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THE SCURVY.

From Lectures on the Theory and Practice of Medicine, Delivered at the London University,—By DR. ELLIOTSON.

Etymology.—THE word scurvy is said to be derived from some German words, *scharfpocke*, meaning sharp or violent pock, which were corrupted to *sharbock*; or from *shorf-pocke*, meaning scab or scurf-pock. However this may be, it is from the word *scharbock*, latinized and corrupted, that *scorbutus* is derived, and a very barbarous word it is. From this we are said to have our English term *scurvy*; but I should rather think it came directly from the Danish word *scurv*; and this name *scurvy* is used by the vulgar in a very indefinite sense, being applied by them to any ill-looking chronic cutaneous disease, but in our profession it is restricted to a particular affection.

Symptoms.—This disease is characterized by a bloated surface, and petechiæ, vibices, and ecchymoses. By petechiæ are meant minute dark red or livid points, little larger than the point of a pin; spots still larger than these are called vibices; and when instead of spots we have patches, the word ecchymosis is employed. They all relate to the same appearance, but denote a difference in extent. With respect to color, these points, specks or patches, are of a dark red or purple hue, but may contain all the shades which we see in bruises. The surface, therefore, in this disease is bloated, and upon it are seen points, specks, and patches, of a red or purple color, and of all the shades which we see in common bruises. A very remarkable circumstance, however, also attends the disease, and that is, the hardness of many parts, but particularly of the thighs. If you examine the thigh of an individual laboring under scurvy, though it be only in the slightest degree, I believe you will find it generally, but more especially under the hams, hard; and in severe cases I have seen it as hard as a board. I have not seen many cases of the disease, but in all of them I have noticed this circumstance. The gums are particularly affected; they are spongy and bleed, and either they or the breath, or both, send forth a very offensive smell. Such is the disease of the gums that the teeth very frequently fall out, and in addition to their being spongy and bleeding, they become enlarged and livid.

This is a disease of great debility, and the spirits are always very much

depressed. So great is the debility, that people very frequently faint from time to time, and the pulse is found to be weak, and the surface of the body cold. Very often, ulcers form upon the surface, and discharge a thin and foetid bloody fluid, and at last a coagulum of blood is formed. The gums are in precisely the same predicament. The blood which is discharged and coagulates upon the ulcer is with great difficulty separated from it; it adheres to the ulcer and the flesh which is beneath, and, when you remove such a coagulum, the flesh is found to be, like the gums, soft and spongy. If you remove the coagulum, it is instantly renewed; a fresh oozing of blood takes place, a second coagulum supplies the place of the first, and at length a fungus will sprout forth—a soft, flaccid, dark-looking fungus, which sprouts as fast as you take it away, and which is called by sailors *bullock's liver*; it may attain an enormous size. If this fungus be repressed, a gangrenous tendency is frequently observed; the leg will swell, and become more spotted and painful. You of course know that when a fungus sprouts forth from the dura mater after a fracture of the skull, it is very dangerous to repress it; if the part be compressed, very frequently dangerous symptoms ensue. So it is found injurious in scurvy to repress this *bullock's liver*, because the pressure induces a gangrenous tendency. The very slightest bruise inflicted upon a patient laboring under scurvy to any degree, will generally produce an ulcer of this description.

There are, however, some very remarkable circumstances respecting this disease. Old wounds, and even fractures, have a tendency to recur under it. Wherever an ulcer has existed, wherever a solution of continuity in soft parts has taken place previously, although the parts have been well cicatrized, yet under this disease the wound often opens again. Nor is this occurrence confined to soft parts, but even bones themselves, as I just now stated, which were formerly fractured and repaired, become again disunited, showing that the callus of bones is not so strong as the original parts of the body, and that it suffers when the rest of the bones do not.

There is also another very singular circumstance connected with this disease, and that is the occurrence of nyctalopia, or night blindness. Patients laboring under scurvy frequently become blind, either altogether or in part, when night comes on.

Causes.—Now the great causes of this disease appear to be the want of fresh animal and fresh vegetable food. It is on this account that formerly the disease was very common at sea, for at one period sailors were supplied with nothing but salt provision. So badly were ships formerly provided for, and so bad was the general management, that in the year 1726, when Admiral Hozier sailed to the West Indies with seven ships, he buried his ship's company twice, and then died himself of a broken heart. Deaths to the amount of eight or ten a-day took place formerly in a moderate ship's company. The bodies were sown up in hammocks and washed about the deck for want of sufficient strength on the part of survivors to throw them overboard. I may mention that Lord Anson, in the year 1741, lost one half of his crew by scurvy in six months: 961 men sailed with him, only 335 of whom were alive at the end of the year; and at the end of the second year, 71 only were fit

for the least duty—not to say duty, but for the *least* duty. Sir Gilbert Blane says that the disease appears in about six or seven weeks from the beginning of sea-victualing.

