

which, a vegetable, stomachic acid may result. Such an acid, ready prepared, is to be had in a certain degree in oranges, and most ripening sub-acid fruits; from whence they become the most effectual preservatives against this distemper.

## C H A P. VII.

### *Dissections.*

**T**HE appearances upon inspecting the body of such as died of the scurvy are here distinguished under different numbers, for the convenience of making proper references to them in the following chapter.

N<sup>o</sup> 1. contains the observations made by Lord *Anson's* surgeons upon the blood of their patients, and upon the dissection of dead bodies, in the several stages of this distemper at sea. N<sup>o</sup> 2. a dissection made upon one of *Jaques Cartier's* crew (*a*). N<sup>o</sup> 3. to 21. *inclusive*, is Mr. *Poupart's* account of many, and very accurate dissections of scorbutic bodies, in the hospital of *St. Lewis* at *Paris*, in the year 1699 (*b*).

N<sup>o</sup> 1.

(*a*) See Part 3. chap. 1.

(*b*) *Etranges effets du scorbut arrivez à Paris, par M. Poupart. Memoirs de l'academie des sciences, 1699, p. 237.*

N<sup>o</sup> 1. In the beginning of the disease, the blood, as it flowed out of the orifice of the wound, might be seen to run in different shades of light and dark streaks. When the disease increased, it ran thin, and seemingly very black; and after standing some time in the porringer, turned thick, of a dark muddy colour; the surface in many places of a greenish hue, without any regular separation of its parts. In the third degree of the disease, it came out as black as ink; and though kept stirring in the vessel many hours, its fibrous parts had only the appearance of a quantity of wool or hair, floating in a muddy substance. In dissected bodies, the blood in the veins was so entirely broken, that, by cutting any considerable branch, you might empty the part to which it belonged of its black and yellow liquor; and when found extravasated, it was all of the same kind. *Lastly*, As hæmorrhages were frequent at the latter end of the calamity, the fluid had the same appearance as to colour and consistence, whether it was discharged from the mouth, nose, stomach, intestines, or any other part.

2. The heart was found white and putrid; its cavities were quite full of corrupted blood. The lungs were blackish and putrid; more than a quart of water was found in the breast. The liver was pretty sound;

but the spleen somewhat affected, and rough as if it had been rubbed against a stone.

3. All those who had any difficulty of breathing, or their breasts stuffed or stopped up, had there a quantity of water; and we found more or less of it according as they were oppressed.

4. The breast, belly, and several other parts of the body, were filled with this water or *serum*; which was of different colours; and so corrosive, that having put our hands into it, the skin of them came off, attended with heat and inflammation.

5. We have seen some whose breast was so oppressed, that they died all of a sudden. In the mean time, we found no water neither in their breasts nor in their lungs. But the *pericardium* was entirely fastened to the lungs; and the lungs were glued to the *pleura* and *diaphragm*. All the parts were so mixed and blended with each other, that they made up but one mass, so confounded that one could scarce distinguish one from another. As the lungs were squeezed together in the middle of this mass, they were deprived of their motion, and the sick person was suffocated for want of breath.

6. All those who died suddenly, without any visible cause of their death, had the auricles of their heart as big as one's fist, and full of coagulated blood.

7. We have seen several, who without pain dropped down dead. They had no apparent sickness; only their gums were ulcerated, without any spots or hardness on their skin: yet we found their muscles were mortified and stuffed with a black corrupted blood; and upon handling them, they fell to pieces.

8. A youth of ten years had his gums much swelled, and deeply ulcerated; his breath intolerably offensive. The surgeon was obliged to pull out all his teeth, for the better dressing of his mouth. There appeared afterwards ulcers upon his tongue and cheek. He died suddenly, and his bowels were found mortified.

9. Some with no other symptoms but slight ulcerations of their gums, had afterwards small red hard tumours on their hands, feet, and other parts of their body: after which there appeared imposthumes in their groin, and under their arm-pits, together with blue spots on their body. We found the glands under their arm-pits much enlarged, and surrounded with purulent matter; as well as the muscles of their arms and thighs, the interstices of which were all filled with it.

10. We observed some whose arms, legs, and thighs, were of a reddish black. This proceeded from that black and coagulated blood which was always found under the skin of those persons.

11. We



11. We also found their muscles swelled and hard. This was occasioned by blood fixed in the body of the muscles, which were sometimes so full of it, that their legs remained bent, without being able to extend or stretch them out.

12. The blue, red, yellow, and black spots, which appeared on the body, proceeded purely from extravasated blood under the skin. As long as the blood kept its red colour, the spot was red; if the blood was black and coagulated, the spot was also black, &c.

13. We sometimes observed certain small tumours, which, upon breaking, formed scorbutic ulcers. They proceeded from the blood, with which the tumour was filled: for as often as we took off the plaister, we still found under it a great deal of coagulated blood.

14. Some old persons had such large bleedings from the nose and mouth, that they died of them. The coats of the vessels were eat through by the sharp and corrosive humour.

15. In some, when moved, we heard a small grating of the bones. Upon opening those bodies, the *epiphyses* were found entirely separated from the bones; which, by rubbing against each other, occasioned this noise. In some we perceived a small low noise when they breathed. In them the

cartilages of the *sternum* were found separated from the bony part of the ribs.

16. All those in whose breast any purulent matter or water was found, had their ribs thus separated from the cartilages, and the bony part of the rib next the *sternum* carious for four fingers breadth.

17. There were some dead bodies, in which, if we squeezed betwixt two fingers, the end of the ribs which began to be separated from the cartilages, there came abundance of corrupted matter. This was the spongy part of the bone; so that, after squeezing, there remained nothing of the rib but the two bony plates.

18. The ligaments of the joints were corroded and loose. Instead of finding in the cavities of the joints the usual sweet oily mucilage, there was only a greenish liquor; which, by its caustic quality, had corroded the ligaments.

19. All the young persons under eighteen had in some degree their *epiphyses* separated from the body of the bone; this water having penetrated into the very substance of it.

20. In scorbutic people the glands of the mesentery are generally obstructed and swelled. Some of these were found partly corrupted and imposthumated. In the liver of some few, the matter or corruption was hardened, as it were, into a stone. Their spleen

spleen was three times bigger than natural; and fell to pieces, as if composed of congealed blood. Sometimes the kidneys and breast were full of imposthumes.

21. What was very surprising, the brains of these poor people were always found and entire, and they preserved their appetite to the last.

### C H A P. VIII.

*The nature of the symptoms, deduced and explained from the foregoing theory and dissections.*

**T**HE first symptom of this disease is generally a præternatural change of colour in the face. To explain this, it must be understood, that the solids in the human body are extremely small in proportion to the fluid parts; as appears plainly in the cases of exhausted and consumptive patients. On the quantity and quality of the fluids the colour of the body principally depends; these however are greatly influenced by the condition of the solid parts; thus, a lively colour in the face denotes not only a sound state of the blood, but a vigorous action of the solids, of the heart, and of the whole arterial system: whereas, on the contrary, paleness of the face and a bloated complexion are signs both of a

morbid state of the humours, and of weak and relaxed fibres. These changes of colour are also most perceptible, where the vessels lie most exposed, as in the lips, gums, corners of the eye, &c.

From the relaxation of the solids, and morbid state of the fluids, frequent effusions happen, especially in parts distant from the heart, where the circulation is most languid, and a *nifus*, contrary to its own gravity, required to push it on; as in the legs, when in an erect posture. Hence such persons are observed to have œdematous swellings at first about their ancles, and on their legs; as the weakness and relaxation encrease, the face, and sometimes the whole body, become pale, swelled, and bloated.

Where the chyle is not assimilated, so as to nourish the body, the strength and vigour of our bodies being supported chiefly by well-digested food, a lassitude, heaviness, and an aversion to exercise must ensue.

In this respect, the case of scorbutic people is somewhat singular, that though when at rest they find themselves quite well; yet, upon the least exercise, they are subject to a panting and breathlessness; which, as the disease increases, degenerates into a proneness to faint; and lastly, in the height of the malady, upon using exercise, or an exertion of their strength, or upon being exposed to a sudden change of air, they are apt to drop down dead.



In order to set this in a clear light, it must be observed, that the lungs seem in this disease in a peculiar manner affected by the general weakness and relaxation of the body; perhaps from their perspiration being suppressed, their tone may be greatly weakened.

Now when the body is at rest, the circulation is languid and slow: the blood then, in a small quantity, glides gently through the lungs, notwithstanding their loss of tone. But when, upon using exercise, or an exertion of strength, the velocity of the blood is accelerated, and a much greater quantity, *viz.* that which, when at rest, was almost stagnating in the veins, is at once returned into the right cavities of the heart, and from thence into the lungs; the weakened vessels of the lungs not being able so quickly to transmit so great a quantity, the blood is necessarily accumulated in the *sinus venosus*, right auricle and ventricle of the heart: which causes a laborious breathing and panting, an effort being made by all the powers subservient to respiration, to dilate the breast fuller and more frequently, for the passage of this increased quantity of blood.

This will receive confirmation by several considerations; as for instance, that upon exerting a degree of strength, we hold in our breath; and also that the right ven-

tricle of the heart is larger than the left ventricle, the *systole* of both is *synchronous*, and yet, what is singular, the pulmonary vein is less than the pulmonary artery.

As the disease and weakness encrease, the body becomes susceptible of the most gentle impressions. Hence, upon the least motion of the body, by which the circulation is quickened, and a greater quantity of blood sent at once into the heart, that organ is rendered unable to overcome the resistance it meets with in forcing the blood through the lungs, and weakened unelastic arteries; the accumulated blood stagnates, as it were, in its cavities; an almost entire stoppage of circulation, and pause of the vital motions follow; the patient faints away; till at length the heart is evacuated by his lying at rest, the vital principle is again exerted, the circulation is restored, and he recovers (*e*).

*Lastly*, It appears by the weakness and feebleness of the pulse, and many other symptoms in this disease, that the whole system of solids is in the most relaxed and weakened condition. Even the heart itself was found putrid (N<sup>o</sup> 2.) Its force to circulate the blood, which is not indefinite, must in this case be greatly impaired. The cavities of it, which are fitted to contain only a  
propor-

(*e*) The swoonings of scorbutic persons are different from what happen to very weak and exhausted people in other diseases, upon being raised up. When they sit, they are quite hearty, and have a considerable degree of strength.

proportioned quantity, were found preternaturally weakened and dilated (N<sup>o</sup> 6.) Persons in such a state are apt to drop down dead upon an exertion of their strength, or upon exercise, but more especially upon being exposed to a sudden change of air; it is therefore dangerous to remove them at once from the warm and moist air in the hold of a ship (*f*), into a colder, drier, and purer air. For the effect of this is, to constrict the whole external habit of the body, and to drive the blood at once with great force from thence towards the heart; at which time the velocity, as well as quantity of it, is increased in the internal parts. So that the heart is not able to overcome the resistance it meets with in the weak and unsound lungs (whose vessels are also straitened by the contact of such fresh air;) nor in the arteries, which will be in proportion to the quantity of blood with which they remain distended. But the weak unelastic arterial system is not here able to contract and propel the blood in their canals. On the contrary, the cutaneous vessels being thus

(*f*) The air in the hold of a ship is always moister than even upon the upper deck. This is owing to the cables, and the other contents of the hold, not having a free circulation of air or wind, to dry up the water, either of the sea or rains, poured down upon them. Places below become also extremely moist, by the fresh water and beer spilt in pumping them from the casks, by the bilge-water, and by the cutaneous and pulmonary perspiration of a number of people pent up in the sick apartment.

thus constringed by the external air, the blood may perhaps have, as it were for an instant, a retrograde motion towards the heart, which this debilitated muscle (N<sup>o</sup> 2.) cannot overcome. Hence such people drop down dead suddenly, without any other visible cause of their death found upon dissection (N<sup>o</sup> 6.) than the weakened auricles of their heart enlarged, and distended with blood. They are observed to have a panting or breathlessness for about half a minute before they expire (g).

I come now to account for the pathognomonic or characteristic signs of this disease, viz. putrid gums, &c. I shall upon this occasion observe, that although it is no easy matter to say why, in several general and universal disorders of the body, some particular parts are only or principally affected, while others continue to perform their functions as in health (see N<sup>o</sup> 21.); yet we may hereby perceive the goodness of Providence, who, by certain signs peculiar to each disease, points out the malady, and gives us a medical and demonstrative certainty of its existence. But as our inquiry is not into final causes, I shall endeavour to account for these symptoms in the mechanical way.

#### Putrid

(g) Why only the auricles of the heart in this case are enlarged, *vid. Lancis. de aneurismatibus in genere, prop. 52.* This species of sudden death is called by the great *Harvey*, *suffocatio ob copiam*; and is beautifully illustrated by his experiment, *Exercitat. 1. de motu cordis.*



Putrid gums, foetid breath, and loosening of the teeth, we find also in persons who, by long fasting, are deprived of a supply of fresh chyle. In several religious orders, those who are obliged, by way of penance, to abstain a considerable time from food, perceive their breath become foetid, their teeth loose, their gums spongy and soft (*i*). The same symptoms are also observed in those who are starved to death (*k*). In the scurvy, the gums are affected either from their peculiar structure, or perhaps from the saliva becoming acrid, as every one's experience must convince him it is more so after ten or twelve hours abstinence from food, than at other times.

It was observed before, that the depending situation of the legs, in an erect or sitting posture, occasioned the humours to stagnate there in the very beginning of the disease; in the encrease of it, they often become greatly swelled, and such stagnated blood and humours are, upon the least rupture of the skin, apt to form into scorbutic ulcers. These ulcers generally occur upon the fore-part of the leg, where the least accidental stroke makes a considerable bruise  
of

(*i*) I have always observed men of the rigorous orders in the church of *Rome* greatly scorbutic. They are remarkable for rotten gums (part of which is commonly eat away) want of teeth, and a most offensive breath.

