or limejuice is of much use,” carries with it the necessary corollary that all ships' crews should still be as subject to scurvy as they were formerly, which is certainly not the case. We shall next be asked to believe that *fresh vegetables* are not of much use.

In the *Polaris* expedition, the wrecked men had, besides enormous quantities of fresh walrus meat, pemmican stuffed with raisins, currants, and plums. (Parkes.) This fact Bouchardat, so careful in general, has quite overlooked.

But whether fresh walrus meat alone will, for a time at least, (and *only* in the Polar regions be it understood,) keep off scurvy or not, the lamentable and fatal error originated by certain

Post Captains in the Royal Navy that limejuice is of little use, is a source of serious danger to human life. Surely we should "first catch our walrus," to use a familiar warning, before dispensing with other means! Otherwise our men will infallibly, unless supplied with limejuice, &c., get scurvy and *die* of scurvy.

Limejuice *can* prevent this; I have seen whole regiments of Turks in the Crimea recover from the scourge, by simply drinking a tin canful of strong limejuice punch two or three times a week. We made it for them in tubfuls at a time. *Per contra*, towards the end of the siege of Paris, I saw scurvy beginning its ravages, because there were absolutely neither limejuice nor vegetables for the troops.* I see in India that a bi-weekly ration of "Amchur" (dried mango chips) loaded with *citrates*, (*viz.*, one drachm equals half ounce of limejuice) keeps in abeyance the disease, and that limejuice, when it can be got good, is just as useful as ever. I have no hesitation in saying that it is simply murder to be without one or the other, or dates and preserved vegetables, &c., &c., where *fresh* vegetables (or, at the Polar regions, fresh *Walrus*?) are not to be got. I even go further than this, and hold that it is not quite proven yet that fresh walrus meat *alone* will prevent scurvy. I cannot quite agree with Dr. Ralfe (in the *Lancet*) that diminished alkalescence of the blood can have much to do with it. Amongst others Professor Maly of Gratz showed that the blood contains acid which is masked by an alkaline reaction (*Wiener Sitzungsberichte* 1877). Dr. Ralfe has most ingeniously and exhaustively applied all this to a Theory of fresh meat cure for Scurvy based on a deficiency of Alkalinity or rather Alkalescence which however could, if substantiated, apply only, he admits, to the Arctic regions or to arid deserts (See Dr. Ralfe's "Pathology of Scurvy"—Lewis; and his manual of clinical chemistry" Cassell & Co.)

That scurvy should be more or less endemic at Aden, where vegetables are scarce, but meat plentiful, is scarcely a case in point, for, according to the fresh meat theory, it is only in the

* Delpech confirms this.

† And his own discovery that the phosphorus is diminished in Scotch wine.

Polar regions that it is efficacious. But the terrible heat at Aden would appear to give a blow to the great importance which Bouchardat attributes to "cold at the periphery" as a cause of scurvy.

As I have seen Beri-beri so often yield to turpentine alone, I scarcely attribute it to the want of vegetables;— it is undeniably common at Aden also and is now said to be Bacterial.

I think I have shown now that there is ample cause for raising even my feeble voice in this matter. Let fresh meat in the Arctic regions be vaunted as much as facts will warrant as an antiscorbutic; but I foresee a renewal of terrible catastrophes, if discredit be thrown on limejuice and vegetables, &c.

The labours of Van Swieten, Lind, Millman, Pringle, &c., and the willing help given by our greatest explorers, Cook, Anson, Byron, &c., have rescued thousands of lives, and rendered the existence of our sailors and soldiers safe and pleasant. But we are almost beginning to throw doubt upon their work, because we may have discovered another remedy which appears to answer only in the Polar regions, and which is not always procurable.

It is strange how a great writer may be biassed; Bouchardat maintains that the army of St. Louis of France, during the Crusades was well supplied with fresh eatables, and that it was ravaged with scurvy, &c. Both statements are devoid of proof, and exceedingly improbable. We had always read that the disease was the *Plague*. The maniacs at the Salpêtrière, he states, got scurvy. But who does not know that even artificial compulsory feeding will scarcely keep such alive, far less healthy! Artificial feeding, moreover, was not then properly understood. He attributes the disease to "cold at the periphery." There is absolutely no proof that *La Belle Poule* or Commodore Anson's ships were *well* supplied with fresh provisions. It is nearly impossible. I have no means at hand for ascertaining whether Kane had fruit, pemmican, reindeer milk, &c., for his men, but it is a moral certainty.

Dr. Greene's (of Monte Video) valuable experience (*Lancet*, 21st April 1883) goes to prove that it is necessary to eat about "four or five pounds of meat at a meal," or two sheep a week, or a corresponding quantity of beef," per man, besides drinking a vegetable infusion (of *Maté*) comparatively fresh, and not from dessicated, *baked* leaves, like our teas, *ad-libitum*, and using fresh fruit, &c., for one month in twelve, to keep clear of scurvy in South America.

Scurvy is very prevalent at times amongst soldiers &c. in South Africa, although the rations of fresh meat are plentiful. (Sir A. Home V. C; K. C. B. & Surgeon Major D. B. Brown &c. &c.) It may be objected that at the Cape and South Africa generally the cold is not sufficiently intense to preserve the meat in that state of Alkalinity which Dr. Ralfe says is necessary. But in the Crimea the cold was such as to freeze our breath into solid icicles on our moustachios. The fresh meat ration was not deficient there nor in Paris where the cold was intense during the siege. Yet as the cold weather came on and the thermometer fell so did Scurvy begin and increase and that simultaneously with the want of fresh vegetables. Surely these are good test cases of the fresh-meat-cure theory. It rests with the distinguished Pathological Chemist Dr. Ralfe to inform us what degree of cold will suffice to make meat thoroughly antiscorbutic. In Afghanistan the cold did not approach what I experienced both in the Crimea and in Paris. It also seems to be extraordinary that the alkalies so largely contained in biscuit peas &c. should not counteract any slight excess of acidity in muscle that has undergone the chemical (fermentive?) changes of *Rigor mortis i. e.* meat killed in temperate climates.

Just one little anecdote to close this tedious paper. A Surgeon after the Afghan war told me that none of the meat-

eating men of his Regiment supplied the pretty large number of cases of Scurvy he had to treat. I had afterwards charge of this Regiment for a short time and I found that the *whole* Regiment were meat-eaters except 30 (thirty) men! *Et voila* how history is written. I dare say they furnished more than their just *proportion* of Scurvy and other disease as they had not fresh vegetables.

NOTE.—The reason why salted meat is useless, is according to Bouchardat because all the Potash Salts are washed out of the meat and replaced by Sodium Chloride.