You cannot have a better description of the dreadful mismanagement formerly, in regard to the navy, than you will find in Roderic Random. Smollett, both in that and in his *History of England*, gives an account of the armament which, about the same time that Lord Anson's expedition took place, was sent out against Carthage. The description is from his own observation. He says the provisions consisted of *putrid salt beef*, to which the sailors gave the name of *Irish horse*, (I suppose the contractors lived in Ireland, and it looked like horse-flesh,) *salt pork and musty bread*. The salt pork came from New England, and was neither fish nor flesh, but savored of both. The bread came from the same country, and the biscuit, like a piece of clock-work, moved by its own internal impulse, occasioned by myriads of insects that dwelt within it. The butter was served out by the gill, and was exactly like train-oil thickened with salt; and though there was water enough to allow each man half-a-gallon daily for six months, yet each had only a purser's quart a-day in the torrid zone, where a gallon would have been hardly enough to repair the waste of perspiration. You cannot wonder, therefore, that scurvy formerly prevailed to this dreadful amount.

Former prevalence in London.—However, the disease prevailed likewise on shore, and scurvy at one period was one of the most fatal diseases in London, so that even in the 17th century—as late as that—there were from 50 to 90 deaths from it annually, and in the year of the plague there were not fewer than 105 deaths. These frightful occurrences took place regularly, and not during a particular year. The same reason, however, existed for the prevalence of scurvy in London which produced it at sea; for the food of the Londoners was then salt beef and pork, with a little veal. The lower orders had very little else in the time of Henry VIII. The fact was, that pasture land only was then common, and very little was cultivated. Animals could feed, of course, only during the summer and autumn; hay being a later improvement, it was impossible to feed them longer than that period, and they were therefore killed as the winter came on, and salted, and thus a store of provisions was laid up until the next spring. Garden stuff, too, was extremely scarce in those days, so that Catherine of Arragon, one of the numerous wives of Henry VIII. was actually obliged, in the beginning of the sixteenth century, to send to the Netherlands for a gardener to raise her a salad, so ignorant were the gardeners of this country of what is now considered within the reach of everybody. Cabbages and other garden stuff were not cultivated in England before the reign of Henry VIII. Government, too, at that period, seemed to encourage the consumption of this meat; for the price of meat was fixed by law at one-twentieth of what it now is, whereas wheat was fixed at only one-tenth of its present price. Care was thus taken to have a good supply of animal food, but vegetable food was comparatively neglected. I may mention that in 1700 a cabbage cost three-pence, which in 1760 cost only one halfpenny; such was the advance of art and the increase of knowledge, that so great a difference occurred in the price of a cabbage at those two periods. Other greens, too, at

first, were proportionately dear ; and garden stuff was only used at that time on Sundays, and as a great dainty, when people had company.

The use of salt or putrid meat appeared to be the cause of scurvy. But it was not the salt ; for salt, though taken in the greatest excess, will not occasion scurvy, and scurvy will take place where no salt is used—nay, persons will have scurvy who eat no meat at all ; and therefore it is not this, but the want of other food—the want of fresh animal and fresh vegetable food—which induces the disease. I have seen several, not a large number, but several cases of scurvy, in individuals who had eaten no meat at all ; they had been deprived of meat of every description, and it arose in them from the want of food. You will find in the *Transactions of the College of Physicians*, vol. ii. two cases mentioned by Sir Francis Milman, of women that had the scurvy in the country, but who had eaten no meat whatever, having lived on tea and bread after being accustomed to better food.

Sea and land scurvy, I believe, are exactly the same ; and I may state, that Mr. Musgrave, who published a work on the Gout in 1703, mentions that this disease was common in Somersetshire ; so that you observe it prevailed at sea, in large towns, and in the country.

There can be no doubt that many circumstances conspire to the occurrence of this disease. Cold and the want of exercise unquestionably encourage it ; for sailors are observed to suffer in cold latitudes, when they are placed under the same circumstances, with the exception of latitude, in which they escape it in warm climates : this fact strikingly illustrates the effect of cold. Then, as to the want of exercise, Captain Cook says that the people in Kamschatka, who are habituated to hard labor, never have the scurvy, while the Russian and Cossac in garrison, who live in the greatest indolence, are subject to it. Sir Gilbert Blane says that the prime seamen only were attacked with scurvy, who were exempted from pumping. He instances the case of a particular ship's crew, and says, that once the prime seamen suffered the disease, whereas those who were obliged to work hard at the pump from time to time, the ship having proved leaky, escaped. Moisture also is said to have a considerable effect—I presume, especially when united with cold. La Perouse attributes the prevention of scurvy in his crew very much to the vessel being kept dry by fumigation, and braziers of hot coals. Captain Parry ascribes the first case of scurvy, in one of his expeditions, to moisture. It was observed, when scurvy prevailed in London a few years ago, at the Penitentiary at Milbank, that those persons employed in the kitchen always escaped ; perhaps, however, they got better food than the rest, or more of it, but at any rate they had a warmer place. Captain King told Dr. Macmichael, as he stated in a paper read last year at the College of Physicians, that, in a voyage round the south coast of America, no case of scurvy was apparent, the crew having had plenty of lemon juice, although there was a remarkably cold and moist state of the atmosphere. I do not believe that moisture will occasion it alone, but moisture certainly aggravates the effects of cold in this disease, as it does in all others.