(*k*) *Vid. Tschirnhaus. medicin. corporis, p. 23. Lister de humcribus, cap. 12.*

252 *Of the nature of the symptoms.* Part II.

of the thin skin, against the hard and sharp edge of the bone. Their appearance is truly described N<sup>o</sup> 13. and accounted for N<sup>o</sup> 10. and 11.

In such a state of blood (N<sup>o</sup> 1.) as appeared both in living and dead bodies, we have no reason to be surpris'd at the frequent hæmorrhages from all parts of the body, fluxes, dysenteries, &c. to which such persons are subject; nor at its bursting out from the scars of old wounds in Lord *Anson's* crew. These wounds are, for many reasons, liable to such accidents; not only from the hard and imperforable *cicatrix* with which they are generally covered, but from a want here of the *tunica adiposa*, into whose cells the extravasated blood is poured, when it appears in spots on the body (N<sup>o</sup> 12.)

In this disease the solids are in so weak a state of cohesion, that the vessels are apt to burst and the blood to be extravasated in great quantities. If this effusion happens very deep (as in N<sup>o</sup> 11.) it occasions violent pains, which have often been observed (*l*) to be greatly relieved by the extravasated blood changing its place, and being removed immediately underneath the surface of the skin. It there sometimes appears as if it was a mortification, by which some ignorant surgeons have been misled to make incisions on the part, which have cost some unfor-

(*l*) Vid. Van Swieten Comment. in Aphor. 1151.

unfortunate patients their lives. And in such an universal weakness and laxity of the vessels, sudden death has been sometimes owing to a rupture of a large vessel.

There is somewhat indeed singular in the effects of the scurvy upon the bones (see N<sup>o</sup> 15. 16. but particularly 17.); whereby it appears to affect chiefly the internal cellular part, which is known to be of a different texture from the outward bony *laminæ*. And from thence it is easy to account for those remarkable cases which occurred likewise in Lord *Anson's* Squadron, where the *callus* of broken bones, which had been compleatly formed for a long time, was found dissolved, and the fracture seemed as if it had never been consolidated. It must be remembered, that the bones, like all the other parts of the body, are daily nourished and repaired by the aliment. There are many instances of entire bones being generated in the body anew. And it appears, that a *callus* is not (as has been vulgarly supposed) a rude glutinous substance issuing out from the extremities of the bones, by which they are glued together: but is really, like new flesh generated in wounds with loss of substance, a true organised part restored, of the same cellular texture with the other parts of the bone; with this difference, that it wants the outward bony *lamella* (*m*): so that, from this defect,

(*m*) *Vid. Rusch thesaur. anatom. n. 8.*

254 *Of the nature of the symptoms.* Part II.  
defect, it becomes, of all other parts of the bone, most liable to be affected by the scorbutic taint.

If in the advanced stages of the disease the cellular texture of the very bones are dissolved, it is natural to suppose, that in the beginning, or where there is only a scorbutic habit of body, no *callus* can be formed; of which Dr. *Mead* furnishes us with a remarkable proof (*n*). However, it is almost universally the case in the scurvy, as observed elsewhere (*o*), that as long as any bone is sufficiently defended by its external thick plates, it will not be found carious in this disease until broken and separated (as in N<sup>o</sup> 16. and 17.) or until corroded by a large ulcer of the flesh penetrating to it. For this reason, it is rare to find a carious jaw, after the most virulent ulcers in the gums, unless by some accident, as the pulling out of a tooth, part of the *laminæ* of that bone has been broken. In the same manner, the teeth will likewise be preserved sound, if their outer coats are entire.

There is a reason assigned N<sup>o</sup> 18. for the loss of motion which happens commonly to the joint of the knee in this disease. To which it may be added, that the lubricating liniment of the joints is said to be partly composed of the perspirable matter (*p*);  
which

(*n*) Discourse on the scurvy, p. 107.

(*o*) Chap. 2.

(*p*) Vid. *Van Swieten comment. in Boerhaave aph.* 556.



which being here either deficient, or degenerated into a morbid state, may induce this symptom.

It likewise appears, that the mucilage that lubricates the hard tendons, and their sheaths, and which fits them for motion, is of a similar nature with the liquor found in the cavities of the joints (*q*). We have a proof of its extreme depravity in N<sup>o</sup> 18; so that they must necessarily become hard, contracted, and unfit for motion.

It is indeed the universal perspiring humour, exhaling from all parts, both external and internal, of the body, which gives softness, pliancy, and suppleness, to the whole machine. And it is perhaps a deficiency of this which occasions hardness of the flesh, contraction of limbs, want of motion, and indurated tendons in scorbutic cases.

*Lastly*, If we consider the other appearances observed upon dissection, *viz.* the swelled, obstructed, and mortified state of the bowels (N<sup>o</sup> 20.); the rottenness of the heart itself (N<sup>o</sup> 2.); in some the universal tendency of the body to mortifications (N<sup>o</sup> 7. 8. and 9.); the caustic acrimony of the lymph found in its different cavities (N<sup>o</sup> 4.); with the condition of the blood, even when alive (N<sup>o</sup> 1.), where its dark and livid colour, but especially the greenish hue, denoted the highest degree of malignity;

(*q*) *Vid. Kaau de perspiratione, n. 854.*

lignity; we shall have no reason to be surpris'd at the most extraordinary and anomalous symptoms, which sometimes have occurred in this disease.

## C H A P. IX.

*The Supplement.*

*A letter from Dr. JOHN COOK, physician at Hamilton, giving an account of the scurvy in Russia, Tartary, &c.*

I Here send you some brief remarks I made in general upon the scurvy in *Russia, Tartary, &c.* in all which countries it is a frequent and dreadful disease.

*Taverhoff* lies in 52 deg. of N. lat. where the stream of the *Verona* is received into the *Don*. It is situated, as most towns on the banks of that river, on a low sandy soil, and surrounded with lakes, marshes, and woods. The winter commonly begins in the month of *October*. In *November*, all the rivers, lakes, and marshes, are quite frozen over, and the whole country is covered with snow; which continues until about the beginning of *April*, O. S. At this time the snow suddenly melts away, leaving the earth covered with grass, and many wholesome vegetables. The spring is so very short, that the inhabitants are scarcely sensible of it: for in less than fifteen days the weather becomes

becomes excessive hot; and the cold frosty winter is suddenly expelled by a very warm summer, that continues until the month of *September*; during which time the weather is very hot and moist. When I was there in the years 1738 and 1739, 27,000 boors were employed in cutting wood, and preparing it for building of ships for the use of the army; as also about 5 or 600 sailors, who were their overseers, and between two and 3000 soldiers, who guarded the boors to prevent their making an escape. In the month of *February* 1738, the scurvy made its appearance. The boors were not so much afflicted with it as the sailors, nor the sailors so much as the soldiers. Many, both sailors and soldiers, were sent to our hospital this month; but their numbers were greatly increased in *March*. Towards the latter end of *April* they were mostly recovered, and many were discharged from the hospital. In *June* none remained except the most inveterate cases. In *July* an intermitting, and obstinate remitting fever, prevailed. From the 1st to the 20th of *August* we had but few patients. From that time to the 1st of *October*, agues raged with more violence than ever; and fluxes succeeded in *October*. This month the first snow fell; and at that time children were universally afflicted with sore throats. We had afterwards settled frosty weather, and

but little sickness, except a few inflammatory fevers; until about the beginning of the year 1739, when the scurvy began to shew itself, much about the same time as in the preceding year, and continued its usual length of time.

*Astracan* is situated in  $46\frac{1}{2}$  deg. N. lat. on a small island washed by the *Volga*. Here are many salt lakes, both upon the islands and desert. The soldiers of the garrison are much more subject to the scurvy than the boors, and these last than the sailors. The soldiers live a very indolent life, having but little duty to perform. They eat hardly any thing else, even in their hospitals, besides rye bread and meal, with fish; and have nothing but water for drink, except the decoctions prescribed for them by the surgeons. Their hospitals are very damp and in a ruinous condition. This poor garrison of five regiments, consisting of about 6000 men when compleat, is yearly recruited with between 600 and 1000 men. The boors live also but a lazy indolent life; being employed either in fishing, or in navigating great boats, from *Astracan* sometimes as far as *Tweer*. On the contrary, the sailors work hard, at all times of the year, both in the docks and at sea; and live much better, having good provisions of all sorts. The winter begins commonly in *October*, and continues till *March*. It is  
extremely



extremely severe during the months of *January* and *February*. The scurvy generally breaks out in the latter end of *February*. I found it here often complicated with other diseases, *viz.* the venereal disease, agues, dropfies, consumptions, &c. The violence of the distemper (except in complicated cases) seldom continues after *June*, or to the middle of *July*.

*Riga*, the metropolis of *Livonia*, is the last place I shall mention. The winters are here very long. The soil for many miles about it is sandy, and covered with lakes and morasses. The boors living better than they do in *Russia* and *Tartary*, are not so subject here to the scurvy as the soldiers in the army, nor these so much as the proper garrison; for by their labour they gain money, and can purchase flesh in winter. The garrison-soldiers, consisting of between 6 and 7000 men, are most miserably lodged. The walls of their ill-contrived barracks are continually moist and warm. At *Riga*, in the years 1749 and 1750, but especially in the year 1751, the scurvy raged with the utmost violence. It broke out in the month of *February* that year. Here I saw the most dreadful spectacles that ever I beheld. Their gums mortified, as also their lips, which dropped off; the mortification spread to their cheeks, and lower jaw; and the jaw-bone in some fell down upon the breast. When

the mortification first began, we tried the bark, to no purpose. Nothing but death rid the unhappy wretches of their frightful misery.

Dr. *Nitzsch*'s method of cure (*a*) corresponds with, and is agreeable to the method practised in *Russia*, especially by the *German* physicians and surgeons. What he terms the *hot* or *painful scurvy*, is generally a complication of this disease with the pox. Although some may die in the state he describes, without having any outward swelling upon the body; yet such persons have always scirrhus swellings of the glands in the *abdomen*, particularly of the mesenteric glands, and of the liver, which are perceptible to the touch, even before death. My method of cure was in general as follows, unless some particular symptoms or cases required me to deviate from it. I commonly began with a very gentle purge or two, and then gave the *decoct. antiscorb. (b)*, and *essent. antiscorb.* At *Astracan*, where there are whole fields of horse-radish, we gave the juice of it mixed with a very little brandy, twice a-day. The patients had fresh flesh-meat every day, and what greens or salads we could procure them. They used the warm bath once or twice a-week. Before they eat, drank, or swallowed any medicines, their mouths were well

(*a*) Vid. Part 3.

(*b*) I presume the Doctor means the *decoct. sum. pin. &c.* described by *Nitzsch*.

well gargarised with solutions of nitre, &c. Their gums were dressed with *ung. Egyptiac. tinct. myrrh. tinct. lacc.* &c. I obliged them to use exercise, and to walk about both forenoon and afternoon, when the weather would permit. I allowed them to sleep moderately; and forbid them all dried, salt, and fat meats. Fumigating the wards, is common in all the hospitals in *Russia*.

When I came home to this country, I found the denomination of *nervous disorders* universally applied to most chronic and cachectic complaints. Upon examining those complaints in the lower sort of people, who live entirely on mealy substances and a gross diet, I observed they had a universal lassitude, pains which they termed *rheumatic* flying through their body, and a difficulty of breathing upon using exercise. The legs were sometimes swelled, and the belly almost always tense and enlarged. But, whether they had swellings or not, they had generally an ill-coloured scorbutic complexion, and were listless and inactive to a great degree, with complaints of pains in their jaws, teeth, &c. I made no scruple to pronounce such cases scorbutic; and by proper anti-scorbutic regimen, medicines, diet, and exercise, seldom failed to give very sensible relief. I have disobligeed many patients, by saying they had the scurvy; a disease as hateful as it is unknown in this part of the

262 *Sir Charles Linnæus's Letter. Part II.*  
 world; but the relief they obtained from  
 antiscorbutics, soon convinced both them  
 and myself, that their cases were not  
 mistaken.

*A letter from Dr. Linnæus, giving an account  
 of the scurvy in Sweden (c).*

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D. D. JACOBO LIND

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S. p D.

CAR. LINNÆUS

*Equ. aur.*

A Ccepi hisce diebus \*\*\*\*\* a te  
 missum librum cum epistola \*\*\*\*\*  
 \*\*\*\*\*  
 \*\*\*\*\*

Librum etiamnum fugitivis tantum oculis  
 inspexi, qui linguæ anglicanæ non satis  
 gnarus sum; curabo autem quam primum  
 ut coram me legatur ab altero; intellexi  
 tamen te hoc opere edidisse seculare fætum.

Quæris in epistola quid sentiam ego de  
 scorbuto. Non deberem me prodere, ante-  
 quam tua legerim; dicam tamen candidè  
 viro candido, quomodo morbum intelligo,

Morbus est apud nos, imprimis apud  
 plebeios frequentissimus. Maris Balthici ac-  
 colæ,

(c) I am persuaded the reader will be better pleased with  
 having the sentiments of this celebrated practitioner in his  
 own elegant dress, than by a translation of them into *English*.



colæ, rustici, fabri ferrarii, et qui e fodinis metalla eruunt, quique per longam hiemem cibis salitis, carnibus falsis, et imprimis halecibus falsis sustentantur, eo laborant.

Mihi videtur morbus consistere in sola discrasia muriatica : et dum falsedo hæc muriatica inficit humores, nec expellitur; scorbutis oritur. Salsedine infectus sanguis in patellam orichalci immissus mox eandem rodit. gingivas et dentes rodit saliva, quæ si in ignem exspuatur magis crepitat; matula ab urina incrustatur magis tartaro quam ab aliis, urinis; corrodit hæc vasa lymphatica, et minimas fibras cullosas facit, homines sic reddit tardos, in majori gradu pedes œdematosos, et pectus asthmate gravatum ab hydrope mediastini seu thoracis quo plerunque pereunt.

Signa apud nos sunt hæc primaria: facies amittit lucem seu nitorem, ut tristes quasi conspiciantur. Tardiores evadunt homines et adclivia adscendentes fere suffocantur ob onus corporis; appetitus cibi languet; a cibo sumpto torpor et somni desiderium: evigilantes manê a somno magis lassos se sentiunt, quam dum vesperi cubitum ibant. Gingivæ laxæ pallidæ et fere œdematosæ, maculæ interdum cærulæ in femoribus, tibis, nisi gingivæ sint cruentæ. Qui, labori adfueti, desistunt, citius hoc morbo opprimuntur. Qui, hauriunt spiritum frumenti, œdematosi et hydropici evadunt. Qui inha-

bitant loca depressa, foetida, maritima (cachectici) eo magis periclitantur.

Fabri et metalli fossiores, qui quotidie sudore diffluunt, sudorem effundunt muriæ instar, falsum si digito abstergeas et gustes, nec tamen ægrotant; si vero lædantur ut lectum chirurgi aliquando petant et quiescant, dum consolidatur vulnus interim scorbuto sæpius ita inficiuntur ut vix evadant. Lappones, qui fere omnes ignorant salis usum in cibo, a scorbuto immunes vivunt; honoratiores apud nos a falsis cavent, ne scorbuto corripiantur sine motu viventes. Plebei, qui œdemate pedum obnoxii sunt a scorbuto, sæpe tibiis exulcerantur ulcere cachectico, depascente, hinc miserè vitam transigunt et vivunt; si vero adstringentibus curantur pereunt asthma.

Cum radices adhuc minus profundas egit scorbutus, hauriunt nostrates acidulas, quæ falsa resolvunt, diluunt, et per urinam effundunt. *Cochlearia, nasturtium aq.*; *armoraciæ* infusum frigide paratum, vulgatissima sunt medicamenta. Succus *cochleariæ nasturtii aq.* &c. magnatibus vere propinatur. *Armoraciæ* radix rasa et cum aceti irrorata coch. ij. affunditur lactis cocti lib. i. fs. caseus aufertur, et serum hauritur quotidie a plebeis; sæpius eventu felicissimo. Turiones *pini* cum *sedo acris* coquuntur, addito momento aluminis, et hauritur strenue; curat scorbuticos. Infusum radices Britannicæ hauritur

hauritur quotidie, et epithemata in eodem decocto cachoeticis pedibus imponuntur, quasi unicum asylum contra ulcera cachœtica scorbutica, a me introductum, quod didici a Coldeno vestræ, et ille ab americanis sylvestribus. Hoc valet tantum contra ulcera cachœtica. *Armoraciæ* radicis syrupus frigide paratus divina est medicina in asthma ex hydropse thoracis scorbutico, nisi altiores fixerit radices, ut eradicari vix queat; pulvis aut electuarium e *maro vero* alternis vicibus propinatur.

Dum ann. 1739, 1740, 1741 medicus eram classis navalis Stockholmiae infinitos hoc morbo decumbentes restitui.

Dabam Upsalii 1755, die 27 Feb.

P. S. Res medica apud nos nuper revivifere cepit. Pauci itaque scripsere in rebus medicis inter nostrates. Linder, de *Rogfubben* seu scorbuto ante 20 annos edidit libellum, sed non dignus est ut ad te mittatur.

*An extract from the Natural History of Norway, by the right reverend Erich Pontopidan, bishop of Bergen.*

THOUGH *Norway*, like *Sweden*, is in general a very healthful country, yet it is not exempted from its peculiar diseases, especially the inhabitants of the diocese of *Bergen* along the sea side, and on the west side

side of *File-field* mountains. The air in these parts is not very salubrious, and differs very much from that of the eastern and southern parts of *Norway*. For on the other side of that long chain of mountains, they have both in winter and summer a fine clear sky, with as dry and healthful an air as in any part of *Europe*. Whereas in this province of *Bergen*, the air is generally damp, thick, and foggy; and though it causes milder winters, it is not so healthful as a thinner air. This appears by the effect it has on our peasants, when they come here from other parts of the country; for they seem as if they were entirely out of their element, and can hardly breathe in it, nor does it agree with their health. This must be attributed to the great western ocean that extends from *America* to *Norway*, from the surface of which a vast quantity of damps, or particles of water, are daily evaporated.

Among the diseases which mostly appear in the diocese of *Bergen*, which is the most unhealthful spot in all *Norway*, I shall first take notice of a kind of scab or itch. This is chiefly found among those that live along the coast, occasioned probably by eating great quantities of fat fish, and especially the liver of the cod. This is properly a *scabies scorbutica*, which may be called a leprosy, but not so infectious as the oriental



*lepra*; for married people live together many years, and the healthy is not infected, though the other party has it. But if they have children, they sometimes take the infection, though not always. This distemper generally lies in the blood a long time before any eruption appears; at last it breaks out into ugly boils on the face: they are generally sent to hospitals erected for that purpose, of which there is one at *Bergen*, and another at *Molde* in *Romsdalen*.

The ordinary scurvy would prevail in this country a great deal more, if it was not for hard work, which is the best preservative against it, and keeps the juices in constant circulation. Hence those who use but little exercise, and have a good appetite, seldom or never escape this distemper. Nature has ordained several berries and roots in this country, which are excellent antiscorbutics, especially scurvy-grass. Some eat this herb raw, others make a decoction of it with milk; and in *Nordland*, where it grows very strong, and is called *erichs-græs*, they use it as a pickle in the winter.

In the east country, or on the other side of *Fine-field*, they hardly know any thing of these diseases which are common along the coast. The air in those parts, as has been observed before, is much purer, drier, and lighter, and as healthful as in any part of *Europe*.

*Appearances of the scurvy at Swednitz,  
Oswego, Quebec, and Crown Point.*

Since the second edition of this treatise was published, we find the scurvy to have made great devastation in different parts of the world.

In the years 1757 and 1758 the *Austrian* garrison in *Swednitz*, a fortress in *Silesia*, during a three months blockade, lost three thousand five hundred men; most of whom, if I am rightly informed, died of this disease.

If we turn our eyes to *America*, we shall behold this calamity still continuing to spread its baneful influence.

During the winter 1756, the unfortunate *English* garrison at *Oswego* was reduced by it to so great distress, that among seven hundred men, they often could not muster eighty fit for duty, a number scarce sufficient to protect them from the incursions of the *Indians*. With the utmost danger from those barbarians, and great difficulties on account of a deep snow, which then covered the country, they sought in the woods for pine tops, but in vain. Only a few were to be found, and those not of the proper *antiscorbutic* kind; so that two hundred of their men died of this disease.

Again, in the winter 1759, the troops in *America* suffered uncommon distress from this disease, as appears by the following extract of a letter from General *Murray*, commander in chief at *Quebec*, to his Majesty's secretary of state.

“ You will no doubt be pleased to observe, that the enemies attempts on our posts, and ours upon their's, all tended to the honour of his Majesty's arms, as they were always baffled, and we were constantly lucky. I wish I could say as much within the walls (of *Quebec*). The excessive coldness of the climate, and constant living on salt provisions, without any vegetables, introduced the scurvy among the troops, which getting the better of every precaution of the officer, and every remedy of the surgeon, became as universal as it was inveterate; inso-much, that before the end of *April* a thousand were dead, and above two thousand of what remained, totally unfit for any service.”

During this distress, some *Canadians* made known to the *English* the following remedy, viz. an infusion of the tops of what the *French* call *epinnete blanche* or *la prusse*, and the *English* the small leaved *white pine*, which exactly resembles the *hemlock pine* in *England*. These tops were first cut small, and then bruised in a mortar, and to each pound  
of

of them was put a gallon of warm water : the whole remained all night near a fire, a person being employed in stirring it often ; next morning the infusion was strained, and half a pint of it administered morning and evening to each patient, or from a quart to three pints were drank through the day. Mr. *Russel*, then surgeon general of that garrison, informed me that this infusion was of great benefit, and that orders were issued by the General for its being daily drank by the healthy by way of prevention, as well as by the sick ; this warm liquor, when applied as a fomentation to contracted limbs, or to scorbutic ulcers, with swelled and inflamed lips, gave much relief.

*Extract of a letter from Mr. Mabane, now surgeon-general to the troops at Quebec.*

*Quebec, 5th of May, 1761.*

“ In the winter 1759, I was ordered to  
“ *Crown Point* ; there, as in most of the  
“ frontiers of *Canada*, the scurvy prevailed.  
“ The severity of the cold, and hard duty,  
“ (as the centinels were numerous and  
“ doubled in the night) contributed as much  
“ as the salt provisions to the production of  
“ that distemper. The troops, during the  
“ preceding campaign, for common drink  
“ had spruce beer. *Lake Champlain* fre-  
“ quently afforded them fish, and they had  
“ what



“ what greens grew spontaneously, viz.  
 “ *brook-lime, plantane, &c.* Notwithstanding  
 “ this, the cold weather no sooner  
 “ began, than the scurvy appeared with  
 “ its usual symptoms, especially contracted  
 “ joints. In the latter end of *January*, a  
 “ quantity of onions and turnips were sent  
 “ us. The patients were put upon a regimen  
 “ of spruce beer and bread, and the  
 “ turnips tasting insipid when boiled, they  
 “ were chiefly eat raw, together with the  
 “ onions and vinegar. This *regimen* stopt  
 “ the progress of the disease, but did not  
 “ cure it. Nothing but the warmth of the  
 “ spring had that effect: those who before  
 “ could not walk, after a few days of warm  
 “ weather entirely recovered. Those who  
 “ had putrid gums and blotches recovered  
 “ more slowly, and required the assistance  
 “ of green vegetables.

*An uncommon appearance of the scurvy in  
 Hampshire.*

In the years 1759 and 1760, there was an uncommon appearance of the scurvy in *Hampshire*; whether it prevailed in the other counties of *England* at the same time, I cannot say. It first shewed itself at *Hasslar* hospital, in the month of *April* 1759, by a slight attack on such as were recovering from fevers. It continued all that summer  
 and

and autumn, until *December*, and the two following months, when it became much more universal and difficult of cure, and it was uncommon for a person long confined to bed to escape it. Men who had never been at sea, as well as sailors, who in several voyages to both *Indies* had never before been afflicted with it, were equally seized : many of whom had been for three weeks or a month in the hospital, living on excellent fresh beef, fops, and greens. I was at first alarmed with its appearance, and ordered broth with greens to be given to all the convalescents by way of prevention, as also to such as were in fevers, notwithstanding which several were attacked with it, though few died.

The disease raged at the same time among the *French* prisoners in the castles of *Colchester* and *Winchester*. Those prisoners had no fever, nor the appearance of any other distemper among them.

Doctor *Welch*, now an eminent physician at *Winchester*, then my colleague physician in *Haslar* hospital, observed several persons afflicted with this disease in different parts of *Hampshire*, and among others a gardener's wife, who was very ill of it, notwithstanding her using vegetables.

If it was not so generally remarked by the apothecaries in the country, it was owing to its being a disease little known. A slight  
attack

attack was not suspected to be the scurvy: and most people were unacquainted with the symptoms of the disease. It extended to ships lying at anchor at *Spithead*, as also to such as were hovering on the coast.

The *Jason* and *Deptford* were constantly employed as a convoy for merchant ships from *Plymouth* to the *Downs*, touching at *Portsmouth* in the passage. They were seldom above forty-eight hours at sea, and for twelve months their men had not eat any salted provisions oftener than once or twice in a fortnight; yet, notwithstanding the constant use of fresh beef and greens, the companies of both ships became greatly afflicted with the scurvy.

In *Haslar hospital*, the appearances of the disease were various. Such as had been long confined to bed, complained of excruciating pains in their limbs: as there was often no appearance of a hardness or swelling, those pains were sometimes judged to be the effect of the rheumatism. But, in six or seven days, an eruption of small, rough, miliary pimples on the fore-part of the leg, or the legs becoming of a livid hue, sometimes streaked, at other times quite red or black, shewed plainly the nature of the distemper. The gums were not always affected. When going to bed, seemingly in good health, men were surprized to find their thighs streaked with large livid and

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red

red stains. A few, who when in fevers had been blistered, complained of uncommon pain in the blistered parts, which were found altogether black for several inches round their circumference. The *cicatrices* of some old wounds, and the redness usual in those parts, where ulcers formerly had been seated, became also black. In one person an accidental slight scald by hot water falling on the foot, from a bright red changed in twenty-four hours to a dark colour, as if the part was mortified: but those seemingly frightful appearances were unattended with danger. Several who became *scorbutic* complained of their old hurts and bruises; upon examining the parts they were often found hard, discoloured, and very painful to the touch.

Several complained of extreme weakness and a pain of the back. Most of universal pains in the bones, chiefly of the legs and thighs, which were sometimes mitigated by an appearance of the red and livid blotches. Sometimes the nose, at other times the gums bled profusely. Such as died of fevers had their legs several days before death covered with scorbutic small spots, of a purple, red, or black colour. In a person who was dying of the flux, a large, hard, painful, scorbutic swelling arose during the night on the back of his hand. In another dying patient a livid and streaked swelling



formed itself on the inside of the arm below the elbow : the gums and legs of both being unaffected.

The distemper attacked some with a sudden lameness, while walking in the fields belonging to the hospital ; when they were brought into the house we often discovered a red stain or hardness about the ankle, or some other part of which they complained.