The difference between ships' crews now and formerly is very striking. While the crew of Lord Anson suffered so much in a voyage round the

world, that of Captain Cook, in a voyage subsequently performed, suffered nothing. The difference arose from this circumstance : Captain Cook had a good supply of portable soup, sour crout, and fresh meat, and he kept his men in regular exercise, at the same time taking care that extreme cleanliness and ventilation should be observed. In addition to this they were only out about three weeks on their longest cruise, although absent so long.

Such measures as these will generally prevent scurvy, if there be no fresh provision on board, provided there is a supply of lemon juice ; and sometimes, in spite of the neglect of all these particulars, lemon juice alone will prevent it.

Treatment.—The great remedy, however, for scurvy is fresh food, animal and vegetable ; farinaceous vegetable substances are insufficient ; and when that cannot be procured, then I believe lemon juice will be found the most efficacious medicine. The effects of lemon juice on the disease are speedy and wonderful ; so wonderful are they, that the compiler of Lord Anson's voyage says, after describing the disease, and the horrors which took place from its ravages, that the cure of such a complaint seems impossible by any remedy, or any management, that can be employed. Scurvy was formerly set down, without hesitation, as an incurable disease—not only as a disease incurable *then*, but as being so formidable in its nature that it *never* would be cured ; and yet in almost every case we can now cure it with the utmost facility. It is not only lemon juice that will cure it, but all the hesperidæi—the lime, Seville and unripe China oranges. Malt and sour crout are thought to have a similar property. The custom, I believe, is to give three tablespoonfuls every morning to each man, for the purpose of keeping the disease away. Lemon juice is preserved by mixing one-tenth of spirit with it. One ounce of lemon juice, with one ounce and a half of sugar, is the present navy allowance ; and it is said that scurvy rarely occurs now in the longest voyage. Citric acid is thought to be inferior to lemon juice. During the nine years previous to this supply, the average number of sick sent to the hospitals was one man in three and nine-tenths of the whole navy ; and in the succeeding nine years it was only one in eight and four-tenths. The juice is also said to improve the general health. I may mention, as a good illustration of the power of lemon juice, that the *Suffolk* left England in April 1794, and had no communication with land for twenty weeks and a day, and yet all the time she had only fifteen sick, and those slightly, and soon cured by an augmentation of the first allowance of two-thirds of an ounce ; and at her arrival not one had the scurvy. In 1800, the channel fleet, consisting of 24 ships of the line, besides smaller vessels, had no fresh provisions for 16 weeks, but plenty of lemon juice, and not a single instance of scurvy occurred ; whereas in 1780, the channel fleet could not keep sea beyond ten weeks, and was worn out with scurvy and fever ; and 2500 men were sent into port with the scurvy. We read in Purchas's *Pilgrim*, that Commodore Lancashire sailed from England with three other ships, for the Cape of Good Hope, on the 2d of April, and arrived at Saldanha Bay on the 1st of August, the Commodore's own ship being in perfect health, from the administration of three tablespoonfuls of lemon juice every morning to each of his men ; whereas

the other ships were so sickly as to be unmanageable for want of hands, and the Commodore was obliged to send men on board, to take in their sails and hoist out their boats.