The gums of several bled, being sore and spongy, without their having any other symptom of the scurvy. One person was greatly alarmed with a spitting of blood for three days, which I found to be no more than the scurvy affecting his gums.

This disease having been very troublesome, but not fatal to above four persons in the hospital, lessened considerably in its frequency from *May* to *August* 1760. It seemed to disappear entirely in *October* and *November* at *Haslar*, as also at *Polchester* castle ; and, as I was informed, much about the same time at *Winchester*. When I was at *Winchester*, in *January* 1761, I did not see one man who had the scurvy among 4000 prisoners.

The account here given does not detract from the antiscorbutic qualities of green vegetables, as it is probable that without their assistance few of those patients would have recovered. And it may be well imagined, that either at sea or land, a dread-

ful mortality must have been the consequence, where vegetables, fruit, and wine, could not have been procured.

Some further particulars relative to this scurvy in *Haslar hospital* will be given in the Postscript.

In the months of *April* and *May* 1760, I saw above fifty patients labouring under the scurvy, in the hospital belonging to *Polchester*: and soon after received the following letter from Mr. *Lloyd*, surgeon to the *French* prisoners at *Winchester*, dated 24th *June* 1760.

“ The first patients, sent in the scurvy  
 “ from the castle of *Winchester* to the hos-  
 “ pital, were two in *February* 1759. A  
 “ few were admitted in the months of  
 “ *April, May, July, August, and December*  
 “ that year. But in *February* last, and since  
 “ that time, their number is greatly en-  
 “ creased, in all to between 3 and 400,  
 “ and the disease is not yet abated.

“ Young persons, as well as old; the  
 “ well cloathed and the naked are equally  
 “ seized. Many of them are landmen and  
 “ passengers, who had been at sea only for  
 “ a fortnight or three weeks, before they  
 “ were taken prisoners, and who never had  
 “ the like sickness before. How far the  
 “ diet might be instrumental in producing  
 “ the malady, you will judge by the fol-  
 “ lowing account of provisions allowed to  
 “ the

“ the prisoners, *viz.* Excellent soft bread,  
 “ one pound and an half; fresh beef, three  
 “ quarters of a pound; beer, a quart each  
 “ man per day; peas, half a pint four days  
 “ in the week; butter, four ounces, and  
 “ cheefe six ounces every other *Saturday*.  
 “ The prisoners in general were allowed  
 “ greens all last summer in place of peas,  
 “ till within two months of the time, that  
 “ those scorbutic complaints became so ge-  
 “ neral. They have four acres of a fine  
 “ green field, called the airing ground of  
 “ the prison, where they may walk and  
 “ amuse themselves.

“ I must observe, that the number of  
 “ patients in this disease encreasing very  
 “ fast, alarmed me greatly, and induced me  
 “ to make a particular enquiry into their  
 “ manner of living in the prison. I found  
 “ it was the practice of many, to sell their  
 “ beef and beer to the *English* centinels, so  
 “ that their diet was very low and poor.

“ They have the same symptoms as usual  
 “ in the scurvy at sea: the mouth and knees  
 “ are principally affected; and several have  
 “ uncommonly large excrescencies of putrid  
 “ flesh sprouting out from their gums.”

*A fatal scurvy in the East Indies.*

*Extract of a letter from the surgeon of the America ship of war, dated 11 Nov. 1762.*

*Manila, in the island of Luconia.*

“ Our long cruise in expectation of com-  
“ modore *Kepple*’s arrival, in order to the  
“ attack of the *French* settlements at *Bour-*  
“ *bon* and *Mauritius*, proved very fatal to  
“ our *East-India* squadron: having lost on  
“ our return to *Madras* eight or nine hun-  
“ dred brave fellows by an extraordinary  
“ species of scurvy. And, as the crew  
“ of the *America* was as much, if not more  
“ afflicted with it than any other ship, so I  
“ am enabled to furnish you with a more  
“ minute detail of the fatal and diversified  
“ symptoms of this calamity.

“ The disease most commonly began with  
“ a soft swelling of the legs, which as-  
“ cended to the thighs, enlarging them to  
“ an enormous size. This swelling after-  
“ wards extending itself to the belly and  
“ *scrotum*, gradually mounted up to the  
“ breast, and sometimes reached even to  
“ the head, so that all the cavities of the  
“ body being filled and distended with  
“ water, as well as the skin, the patients  
“ laboured under an universal dropsy, ac-  
“ com-



“ companied with fwelled, putrified gums,  
 “ a stiffness at the joints of the knees, livid  
 “ stains and scorbutic spots.

“ The patients had seldom any fever in  
 “ the first stage of the disease: but when  
 “ the swelling had once reached to the  
 “ belly, by its hindering the proper action  
 “ of the organs of respiration, a difficulty  
 “ of breathing and a smart fever came on,  
 “ especially towards the evening. And  
 “ when the breast became also affected,  
 “ which happened soon after the swelling  
 “ had reached the belly, the fever and diffi-  
 “ culty of breathing were both greatly en-  
 “ creased. At this time the patients could  
 “ by no means lie upon their backs: this  
 “ posture of the body exposing them to the  
 “ most imminent danger of being suffo-  
 “ cated.

“ An obstruction of the perspiration, and  
 “ a difficulty of making urine, occurred al-  
 “ most always at the commencement of the  
 “ disease, and were encreased as it advan-  
 “ ced to its height. The parts of genera-  
 “ tion were in almost every patient dis-  
 “ tended with water to a vast and enor-  
 “ mous size. I frequently by *tapping* emp-  
 “ tied them of three pints or two quarts  
 “ of water. This operation gave imme-  
 “ diate ease, though the relief was but of  
 “ short duration; for the disease, proceeding  
 “ from causes (afterwards to be mentioned)

“ which continued daily to enforce it, could  
“ not be cured, and was with difficulty  
“ palliated.

“ Some bore their affliction in the first  
“ stage with tolerable spirits, though their  
“ legs, thighs and belly were of an un-  
“ wieldy size, of a white shining colour,  
“ and when pressed with the finger, re-  
“ tained for a considerable time its impres-  
“ sion, of an inch and a half in depth.  
“ Their appetite was at length impaired,  
“ their thirst became violent, they com-  
“ plained of sharp pains in the bones of  
“ their legs and in their joints, as in the  
“ common scurvy, as also of an utter ina-  
“ bility to walk; an attempt to move four  
“ or five steps occasioning a want of breath,  
“ as they expressed it, and a faintness.

“ All medicines were here unavailing.  
“ In the first stage, gentle purges and diure-  
“ tics somewhat relieved their distress, and  
“ as the belly filled, it became absolutely  
“ necessary to administer *jalap*, and such  
“ like violent purges, at least twice a week,  
“ to prevent the patient from being suffo-  
“ cated by the water; as also diuretics in  
“ various forms, and we imagined *oxymel*  
“ of *squills* and *garlic* to be of some benefit.  
“ When the water had got into the breast,  
“ a short cough was a common symptom.  
“ Blisters were at this time of service, as  
“ likewise pretty deep scarifications of the  
“ legs

“ legs and thighs, together with setons put  
“ in the belly. A mortification seldom or  
“ never (which was pretty remarkable) was  
“ the consequence of any of those opera-  
“ tions.

“ But notwithstanding our utmost efforts,  
“ the disease always gained ground. The  
“ patient after its first attack seldom survived  
“ seven weeks, few lived longer, many  
“ expired in a shorter time. They all died  
“ of a suffocation from water, except those  
“ from whom the water was constantly  
“ drained off by the means before menti-  
“ oned; and they, after languishing for  
“ some time, expired at length when re-  
“ duced almost to perfect skeletons, all the  
“ fluids of their body having been quite  
“ exhausted.

“ By this dreadful calamity one third  
“ nearly of our number was cut off in the  
“ space of nine months, for out of 420  
“ men in our ship we buried 130 before  
“ we arrived at *Madrafs*, besides several  
“ others, who being in the last stage of  
“ their affliction, expired in the boats from  
“ the fatigue of endeavouring to get on  
“ shore at *Madrafs*, when the surf of the  
“ sea ran very high. However, upon  
“ landing our sick, most of them were soon  
“ reestablished in health by the use of vege-  
“ tables, lime juice, and syrup of garlic.

“ It was an unfortunate circumstance for  
“ us, that there was little lime juice in any

“ of the ships of the squadron. The island  
“ of *Diego Reys*, from whence we had  
“ sailed, afforded no limes, nor any ve-  
“ getables but a species of *wild purslain*,  
“ which grew in a salt marsh. Every cap-  
“ tain and surgeon, who had any lime  
“ juice, experienced great benefit from it  
“ in this disease. One of the captains, who  
“ had a quantity of sour beer, distributed it  
“ among the sick, which was of infinite  
“ service to them.

“ The causes of this fatal calamity were  
“ principally the sultry heat of the climate  
“ and bad provisions, *viz.* bread full of  
“ maggots, spoilt beef and pork, water full  
“ of vermin, and a very scanty allowance  
“ of that, and spoilt rice, which last even  
“ in its best state affords only a very poor  
“ and watery nourishment.”



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A  
T R E A T I S E  
ON THE  
S C U R V Y.

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P A R T III.

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C H A P. I.

*Passages in ancient authors, supposed to refer to the scurvy; together with the first accounts of it.*

**T**HIS distemper, in the *Latin* denominated *scorbutus*, is said to derive its appellation from *schorbeet* in the *Danish* language; or the old *Dutch* word *scorbeck*: both which signify a tearing or ulcers of the mouth. Most authors have deduced the term from the *Saxon* word *schor-bok*, a griping or tearing of the belly; which is by no means so usual a symptom of this disease; though, from a mistake in the etymology of the name, it has been accounted so by those authors. The word seems to me  
most

most naturally to be made out from *scorb* in the *Sclavonic* language, which signifies a *disease*; this being the endemic evil in *Russia*, and those northern countries, from whence we borrowed the name (*a*).

It is said to have been known and described by the ancient writers in physic under other denominations; and particularly by *Hippocrates*, as the εἰλεὸς αἱματώδης, or third species of *volvulus* (*b*). He says, those who labour under that disease, have a foetid breath, lax gums, and an hæmorrhage from the nose; ulcers sometimes on their legs, which heal up, while others break out anew. Their colour is black, their skin fine and thin; they are chearful, and prompt to action. He afterwards adds, that it was with difficulty cured and often accompanied the patient to his death. *Langius* was of opinion, that this contained a description of our modern scurvy. He imagined also the *lues venerea* to be nothing more than a complication of symptoms and diseases which had been before described by the antients; to prove which he wrote two of his epistles (*c*). *Foësius*, *Dodonæus*, and some others, would here willingly supply a defect, by putting in the particle &. This would

(*a*) *Vid. Hist. natural. Russiæ. Commenc. literar. Norimb. ann. 1733, p. 274.*

(*b*) *Lib. de intern. affectionibus. Edit. Foësi, t. 557.*

(*c*) *Epist. 13 et 14.*

would indeed quite alter the sense of *Hippocrates*, making the disease attended with an aversion to all sorts of exercise, as more agreeable to the true genius of the scurvy.

But the most prevailing opinion is, that, in different parts of his writings, *Hippocrates* has described the scurvy under the name of *Σπλῆν μέγας*, a swelling and obstruction of the spleen. After having told us (*d*), that an hæmorrhage from the nose, in persons otherwise seemingly healthy, presaged either a swelling of the spleen, pain in the head, or floating images before the eyes, he describes those with the swelling of their spleen, as having unsound gums, and a bad breath. If these symptoms did not appear, they then had ulcers on the legs, and black cicatrices. After mentioning some symptoms which give reason to expect an eruption of blood from the nose, he adds another sign of it, *viz.* a swelling under the eyelids; to which if there be joined a swelling of the feet, they would seem to labour under a dropsy. He treats of this disease in another place (*e*); where he takes no notice of the gums being affected, but only of the breath being offensive; the patient's losing colour, being lean, and having bad ulcers. The spleen felt hard, and always of an equal

(*d*) *Prorrhetic. lib. 2. p. 111.*

(*e*) *Lib. de affectionibus, p. 521.*

equal bigness, in those of a bilious habit of body; but in phlegmatic constitutions it was sometimes bigger, and sometimes less. Several received scarce any benefit from medicine, by which the swelling of their spleen was usually but little abated: and the disease not yielding to any remedies, some in progress of time fell into dropsies; while in others the hardness and swelling continued to old age. If it suppurated, they were cured by burning the part. He is elsewhere (*f*) still more particular in his description of that disease. In those who labour under it, the belly is first swelled, then the spleen is enlarged, and feels hard, with acute pain. They lose their colour; become black, or pale, of the hue of a pomegranate rind; emit a disagreeable smell from their ears and gums (the latter of which separate from the teeth); have ulcers on the legs, extenuated limbs, and are generally costive. He attributes those swellings (*g*) to the drinking of stagnating and unwholesome waters; where he describes the *lienosi* as thin, meagre, and extenuated by the disease.