This disease, of course, occurred in ancient times. It was known in the Roman army, in Germany, and also in the inipiously denominated "Holy Wars;" but it was first particularly noticed in the crew of Vasco di Gama in 1497. You will find it mentioned by Pliny, as occurring in the Roman army under the command of Germanicus. But with respect to the remedy, its discovery appears to have been left for modern times, but still not recent times, as you will find it mentioned as far back as 200 years ago. There is a curious fact connected with it, and one which is very instructive, as teaching us not to despise anything without good reason. It is said that when the London College of Physicians was applied to by Government, for a cure for scurvy, they advised vinegar, which has very little power in the affection; and that a Fellow of the College, who wrote on the disease in 1753, never adverts to lemon juice at all in his Treatise, and yet that, two hundred years ago, it was mentioned in Woodall's "Surgeon Mate, or Military and Domestic Medicine,"—a work published in 1636, "by John Woodall, Master in Surgery;" and he ends his praise of it by saying that he dare not write how good a sauce it was with meat, lest the chief in the cabin should waste it to save vinegar. It is said even to have been mentioned still earlier, in Purchas's Pilgrim, published in 1600. Dr. Lind, of Haslar Hospital, revived the knowledge of it, more than one hundred years afterwards. He stated its peculiar powers, in the third edition of his work on the Diseases of Seamen, in 1772, but even then it was not brought generally into use, and the navy actually suffered most frightfully from scurvy till 1795. Although the remedy was mentioned two hundred years ago, in one book, and again in a well-known surgical work in 1636, yet the navy suffered till 1795, when a good supply of it was ordered by government, when Earl Spencer, the father of the present Chancellor of the Exchequer, was at the head of the Admiralty, on the representations of Dr. Blair and Sir Gilbert Blane, who were commissioners of the board of sick and wounded seamen. In less than eighteen months there was not a case of scurvy in Haslar Hospital. In 1780, there had not been fewer than 1457; in 1806, there was but 1; and in 1807, but 1.

So great is the effect of this article, that you will find the following passage in Sir W. Herschel's work, published in Dr. Lardner's Cyclopædia, on the cultivation of the physical sciences. He says, "At present the scurvy is almost completely eradicated in the navy; partly, no doubt, from an increased and increasing attention to general cleanliness, comfort, and diet, but mainly from the constant use of a simple and palatable beverage—the acid of lemon, served out in daily rations. If (he adds) the gratitude of mankind be allowed on all hands to be the just meed of the philosophic physician, to whose discernment in seizing, and perseverance in forcing it on public notice, we owe the great safeguard of infantile life, it ought not to be denied to those whose skill and discrimination have thus strengthened the sinews of our most powerful arm, and obliterated one of the darkest features in one of the most glorious of all professions."

The scurvy is now prevented by great attention to cleanliness—by

giving sailors as wholesome food as possible—by attention to exercise and cheerfulness, and by a regular supply of lemon juice. In spite of all this, however, sporadic cases still occur ; but, in general, that is all. I have had myself several cases of this disease in London, and some of them were in persons who had never been at sea, who had eaten no salt meat, but had been deprived of food nearly altogether. Others were sailors, who came on shore laboring under the disease ; for in merchantmen there is continually the greatest neglect. I had one patient, a few months ago, who had been sixteen weeks at sea without any medical man on board (that, I suppose, is unavoidable in small ships) ; who had had nothing but the hardest salt beef, without a particle of anything else except biscuit, during the whole voyage. He was, as might be expected, laboring under scurvy to a great extent ; and he said that several of the crew had died. I am not sure that the lemon juice, which I gave these patients as a matter of course, did them any good, because they were allowed fresh meat and greens every day, with porter, every article of good diet, and this was quite sufficient, I am sure, to cure the disease. I gave them lemon juice in addition, because we have such authority for its employment. However, some persons now begin to say that the lemon juice does no good—that the benefit entirely arises from the other means that are employed, and that the neutral salts, particularly nitre, answer a better purpose. I dare not say, however, that authority so accumulated and so immense as it is, respecting the powers of lemon juice, is at all to be disputed. I certainly cannot but think, till we have further facts, that it is our duty in every case to supply lemon juice, or similar things if it cannot be obtained, in the hope of doing away with the ill effects which the want of fresh food occasions.

I may mention, also, that, in regard to local applications, it is found that lemon juice is one of the best when there is a scorbutic ulcer. I believe a slice of lemon laid upon it is one of the best applications that can be employed, as Pierre Lebat is said to mention, in his *Voyage to the Antilles*.

Now this is a disease which I should say is a chemical disease, if any one be so. In one sense the constitution is not at all in fault ; all the fluids and all the solids appear to be changed, but you have only to give a different chemical state to the body, and the disease is cured. You need give nothing which acts by a specific operation—no drug, I mean, which acts as a medicine—but employ fresh articles of diet, and you remedy the depraved constitution of the whole mass of solids and fluids. I have, therefore, mentioned this disease before I came to any of those which are clearly seated in particular parts. I am not aware that this attacks any one part in particular ; it seems to be a cachectic state of the whole frame ; and if any disease be an instance of universal disease, I should certainly say it was scurvy.

There is an affection very similar to scurvy in some respects, which has been arranged and described by Willan, among cutaneous diseases, and which is called *purpura*. Some are of opinion that this is the same as scurvy ; but I cannot think so, for reasons which I will state when speaking of diseases of the skin.