The reader will hereby be enabled to judge, or better by consulting the original itself, how far *Hippocrates* has described the modern scurvy under the appellation of a  
*swelling*

(*f*) *Lib. de intern. affectionibus, p. 549.*

(*g*) *Lib. de aëre, aquis, et locis, p. 283.*



*swelling of the spleen.* It appears by several passages in his works, that he imagined the yellow jaundice to be owing to an obstruction of the liver, and the black to that of the spleen, especially to a *scirrhus* of it. An obstruction or hardness of the *spleen*, as well as some parts contiguous to it, which he might easily mistake for it, often occurs in practice; and is owing chiefly to such causes as he assigns (*b*), viz. malignant fevers, particularly of the intermittent kind; and, as he justly adds, is a disease not in itself mortal, though of tedious cure (*i*). But dissections have sufficiently proved, that in the scurvy the spleen is but seldom affected, or at least is not the cause or seat of the disease. Dr. Mead gives us an instance (*k*) of a preternatural swelling of the spleen found after death in a countryman of the island of *Sheppey*, who died with several symptoms of the scurvy. But it is to be remarked, the patient laboured under a complicated disease, especially a violent intermitting fever, which is often attended with obstructed *viscera*. That this disease was not known or described by *Hippocrates*, farther appears from his making

(*b*) *Lib. de intern. affection. p. 521.*

(*i*) This distemper is observed by my ingenious friend, Mr. Clegborn, to be one of those, to which the inhabitants of *Minorca* are subject, from their scarcity of well-water, and the frequency of tertian fevers in that island. *Observations on the epidemic diseases of Minorca, Introduction, p. 67.*

(*k*) *Monit. et præcept. medic. cap. 16. de scorbuto.*

making no mention of spots, an usual symptom in the scurvy, nor of many others which almost constantly attend it. Upon the whole, we may be persuaded, that had this immortal author seen the distemper, he, who studied nature with so much care, and copied her with so great exactness, would have left us a more accurate description of it. But the truth is, the warm southern climate in which he lived, was not then, nor is at this day usually productive of it: and the nature of the coasting voyages of the ancients gave him no opportunity of being acquainted with it at sea. So that there seems no occasion for paying him a compliment here; as it is not to be expected he should have hinted at, much less have described a disease, which in all probability he never saw nor heard of.

The succeeding *Greek* and *Roman* authors, are likewise upon this disease entirely silent. They copy from *Hippocrates* pretty nearly the account they give of the *lienosi*; without adding any one symptom which would induce us to believe, that either he meant, or they understood it to be the scurvy (1).

It

(1) *Celsus*, in his elegant manner, almost literally translates *Hippocrates*.

*Quibus sæpe ex naribus fluit sanguis, his aut lien tumet, aut capitis dolores sunt: quos sequitur, ut quædam ante oculos tanquam imagines obversentur. At quibus magni sunt lienes,*  
his

It also seems to have been a disease altogether unknown to the *Arabian* writers. They have made no mention of such a distemper in any part of their works; though *Avicenna* (*m*), the most considerable amongst them, has described the spleen-malady at great length, with the same symptoms as done by the *Greeks*.

Some who are extremely fond of attributing much to the knowledge of the sage ancients, would have it to be the same with the *oscedo* described by *Marcellus* (*n*). Dr. *Poupart* thought the malignant scurvy observed at *Paris*, had a resemblance to the *Athenian* plague, described by *Lucretius* (*o*). *Moellenbroek* imagined the servant of the centurian at *Capernaum* (*p*) to have had this distemper. But such opinions deserve no serious confutation.

It has, lastly, and with greater shew of reason, been esteemed the same disease which afflicted the *Roman* army under the command

U

mand

*bis gingivæ malæ sunt, et os olet, aut sanguis aliquâ parte prorumpit. Quorum si nihil evenit, necesse est in cruribus mala ulcera, et ex his nigræ cicatrices fiant.* Lib. 2. cap. 7.

*Ætius, tetrab. 3. serm. 3.*

*Paulus Ægineta, lib. 3. cap. 49.*

*Aretæus de causis et signis morborum, lib. 1. cap. 14.*

*Cæli Aureliani chronic. sive tardar. passion. lib. 3. cap. 4.*

(*m*) *Can. 3. fen. 15. tract. 2. cap. 5. de signis apostematum splenis.*

(*n*) *Lib. de medicamentis, cap. 2.*

(*o*) *Lib. 6. Vid. Thucydid.*

(*p*) *See Matth. viii. 5.*



mand of *Cæsar Germanicus*. In order to judge of which, it may be proper to transcribe the narration as it is in *Pliny* (q).

“ The *Roman* army under the command  
 “ of *Cæsar Germanicus* having incamped in  
 “ *Germany*, beyond the *Rhine*, near the sea-  
 “ coast, they met with a fountain of sweet  
 “ water ; by the drinking of which, in the  
 “ space of two years, the teeth dropt out,  
 “ and the joints of the knees became para-  
 “ lytic (r). The physicians called the  
 “ malady *stomacace* and *sceletyrbe*. They dis-  
 “ covered a remedy for it, viz. *herba Britan-*  
 “ *nica*, a salutary medicine not only in dis-  
 “ orders of the mouth and nerves, but for  
 “ the quinsy, bite of serpents,” &c.

The whole account seems pretty extraordinary. And I cannot help remarking, that the loss of their teeth, and of the use of their limbs, in two years after drinking this water; the extraordinary virtues ascribed to *herba Britannica*; and the romantic directions afterwards added of gathering it before thunder, favour much of the fabulous credulity for which this author is so justly blamed. But had a more credible historian given us this relation, it would still seem exceptionable, upon many accounts, as referring to the scurvy.

Those places beyond the *Rhine*, viz. the  
 northern

(q) *Histor. natural. lib. 25. cap. 3.*

(r) *Compages id genus solverentur.*



northern parts of the *Netherlands*, are now well known, and no such fountain has ever been discovered. No mention is made of scorbutic spots, which are more frequently observed than what has been here interpreted the *sceletyrbe*. This is supposed to refer to the rigid tendons in the ham. But his delineation by no means seems to express this peculiar symptom in the scurvy. It is understood by *Galen* (s), the only author who uses the appellation, to mean a species of palsy very different from the scorbutic contraction.

*Strabo* (t) mentions a like malady occasioned by the use of certain fruits, &c. to have afflicted the army under the command of *Ælius Gallus* in *Arabia*. But *stomacace* may refer to various other disorders of the mouth without supposing it to be the scurvy; as this calamity, when general in an army, occasioning the *sceletyrbe*, or depriving the soldiers of the use of their limbs, must needs have been attended with other concomitant symptoms, equally constant and remarkable in the disease (u). These would no doubt

U 2

have

(s) *In definition. medic. p. 265. tom. 2. Edit. Charterii.*

(t) Στομακάκη τε καὶ σκελοτυρβη πειραζομένης τῆς στρατῶς ἐπιχωρίοις πάθεσι, τῶν μὲν περὶ τὸ σῶμα, τῶν δὲ περὶ τὰ σκέλη παρὰ λυσὶν τινα δηλωντων, ἔκ τε τῶν ὑδρείων, καὶ τῶν βοτανῶν. *Strabon. geograph. lib. 16. sub finem.*

(u) I do not mean, that the scurvy never afflicted armies of old; but only that the accounts we have of it are dubious and imperfect. The first description of a true scurvy that

have been particularly described by the succeeding writers in physic, who had opportunity of seeing both *Pliny's* and *Strabo's* writings.

There would have been no occasion to have dwelt so long upon this inquiry (as it may appear a matter of no great importance, to be rightly informed whether this disease was known to the ancients or not) if a misplaced esteem for their works had not been productive of ill consequences in practice, and in the cure of this disease. Many, believing the spleen the seat of it, have directed their medicinal intentions to the relief of that bowel; while others have wrote whole volumes to discover the true *herba Britannica*, endued with such supposed miraculous virtues.

But as people are apt to run from one extreme to another, many not finding the disease in any description of the ancients, have supposed it a new calamity, making its appearance in the world, like the venereal disease, at a certain period of time (*w*); an opinion equally, if not more censurable than the former. For as there seems to have

that I have met with, is what occurred in the Christian army in *Ægypt*, about the year 1260, under *Lewis IX.* But there mention is made, not only of the legs being affected, but also of the spots. The fungous and putrid gums are particularly described, &c. *Vid. Histoire de Lewis IX. par le Sieur Joinville.*

(*w*) *Vid. Freund's History of physic.*

have been two reasons principally why it is so imperfectly, if at all, described by the ancients, *viz.* their little knowledge of the northern countries, where it is peculiarly endemic, and their short coasting-voyages; so we find, that as soon as arts and sciences began to be cultivated among those northern nations (about the beginning of the sixteenth century, a period remarkable for the advancement of learning over all *Europe*) this disease is mentioned by their historians and other authors. We could not have expected it sooner from their physicians, if we reflect upon their extreme ignorance, and the little esteem in which this science was held (*x*). But when, after the taking of *Constantinople*, the *Greek* writings were dispersed over the western parts of the world, and in the beginning of the next century were made more general and public by the late invention of printing, the art of physic began to flourish in the northern parts of *Europe*; and we soon after find this disease accurately described there by physicians.

In like manner, no sooner were long voyages performed to distant parts of the world, by the great improvement of navigation, and by the discovery of the *Indies*, which

U 3 happened

(*x*) *Vid. Olaus Magnum de medicina et medicis septentrionalibus.*

happened much about the same period of time, than the seamen were afflicted with it; as appears by the voyage of *Vasco de Gama*, who first found out a passage by the Cape of *Good Hope* to the *East-Indies*, in the year 1497; above a hundred of his men, out of the number of a hundred and sixty, dying of this distemper. In the relation of which voyage, the first account of this disease at sea is to be met with (*y*). At that time, and for a considerable time afterwards, it was a disease little known; as appears by the following narration.

*The second voyage of James Cartier to Newfoundland, by the grand bay up the river of Canada, ann. 1535 (z).*

“ In the month of *December*, we understood that the pestilence was come upon the people of *Stadacona* to such a degree, that before we knew of it, above fifty of them died. Whereupon we charged them neither to come near our forts, nor about our ships. Notwithstanding which, the said unknown sickness began to spread itself amongst us, after the strangest manner that ever was either heard of or seen; insomuch that some did lose all  
“ their

(*y*) See the history of the *Portuguese discoveries*, &c. by *Hermen Lops de Castaneda*.

(*z*) *Hakluit's collection of voyages*, vol. 3. p. 225.



“ their strength, and could not stand upon  
 “ their feet; then did their legs swell, their  
 “ sinews shrunk, and became as black as a  
 “ coal. Others had also their skin spotted  
 “ with spots of blood, of a purple colour.  
 “ It ascended up their ancles, knees, thighs,  
 “ shoulders, arms, and neck. Their mouth  
 “ became stinking; their gums so rotten,  
 “ that all the flesh came away, even to the  
 “ roots of their teeth; which last did also  
 “ almost all fall out. This infection spread  
 “ so about the middle of *February*, that of  
 “ a hundred and ten people, there were not  
 “ ten of us in health: so that one could  
 “ not help the other, a most horrible and  
 “ pitiful case! Eight were already dead;  
 “ and more than fifty seemingly past all  
 “ hopes of recovery. This malady being  
 “ unknown to us, the body of one of our  
 “ men was opened (*a*), to see if by any  
 “ means possible the occasion of it might  
 “ be discovered, and the rest of us preserved.  
 “ But in such a manner did the  
 “ calamity increase, that there were not  
 “ now above three sound men left. Twenty-five of our best men died; and all the  
 “ rest were so ill, that we thought they  
 “ would never recover again: when it  
 “ pleased God to cast his pitiful eye upon  
 “ us, and send us the knowledge of a remedy for our health and recovery.

U 4

“ Our

(*a*) See the dissection, Part 2. chap. 7. N<sup>o</sup> 2.

“ Our Captain considering the deplorable condition of his people, one day  
 “ went out of the fort, and walking upon  
 “ the ice, he saw a troop of people coming  
 “ from *Stadacona*. Among those was *Domagaia*, who not above ten or twelve days  
 “ before laboured under this disease; having his knees swelled as big as a child’s  
 “ head of two years old, his sinews shrunk,  
 “ his teeth spoilt, and his gums rotten and  
 “ stinking. The Captain, upon seeing  
 “ him now in perfect health, was marvelous glad, hoping to know of him how  
 “ he had cured himself. The *Indian* acquainted him, that he had taken the juice  
 “ of the leaves of a certain tree, a singular  
 “ remedy in this disease. The tree in their  
 “ language is called *ameda*, or *banneda* (*b*);  
 “ by a decoction of the bark and leaves of  
 “ which, they were all perfectly recovered  
 “ in a short time.”

Of the colony sent over from *France*, under the Lord of *Roberval*, there died in the winter fifty in this disease (*c*). We have some time afterwards the following farther account of it.

(*b*) See Part 2. chap. 4. p. 179.

(*c*) *Ann.* 1542. See *Hakluyt*, vol. 3. p. 240.

Nova Francia ; or, *A description of that part of New France which is one continent with Virginia ; in three late voyages and plantations, made by Messieurs de Monts, du Pontgrave, and de Poutrincourt (d), published by L'Escabot, ann. 1604.*

“ Briefly, the unknown sicknesses like to  
 “ those described by *James Cartier*, attack-  
 “ ed us. As to remedies, there were none  
 “ to be found. In the mean while, the  
 “ poor creatures did languish, pining away  
 “ by little for want of meats to sustain the  
 “ stomach ; which could not receive hard  
 “ food, by reason of a rotten flesh which  
 “ grew and over-abounded within their  
 “ mouths; and when one thought to root  
 “ it out, it grew again in one night’s space  
 “ more abundantly than before. As to the  
 “ tree called *amedá*, mentioned by the said  
 “ *Cartier*, the savages of these lands know  
 “ it not (e). It was most pitiful to be-  
 “ hold every one (very few excepted) in  
 “ this great misery, and the miserable  
 “ wretches dying, as it were full of life,  
 “ without any possibility of being succoured.  
 “ Thirty-six died ; and thirty-six or forty  
 “ more afflicted with it, recovered them-  
 “ selves by the help of the spring, so soon  
 “ as

(d) Collection of voyages and travels, compiled from the library of the late Lord Oxford, vol. 3. p. 808.

(e) The Indian nation at *Stadacona* by this time had been cut off,

“ as that comfortable season appeared. The  
 “ deadly season is the end of *January*, the  
 “ months of *February* and *March* ; where-  
 “ in the sick die most commonly, every  
 “ one in his turn, according to the time they  
 “ begin to be ill ; so that he who is taken  
 “ ill in *February* and *March*, may escape ;  
 “ but those who betake themselves to bed  
 “ in *December* and *January*, are in danger  
 “ of dying in *February*, *March*, or the  
 “ beginning of *April*. Which time being  
 “ past, there are hopes and assurances of  
 “ safety. *Monf. de Monts* being returned  
 “ into *France*, consulted the Doctors of  
 “ physic upon this sickness ; which in my  
 “ opinion, they found quite new, and al-  
 “ together unknown to them ; for I do not  
 “ find, that when we went away, our apo-  
 “ thecary was charged with any order or  
 “ directions for the cure thereof.”

The author of this relation afterwards  
 observes it to be the scurvy, a malady to  
 which the northern nations, the *Dutch*, &c.  
 are very subject ; and upon this occasion,  
 quoting a passage from *Olaus Magnus*, says,  
 “ I have delighted myself to recite the  
 “ words of this author, because he speaketh  
 “ thereof as being skilled, and has well de-  
 “ scribed the land disease of *New France* ;  
 “ only he maketh no mention of the stiff-  
 “ ness of the hams, nor of the superfluous  
 “ flesh which groweth in the mouth.” He  
 further



further observes, that the savages use frequent sweatings for cure of this malady; and that a singular preservative against it is contentment, mirth, and a chearful disposition of mind; as it commonly attacked the discontented, idle, and repining. But the last and most sovereign remedy, was the *amedá*, mentioned by *Cartier*, which he calls the *tree of life*. This *Monfieur Champlein*, who was then up the country, had orders to search for among the *Indians*, and to lay up a store of it for the preservation of their colony.

The name of the disease is said to be in the history of *Saxony*, written by *Albert Krantz*; and if so, I believe he will be found the first author now extant who calls it the scurvy (*f*). It is next taken notice of by *Euritius Cordus* in his *Botanologicon*, published *ann.* 1534. It is observed that the herb *chelidonium minus*, or lesser celandine, is called by the *Saxons* *schorbockrout*, being an excellent remedy for that disease. Being asked, what disease this is? it is replied, It would seem to

(*f*) He brings down his history to the year 1501. According to *Melchior Adams*, and *Chevreau* in his history of the world, he died *ann.* 1517. I own I could not find it in the edition which I perused: but it is said so by *Wierus*, *Schenkius* in his observations, and others; unless they have mistaken him (which could not be *Wierus's* case) for *Geo. Fabricius*, an author who flourished about the year 1570, and who mentions, in his *Annales urbis Misnæ*, a disease breaking out in the year 1486, *viz.* the scurvy; which he very imperfectly describes.

to be the *stomacace* of *Pliny*; as it occasions the teeth to drop out, and all the mouth is affected by it. In the year 1539, it is mentioned in the same manner by *Jo. Agricola* in his *Medicina berbaria*. *Olaus Magnus*, in his history of the northern nations, published ann. 1555, observing what diseases are peculiar to them, gives us a long description of the scurvy (g). *Jodochus Lomius* does the same in the year 1560 (h).

Soon

(g) *Est et alius morbus castrensis, qui vexat obsessos et inclusos, talis, viz. ut membra carnosæ, stupiditate quadam densata, et subcutaneo tabo, quasi cera liquecens, digitorum impressioni cedant; dentesque, veluti casuros, stupefacit; colores cutium candidos reddit cæruleos; torporemque inducit, cum medicinarum capiendarum nausea; vocaturque vulgari gentis lingua schoerbuck; Græcè, cachexia, forsitan à subcutanea mollitie putrescente: quæ videtur esu salforum ciborum, nec digestorum, nasci, et frigidâ murorum exhalatione foveri. Sed vim tantam non habebit, ubi muri interiùs tabulis quorumcunque lignorum sunt cooperti. Insuper, si diutius grassetur iste morbus, absinthiaci potu continuato illum arcere solent. Lib. 16. cap. 51. Viribus, primis annis, demum (milite stragibus continuis diminuto) artibus, dolis, et insidiis, obsidentium surripiunt commeatum, præsertim pecudes; quas secum abductas, in herbosis domorum testis pascendas imponunt; ne, defectu carniùm recentiorum, morbum incurrant, quibusvis ægritudinibus tristiores, patriâ linguâ schorbuk nuncupatum; hoc est, saucium stomachum, diris cruciatibus et diuturno dolore tabefactum. Frigidi enim et indigesti cibi avidius sumpti, morbum hujusmodi causare videntur, qualem medici cachexiam universionalem appellant. Lib. 9. cap. 38.*

(h) *Interdum bilis atra, ita pestilens fit corruptione, ut cum in corpus extra lienem diffunditur, plane ejus habitum universum corrumpat. Id vitium his signis se prodit os ipseque spiritus male olet, gingivæ vitiantur, sulci vidæque, & nonnunquam subatræ reduntur, ac digito, vel aliter pressæ, atrum cruerem exittant: eadem sic laxæ sunt, ut a dentibus discedant.*

Soon after we find three eminent physicians, all cotemporary, treating expressly of this distemper, *viz.* *Ronssseus*, *Echthius*, and *Wierus*. To whom *Langius* may be added as a fourth, having wrote two epistles upon this subject. What is called *Echthius's Epitome*, was the first wrote, though the last published. It would appear from *Forrestus (b)*, to be a letter sent, in the year 1541, to *Blienburchius*, a physician at *Utrecht*; whose answer is now lost. The first book published expressly upon the scurvy was by *Ronssseus*, in the form of an epistle. The year is uncertain, as he afterwards corrected, and reprinted it in a different form. He is so modest as to say, that had he first seen *Wierus's* accurate observations, he would

*discedant facileque eos, vel omnes interdum eximere liceat. Aliquis etiam capiti, itemque præcordiis dolor est, urgetque cibi fastidium: crescente morbo, hæc quoque crescent, & maculæ quædam lividæ, tanquam vestigia sugillationum, variis corporis locis efflorescunt, in brachiis, scilicet, in coxis, in cruribus, sæpeque per universi corporis cutem, adeo ut, hæc quasi arquato videatur fædata. Inter hæc magna imbecillitas oritur, præcipueque in cruribus, quorum impotentes compages fiunt. Nonnullis, ac potissimum junioribus, crebro sanguis e naribus fertur: quod ni fiat, in cruribus hæ maculæ, quas dixi, & interdum ulcera fiunt. Is morbus Batavis, aliisque populis, qui humiliora, atque palustria loca incolunt, frequens est, utique si his quoque alimenta crassæ, duræque materiæ sumuntur. Rarissimus siccis regionibus, atque editioribus. Omnem ætatem, quolibet anni tempore, nullo discrimine impetit. Senibus tamen gravior, sed frequentior juvenibus esse creditur: quibusdam tamen locis frequentissimus pueris est: idemque autumnino, atque vere maxime recrudesceat.*

Lib. 2. *Observ. Medicinal.* p. 130.

(b) *Observ. medic. lib. 20. obs. 11.*

would not have published any thing upon the subject. There is an edition of *Ronsseus* put down by *Mercklin* (i) and *Lipenius* (k), in the year 1564; and of *Wierus*'s observations in 1567. The learned Dr. *Astruc* (l) is of opinion, that these last were not published till 1580. It is thus far certain, that those authors corresponded together; and upon *Wierus* sending to *Ronsseus* *Echthius*'s letter, now called his *Epitome*, he published it, together with his own work, *Wierus*'s observations, and two of *Langius*'s epistles, in the year 1583.

## C H A P. II.

*Bibliotheca scorbutica : or, A chronological view of what has hitherto been published on the scurvy.*

A. D. 1541. *Joan. Echthii de scorbuto, vel scorbutica passione, epitome.*

He proposes it as a question, Whether the blood in the scurvy may not be corrupted, without the spleen or any other of the bowels being affected? but is inclined to think the spleen often is. He assigns as causes of this disease, gross and unwholesome

(i) *Linden. renovat.*

(k) *Bibliotheca real. medic.*

(l) *Lib. de morbis venereis.*



some food, such as salted, dried, or putrid flesh and fish, rancid pork, spoilt bread, bad water, &c. He distinguishes the symptoms into two classes. The first contains such as appear at the beginning, and are common to it with other diseases; the second, the succeeding and more certain signs of the malady. Under the first, he comprehends a heaviness of the body, with an unusual weariness, generally most sensibly felt after exercise; a tightness of the breast, and a weakness of the legs; an itching, redness, and pain of the gums; a change of colour in the face to a darkish hue: and observes, that where all these symptoms concur, we may foretel an approaching scurvy.

But the more certain signs he enumerates under the second class, *viz.* a foetid breath, a spongy swelling of the gums, which are apt to bleed, with a loosening of the teeth; an eruption of leaden coloured, purple, or livid spots, on the legs; or of somewhat broader ones variegated or of a dark colour sometimes on the face, at other times on the legs. As the disease advances, the patients lose the use of their legs, and are subject to a difficulty of breathing, particularly when moved, or when they sit in an erect posture; at which times they are apt to faint: but upon being laid down again, they recover, and breathe freely; nay, when lying down they think themselves in perfect

perfect health. But as they cannot always thus continue without some motion, they are subject to these perpetual faintings. The appetite is seldom bad; on the contrary, they generally have a good one. There is sometimes observed an aggravation of the symptoms; with some on the fourth or fifth day, in others on the third. Some few have it every day, but without any fever: others become feverish. Fevers may terminate critically, as it were, in the scurvy: and with such scurvies whole families and monasteries are infected; which generally end either in a fatal dysentery, or, at other times, in a sudden and irrecoverable fainting. During the course of this disease, some are apt to be very costive; while others have a continual purging. Sometimes their spotted legs swell so monstrously, as to resemble the *leprosy* of the *Arabians*; while others have them so extenuated, that the bones seem only covered with skin. The spots of some separate into black and dusky scales, like the leprosy of the *Greeks*; while in others they remain soft, smooth, and shining; and the impression of the finger continues for some time upon the part. After death the spots sometimes disappear; at other times, they break out afresh. Lastly, There have been observed varicose swellings of the veins, particularly in those under the tongue, and of the lower lip.

He afterwards delivers the indications of cure, without giving us any remedies. And it may not be improper to remark, that this is the first description now extant of the scurvy by a physician.

1560. *Jo. Langii medicinalium epistolar. miscellan. lib. 3. epist. 13. de novis morbis; epist. 14. de veterum stomachacia et sceletyrbe, et morbi Gallici tuberibus.*

These two epistles were reprinted by *Ronſſeus*, in order to prove the scurvy to have been a disease known to the ancients.

1564. *Balduini Ronſſei de magnis Hippocratis lienibus, Pliniiquæ stomachace ac sceletyrbe, seu vulgò dicto scorbuto, commentarius. Ejusdem epistolæ quinque ejusdem argumenti.*

He ascribes the frequency of the scurvy in *Holland*, to the diet and air of that country; to their eating great quantities of water-fowl; but principally to their living on flesh, first salted, then smoaked and dried. The weather, he says, had a very great influence upon this distemper. For though it occurred in these provinces at all seasons; yet, by long observation and experience, he had found, that a moist air, and southerly winds, contributed greatly to increase it: and instances in the year 1556, when, during that whole year, they had almost continual rains, with southerly and westerly

X

winds;



winds; which were followed by a great frequency of this disease; and to such a height, that many were brought in danger of their lives by it. In 1562, after a very rainy season, there likewise ensued frequent and very troublesome scurvies. So that although this disease was at all times common in *Holland*, from the peculiar air of the country, and the bad waters; yet it often became more general during a moist season. It usually prevailed most in spring and autumn; was milder in the spring, and shorter: but in the autumn, it was of longer continuance, and more obstinate, so as sometimes to endanger the life of the patient. No age was exempted from its attack; which, though severest with old people, yet was more incident to those of a middle age.

From a mistaken theory in judging it a disease of the spleen, he begins the cure by bleeding. He afterwards prescribes a decoction of a number of antiscorbutic herbs, with the addition of *sena*, and some other purgative ingredients: but observing, that the more simple compositions were generally the most efficacious, he thinks, that the use of scurvy-grass, wormwood, and germander, is alone sufficient; the vulgar curing themselves by scurvy-grass, brooklime, and water-creffes. At the end of the cure, he gives gentle physic; forbidding all rough and acrid medicines, especially violent purgatives; till towards the decline of



the malady, when the patient is able to bear them. For twelve years past, he had used with great success, both for prevention and cure, a tincture, in spirit of wine, of fumitory, scurvy-grass, wormwood, and small germander, or herbs of the like virtue. The spirit was extremely well impregnated by repeated infusions of the fresh plants, and the body kept moderately lax during the cure.

He observes that much depends on the diet. Scorbutic patients must abstain from all kinds of sea and water fowls; from pork, and salt meats. Their drink should be wormwood and germander wine by turns. He prescribes a gargarism with alum and honey for the putrid gums; and orders the rigid tendons in the ham, after friction, to be anointed with cowfeet jelly. He gives several remedies for scorbutic ulcers on the legs. To prevent the disease he recommends gentle physic in the autumn; but especially the use of a slight infusion of wormwood in ale or wine: by which (with the help of a diet of easy digestion, the benefit of good air, and dry lodgings) he has known the scurvy often not only prevented, but cured.

In his first epistle, he accounts for the frequency of this distemper in some places more than in others; from their different soils, climates, and weather, and especially

from the quality of the waters they used; observing that, universally, in marshy countries, people were most afflicted with the scurvy: though their diet and other circumstances were alike with others. In his second epistle, he maintains, that this distemper was known to the ancients, against the opinion of *Wierus*; and remarks, that seamen in long voyages cure themselves of it by the use of oranges. In his third epistle, he recommends the steel and mineral waters.

1567. *Jo. Wieri medicarum observationum hætenus incognitarum lib. 1. de scorbuto.*

He transcribes all the symptoms out of *Echthius* at great length, with the following additions. The weakness in the legs felt at the approach of the disease, is attended with stiffness and pain. The flesh of the gums is often destroyed to the roots of the teeth. Small spots, resembling blood sprinkled upon the part, appear on the legs, thighs, and on the whole body; but the very large, livid, and purple spots, chiefly on the legs. Sometimes this livid colour will shew itself in the back part of the mouth of those who are near death. In the progress of the disease, the tendons of the legs become stiff and contracted. Some are seized with a slow irregular fever. After violent malignant fevers, and double tertian agues imperfectly cured, he has known the

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scurvy

curvy to follow ; upon which a malignant quartan ensued. This still left the scurvy behind it ; which was at last cured by proper medicines. When the legs are greatly swelled, they are sometimes altogether of a livid colour. The pulse, as in a quartan ague, varies : so that at different times, and according to the state of the disease, it is small, hard, quick, or weak. The urine is reddish, turbid, thick, and muddy, like new red wine, resembling that which is usual in the fit of a quartan ague when sweating ; and of a bad smell. He adds afterwards, that if ulcers break out on the legs they are with great difficulty healed up ; being extremely foetid, and of so *putrid* and *gangrenous* a nature, that the application of a hot iron to them occasions little pain.

He assigns as causes of this distemper, unwholesome air, such bad and corrupt food as was used in the northern countries, and by their seamen, *viz.* stinking pork, smoaked rancid bacon, mouldy bread, thick muddy ale, bad water ; melancholy and grief of mind, preceding fevers, the stoppage of usual evacuations, &c.

Though he sometimes bleeds in the beginning, yet he forbids it when the disease is advanced. In this case, after purging with a little *sena* or the like (observing that it does not bear violent purgatives) the patient is

to be sweated twice a-day, *viz.* in the morning, and at four after noon, with a draught of four ounces of the expresseed juices of the antiscorbutic herbs; *viz.* scurvy-grass, water-creffes, winter-creffes, or rocket, of each equal parts, with half the quantity of brook-lime; adding a little cinnamon and sugar. The proportion of the different ingredients may be diminished or increased, according to the constitution of the patient, state of the disease, and heat of the body. He would have the herbs always fresh and green when used; and they may sometimes be boiled in goats or cows milk, or rather in whey: but their juice mixed with whey, is preferable to their decoction. He sometimes adds common wormwood, fumitory, small germander, and, in certain cases, moneywort. To people who are fond of a medley of medicines, he gives a long list of all the antiscorbutic and aperient herbs, roots, seeds, &c. to which later authors have made but a small addition; and remarks, that he generally made successful cures by a proper use of a few of these plants. He understood many had been cured by a decoction of wormwood and juniper berries in whey, to which a little saffron was added (*a*). After giving some other

(*a*) R. *Abfinth. vulg. sec. bacc. juniper. contus. ana manip. i. lactis caprin. lib. iv.* Coque ad tertiæ partis consumptionem. A drachm of saffron is to be infused in the strained decoction, and a warm draught taken three times a day.



other cures usual in his time for this distemper, he observes, that there is nothing specific in the common antiscorbutic herbs, as they are called; but that all acrid plants which incide and attenuate, as also many aperient roots, and warm seeds, are highly serviceable. At the same time, a diet of easy digestion, and of similar intention, must be used, with good sound ale or wine with wormwood infused in it, or milk and whey. Care must be taken to procure dry chearful lodgings, and to banish grief, cares, &c.

He afterwards subjoins various topical applications for the different symptoms (*b*). In his appendix, he particularly recommends whey for the cure of this disease; and gives a description, at great length, of scurvy-grass, and some other antiscorbutic herbs.

1581. *Remberti Dodonæi praxeos medic. lib. 2. cap. 62. Ejusdem medicinalium observationum exempl. rar. cap. 33. de scorbuto.*

He ascribes the scurvy chiefly to bad diet. He relates, that it was occasioned in *Brabant*, ann. 1556, by the use of some corrupted rye

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brought

(*b*) For the putrid gums, *R. sal. mar. alum. ana dr. ii. aq. font. lib. i. M. Bulliant simul.* The people of *Friesland* use the following. *R. acet. cerevis. lib. ii. bol. armen. unc. ss. alumin. dr. ii. mellis unc. iii. M. Bulliant simul.* The *Saxons* add to the former, *herba sabina*. If the putrefaction is very great, *ung. Ægyptiac.* or *alum. ust.* mixed with honey, may be used; or it is to be stopped by touching with *ole. vitriol.*

brought from *Prussia* during a scarcity of corn. At this time many had not the spots; but their gums were chiefly affected. He gives an instance, however, of its being contracted in a prison, where confinement alone was the cause; the place being well aired, and the diet such as he thought could give no suspicion of its proceeding from thence. He never bled any patient in this disease, but the person in the prison, who had signs of a *plethora*. He generally performed a cure by the use of a few herbs, *viz.* water and garden cresses, scurvy-grass, and brooklime; which last he esteems of inferior virtues to the others. These he thinks sufficient to remove the scurvy, if, at the same time, proper diet is used, especially well-baked wheat-bread. He sometimes gives a gentle purgative at first, and repeats it occasionally: but if the disease is far advanced, purges are not without great caution to be administered. When only the gums were affected, he has cured these often by topical applications. The large livid scorbutic spots like bruises, are oftner seen on the lower extremities than on the arms. If the disease is very virulent, and not removed, the *hypochondria* will also become livid; and the patient in this case be seized with violent gripes, and die.

1589. *De scorbuto propositiones de quibus disputatum est publicè Rostochii, sub Henrico Brucæo.*

The scurvy is endemic in particular countries, from their situation, air, water, and food. In those countries, scorbutic mothers bear scorbutic children, often miscarry, at other times bring forth dead fœtuses. He mentions no other symptom, but what is taken notice of by *Wierus*; except a pain sometimes in the right, at other times in the left side, attended with a sense of weight. Upon the malady's increasing, the belly swells, and grows also painful; with an entire loss of appetite. In his theory of the disease, he supposes, that either the liver, or spleen, sometimes both, but oftner the spleen, was obstructed; although it was seldom found scirrhus. He afterwards says, there is often no swelling or obstruction in any of those parts; though, from the quality of the scorbutic humour, produced by improper and gross food, it was natural to expect the spleen might be affected. When the scurvy is very inveterate, it degenerates into the *hypochondriac* disease; a distemper frequent among the inhabitants on the shores of the *Baltic*. It is sometimes complicated with other diseases, *viz.* the dropsy, consumption, and a bilious purging; at other times there is a slow continual fever, and sometimes a tertian ague.

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His cure consists in diet and medicines. For the first he directs well baked wheat-bread; broth of flesh or fowls, with radish, hyssop, thyme, savory, or the like herbs boiled in it. He allows all sorts of flesh or fowl (except water-fowls) that are of easy digestion, and afford good nourishment. Whatever is dried, salted, smoaked, long kept, and rancid, or of difficult digestion, is to be avoided. Milk is proper for those who are far gone in scorbutic consumptions.

At table the antiscorbutic herbs are to be used by way of salad; and for drink good *Rhenish* wine, or sound beer with worm-wood infused in it. After a moderate bleeding (if the patient be full of blood) and a gentle purge, scurvy-grass, brook-lime, water-crelles, and the roots of horse-radish are to be boiled in milk, and administered to the patient; or their juices may be given mixed with whey, adding worm-wood or mint, if the stomach be weak, sorrel or fumitory if the patient be of a hot constitution, and a fever apprehended, or the roots of elecampane, and the herb hyssop when the breathing is affected. If the patient be of a cold habit, has swelled legs, and the spots are black, the juices are best given in wine, with cinnamon or ginger: or he may take an infusion of horse-radish in *Rhenish*. The author likewise recommends the sweating course from *Wierus*,  
parti-



particularly the laconic or dry bath, when the scurvy appears on the external habit or skin. The body is to be kept open by gentle phyfic, given in goat-whey, repeated every day, or every other day, during the cure. This method, together with the diet before recommended, will effectually remove the scurvy. For lax and bleeding gums, he orders the pickle of olives ; but in his other receipts transcribes from *Wierus*.

*De scorbuto tractatus duo ; auctore Balthazaro Brunero.*

He has copied *Wierus* in most things ; but is more explicit and full in describing the air productive of the disease. Thus, if the atmosphere of any place is impure, and polluted with exhalations that are gross, moist, putrid, or liable to putrefaction, it causes this distemper ; as in marshy, damp, and maritime countries ; or places where stagnating waters are left after inundations. To which also rainy seasons contribute a great deal, especially where the sun has not influence sufficient to raise and dissipate the vapours. To the diet observed by other writers to occasion the scurvy, he adds black coarse bread ; and observes, that the pernicious effects of such diet and air are considerably augmented, by immoderate watchings, depressing passions of the mind, and stoppage of the natural and usual evacuations.

tions. Foreigners by way of prevention from this disease, when in the air of *Saxony*, take plenty of mustard-feed, finding the good effects of it by experience, together with gentle astringents (*c*).

*Brunerus* has but one singular observation on this disease, *viz.* He has often remarked, that violent pains in the legs preceded the scurvy, and that the spots and putrefaction of the gums followed soon after. These pains are chiefly about the ancles and joints; on the fore-part of the legs and soles of the feet; sometimes in other parts of the body; attended with a sense of heat and pricking betwixt the skin and flesh. If they continue long, and especially if they become most severe in the night, and do not yield to medicines, and are exasperated by oily and greasy applications, it is a certain sign of a future scurvy. These pains cease

(*c*) He describes the symptoms and cure in the same manner as *Wierus*; only, by a typographical error, the *deliquium animi* is said to occur when the patient sweats; having *sudat* instead of *sedet* (when he sits up). The whole is taken from *Wierus*; who immediately adds, *de-cumbens respirat facilius, reficiturque*. It may be proper to note another mistake, which he and many other authors have fallen into, in transcribing a medicine from *Wierus* for phagedenic ulcers of the gums. It is the following. *R. mercur. sublimat. scr. ii. alum. ust. dr. ii. fs. aa plantagin. lib. i. M.* But as this author, in his observations, wrote in *Dutch*, had called the first medicine simply *sublimate*, after the manner of the chemists, by which he meant mercury; his translator into *Latin* unluckily here put in *arsenic*, making it to be *arsenici sublimat. scr. ii.*; in which dangerous mistake many have followed him.

cease upon an eruption of the spots, which are generally very large. In this case, warm steams, discutient fomentations and cataplasms, must only be used, and, if possible, a sweat procured upon the parts. He concludes with the case of a scorbutic patient; whom he first purged, then ordered the juice of water-cresses in goat-whey; of which six ounces were taken twice a-day; and, by sweating him, a number of scorbutic spots appeared, by which a violent pain in the thigh was allayed.

1593. *Scorbuti historia proposita in publicum; à Solomone Alberto, &c.*

He is of opinion, that the disease may be hereditary, or got from an infected nurse, and that it is contagious; but adds nothing to the description of symptoms of it as delivered by *Wierus*, unless it be a stiffness or *rigor* of the lower jaw, seemingly from a contraction of the *temporal muscle*; in the same manner as the *tendons* in the ham become stiff and contracted in the progress of the disease, as had been observed by all authors. He says, it is most usual in children, and in either a hereditary scurvy, or that which is got from the nurse.

He treats of the diet proper in this disease at great length: recommends the juices of acid and austere fruits, such as oranges, with which roast meats when on the spit are

to be sprinkled. These are likewise to be put in loops, and vinegar and wine in the gruels and barley-water. Exercise is necessary.

In full habits he begins the cure with bleeding, but observes that when the disease is advanced, especially if the spots have appeared, it is extremely improper. In this case, if there is an obstruction of the *menfes* or *hæmorrhoids*, those evacuations are by all means to be promoted; which will be of great service, though they may not prove a cure; having seen women regular after child-bed, yet over-run with the scurvy. He prescribes very gentle physic, observing the danger of giving violent purgatives; then gives a long catalogue of aperient and deobstruent medicines (*d*). He remarked, scurvies were very frequent in that and the preceding year, from the unconstant weather and very rainy seasons they had after warm summers.

(*d*) He says, whatever incides, deterges, and attenuates gross, viscid, and fæculent humours, is proper, in order to their being prepared and fitted for evacuation by any of the outlets of the body. For this purpose, in a particular manner, the common antiscorbutics, *viz.* *cochlearia*, *nasturtium*, and *becabunga*, are adapted; being such whose virtues have been approved by long experience. To these he afterwards adds other herbs under the denomination of *hepatic*, *splenic*, and *thoracic*; from an imagined property in them to remove obstructions, and relieve and strengthen particular parts and bowels. When by these means all obstructions are removed, and the morbid humour, the immediate cause of the disease, is sufficiently  
attenuated



1595. *Petri Foreſti obſervationum et curationum medicinalium lib. 20. obſ. 11. de ſcorbuto malo cognoscendo et curando ; obſ. 12. ibid. de quinque ægris à ſcorbuto curatis.*

This is a long letter which the author wrote firſt to his brother in the year 1558, and afterwards ſent to his two nephews ſtudents in phyſic, *ann. 1590.* He ſeems to have been acquainted with no other authors upon this ſubject than *Ronſſeus* and *Eckthius*. The laſt he copies in deſcribing the ſymptoms ; all which he confirms and illuſtrates by various caſes of patients. He makes it a diſeaſe unknown to the ancients, though, according to his theory, a diſorder of the ſpleen. It was indeed ſo little known in his time, that many died of it (particularly one *Martin Dorpius*, a clergyman at *Louvain*) to the great ſurpriſe of the phyſicians, who were intirely unacquainted with the very name of the diſeaſe, its nature, or proper method of cure. He mentions likewise one *Saſbotus*, a counſellor at the *Hague*, who laboured under a violent ſcurvy ; and

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attenuated and prepared, he obſerves nature itſelf will throw it out of the body, either by the kidneys or ſkin. It is the buſineſs only of art, to further her intention, by giving diuretics if it tends to the kidneys ; having particularly remarked, that, by a flow of urine, the diſorders of the breaſt in this diſeaſe were moſt effectually relieved : or by taking diaphoretics and ſudorifics internally, at the ſame time ſweating in ſtoves and in baths moiſt and dry ; as it is often diſſipated by inſenſible perſpiration, at other times by profuſe ſweats. The dregs of the diſeaſe evacuated this way, have been obſerved to foul the very ſkin.

was given over by his physicians, when an *Amsterdam* physician discovered the disease and cured him ; observing, that the *Hague* doctors did not know this distemper so well as those who resided at *Amsterdam*, or as he did who lived at *Alcmaer*, where they became well acquainted with the scurvy by seeing it among the seamen. This last patient the counsellor being subject to a relapse at times, our author prescribed for him the juices of brooklime and scurvy-grass boiled into a syrup with sugar ; which effectually prevented the distemper. And this medicine, going under the name of *syr. sceletyrb. Foresti*, became afterwards universally famous, and continued in repute for a considerable time, over all *Flanders*, *Brabant*, and *Holland*, for the cure of the scurvy. It was principally used in the winter-season, when the green plants could not be procured. He indeed very ingenuously owns, that physicians were first made acquainted with those remedies by the vulgar ; they having only a more elegant method of administering them.

He illustrates the several intentions of cure at great length in the case of a sailor at *Alcmaer*, who fell into the scurvy after an autumnal quartan ague, which had continued seven months. This person told our author, he had formerly the same disease at sea, in a voyage to *Spain* ; and that it was  
very

very common among the *Dutch* sailors, who generally recovered by change of air, and the use of a wormwood-ale. But he had been quite cured of it before he had the ague. Upon this occasion, *Forestus* observes, he has known many fall into the scurvy after such intermitting fevers. This patient had laboured under a great difficulty of breathing, and had lost the use of his limbs; his left knee, and whole leg, being swelled, hard, spotted, and so stiff, that he could not walk, or even move it: his gums were swelled and bled frequently. The physicians and surgeons said, he was poxed; but when the author saw him, he found it to be the scurvy. It was indeed a complicated case; the fever having left behind it a hectic disposition, with obstructed bowels.

*Forestus*, who has had great practice in this disease, says, the distinguishing marks of it are, an oppression on the breast; weakness and pain of the legs; redness, pain, and itching in the gums; with an alteration of colour in the face. However, in the beginning it is not so easily known; being sometimes slow in its progress, and having the above-mentioned symptoms, together with a lassitude after exercise, common to it with other diseases. But where all those signs appear together, he thinks it the

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beginning of the diſtemper, or at leaſt that an approaching ſcurvy may then be foretold: though he ſometimes hesitates for a little time; till, in the progreſs of the diſtemper, the violence of thoſe ſymptoms be increaſed; and the foetid breath, ſpongy bleeding gums, looſe teeth, and purple and livid ſpots upon the legs, &c. confirm his former judgment of the diſeaſe. He recites the ſymptoms from *Echthius's* epitome; adding, almoſt after each, inſtances of patients in whom they occurred. In particular, after the remarkable proneneſs to faint in the height of the diſeaſe, he adds that he has known ſeveral drop down dead ſuddenly; as happened to a magiſtrate he mentions, who had a *Haerlem* phyſician to attend him, who ſaid he had the venereal diſeaſe; the ignorant in thoſe days pronouncing all extraordinary and unknown diſeaſes to be the *lues venerea*. However, this gentleman's ſon, labouring under the ſame diſtemper, was cured by our author. He recommends butter-milk when the patient is inclinable to be hecitic: but where there was no fever, he cured many by milk, in which ſcurvy-graſs and brooklime were boiled. Theſe obſervations, although extremely tedious, are valuable for the many truly ſcorbutic caſes they contain.



1600. *Hieronymi Reusneri diexodicarum exercitationum liber de scorbuto.*

This voluminous author, remarkable only for his theory, describes the scurvy, in its different stages, altogether in the same manner as the authors before him ; with the addition of the following symptoms. A bleeding at the nose, which he says is usual even in the beginning of the disease ; as likewise a continual spitting. Some have a pain at the mouth of the stomach, and there is a want of appetite ; or at least if they long for food, it is rather hurtful to them. He observes, that scorbutical women are subject to the *fluor albus*, and *menfes discolorés*. The urine is for the most part thin, pale, and watery, without any sediment, and of a fœtid smell. The pulse is low, weak, slow, and irregular. He is extremely prolix on the cure. But it were to be wished, that the many chemical and galenical remedies recommended, had been proved serviceable by experience, rather than by being agreeable to his theory.

1604. *De morbo scorbuto liber ; cum observationibus quibusdam, brevique et succincta cujusque curationis indicatione. Auctore Severino Eugaleno.*

This book must have been published by the author in a very loose immethodical

dress ; as it has undergone several corrections by different editors ; and the order of the whole is still very inaccurate. *Jos. Stubendorphius* published it in the year 1615, with great alterations : and *Brendel*, Professor of Medicine at *Jena*, ann. 1623, again corrected it ; and with great labour has classed the different symptoms, or rather species of this disease, into different sections, making in all forty-nine in number. They will admit of several subdivisions ; and comprehend a catalogue of almost all distempers incident to the human body. There are here also fifty prognostics, with thirty generally diagnostics of the scurvy ; besides the particular diagnostics of each symptom, or rather disease, by which it is known to be scorbutic. But as I have elsewhere animadverted at great length upon this book, it may be sufficient here only to repeat, that the merit of the author has always been supposed to consist in his great sagacity in detecting this deceitful disease lurking under so many different forms. This he tells us was his professed design in writing. So that the description of the symptoms makes up the greatest part of his performance. In the beginning of it, he assigns the same causes of the scurvy as *Wierus* had done much more accurately before him ; and to this author likewise he recommends us for the cure. The first five

pages (as far as § 4.) contain what he has copied from other authors : but the rest of the treatise may, with great propriety, be deemed entirely new, and his own.

The symptoms are as follow. I. Putrid gums. II. Blackish, purple, and livid spots. III. Malignant ulcers. Acquainting us that these are obvious signs, known even to the vulgar, he observes, that the disease often proves fatal before they appear ; and therefore he proceeds without stopping long here, to other symptoms equally characteristical and demonstrative of the scurvy. But before we go any farther, it will be necessary to transcribe that peculiar state of urine and pulse which he so often refers to in his account of the following symptoms, and which was with him the most certain signs of the disease.

He says, the urine of those who labour under this disease varies extremely, according to the habit of the body, the different nature of the disease, and of the putrescent humour. If there be only a slight putrefaction, and the disease but beginning, the urine is sometimes of a citron colour, and thin ; at other times thick and white. But such appearances of the urine discover nothing certain concerning the scurvy. As the distemper increases, it becomes sometimes thin, and of an intense red colour, inclining to a livid hue. If the patient

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passes

passes this urine when seemingly in perfect health, having little or no thirst, it is a certain sign of the scurvy. Frequently the urine appears thick, red, and manifestly livid; it either remains thus thick, or deposits a thick red heavy sediment like bran or sand, having besides for the most part a thick turbid matter suspended a-top: such likewise is a demonstrative sign of the disease, provided the patient languishes, without any thirst or fever. Of some the urine is thick, white, and turbid; and deposits several roundish whitish particles like sand, without becoming any clearer. The urine of those who live irregularly, is in some thick, black, and turbid; in others blackish, with an obscure paleness; and these persons have a violent thirst while they pass such urine. After those long accounts, he adds in another place, that where there is no fever, nor putrefaction of the humours, thick, white, and turbid urine, having a white roundish heavy sediment, like sand or brick-dust, is the most undoubted sign of the scurvy. The pulse peculiar to this disease, is quick and small, but particularly unequal.

We now proceed to transcribe the other symptoms. And the IV. is a difficulty of breathing; known to be scorbutic, 1<sup>st</sup>, By the part affected; which is under the diaphragm, at the orifice of the stomach. 2<sup>dly</sup>,

By



By the complaint. It is a great and uneasy straitness and oppression not easily expressed. *3dly*, By its remission and intermission; though sometimes it is almost continual. *4thly*, By its having none of the symptoms which usually follow disorders of the breast, *viz.* cough, pain, *orthopnœa*, &c.

V. Vomitings, retchings; and even the *cholera morbus*. A vomiting is known to be scorbutic, *1st*, By not yielding to the common medicines, and those prescribed by the ancients in this disorder; on the contrary, the patient becomes worse after using them. *2dly*, Its sudden unaccountable remission, and equally unexpected return. *3dly*, Its seizing without any previous pain, disorder of the stomach, or a distemper described by the ancients. The retchings are very violent, without bringing up much from the stomach. But the most certain proofs are had from the urine and pulse. VI. A looseness, or costiveness of the belly. VII. A bastard dysentery; known to be scorbutic by want of gripes, the blood not being mixed with the *fæces*, but chiefly by the pulse and urine,

VIII. Irregular fevers. IX. Intermitting fevers. X. Continual fevers. Under these he comprehends most species of fevers, *viz.* slow, putrid, remitting, and intermitting, of all kinds. They are all ascertained to be scorbutic, by the oppression in the breast,

not agreeing in type with those of the ancients, &c. but more infallibly by the pulse and urine. The first, though strong and hard during the fever, upon its remission returns again to its peculiar, small, and unequal state.

XI. Fainting-fits. XII. Pains of the legs. XIII. A pain in the hands, and ends of the fingers. This is known to proceed from the scurvy by the pulse. XIV. A pain in the neck. XV. Pains in almost every part of the body, *viz.* the teeth, jaws, back, &c.; burning pains in the kidneys, head, arms, &c. XVI. The bastard pleurisy; discovered in a girl to be scorbutic, by the smallness and inequality of the pulse; the intermission of the pain; and being free from cough but at times; by the urine, and her having no thirst, and breathing without pain. But the intermission of the pain, and its returning at intervals, are sufficient to distinguish this from the true pleurisy. XVII. Violent colic pains; easily known when scorbutic, by their intermission, the urine, and pulse. He gives two instances of ruptures occasioned by the acuteness of these pains. XVIII. Hard tumours similar to those in the pox, *viz.* in the groin, and other glandular parts of the body; or in any other part, as in the interstices of the muscles, &c. They often arise from *varices* or a dilatation of the veins. These give no pain.

pain while the patient is at rest, and the part kept easy; but upon walking, or hanging the legs, they become so very painful as to occasion fainting. Sometimes the whole body is covered with such tubercles.

XIX. Weakness of the legs upon walking.

XX. Retraction of the heel backwards towards the ham; known when occasioned by the scurvy, from the pulse alone.

XXI. Troublesome prickings in the soles of the feet, next day followed with a palsy of the lower extremities.

XXII. A palsy of the legs; distinguished from palsies described in ancient authors, by differences very equivocal, and too long here to mention.

XXIII. A *hemiplegia*.

XXIV. Weakness of the whole nervous system.

XXV. A colic ending in a palsy.

XXVI. A convulsion or contraction of the members, gradually coming on.

XXVII. The epilepsy is known when scorbutic, by the pulse and urine;

as likewise, *1<sup>st</sup>*, By its attack accompanied with a fever. *2<sup>dly</sup>*, Its sudden attack, and

equally sudden remission. *3<sup>dly</sup>*, Its proceeding from no cause assigned by the an-

cients.

XXVIII. An apoplexy.

XXIX. Convulsion of a particular part.

XXX. The gout; known to proceed from the scur-

vy, by not being fixed, but shifting from one joint to another; and its being quickly

cured by antiscorbutic medicines.

XXXI. The dropsy; requiring quite a different

method

method of cure from that described by the ancients; and is easily distinguished from it, by the difficulty of breathing becoming much worse after purgatives. The difficulty of breathing is at all times greater, even in the beginning; with extreme anxiety under the diaphragm. XXXII. The encysted dropfy. Before this is fixed in any particular place, it causes a momentaneous swelling as it were, in different parts of the body; which most commonly happens upon change from a pure to a thicker air, or to those who use gross food; otherwise the legs swell first, then the whole body is covered with a hard and unequal swelling, and with various indolent tubercles, &c. XXXIII. The scorbutic atrophy; which can be cured only by antiscorbutics. It is known by the patient's languishing, without having any disease described by the ancients; by the pulse, urine, and frequent anxieties; but especially by spots on the body. XXXIV. Ulcers and gangrene of the toes. XXXV. Ulcers on different parts of the body, cancers, &c. XXXVI. Pestilential fevers, and tumours; distinguished from the true plague, generally by the mildness of the symptoms, but more easily by the pulse, and sometimes by the urine. XXXVII. A mortification, either with or without ulceration. XXXVIII. The scorbutic *erysipelas*; known by the pulse, urine, and



and shifting its place. XXXIX. Madness, and the memory impaired. These two more rarely occur, being not so demonstrative symptoms of the scurvy as many of the preceding. XL. *Carus* and a profound sleeping. XLI. A salivation. XLII. A *languor*, without any evident cause. XLIII. A disorder like to a *languor*. XLIV. Copious sweats, the forerunner of an atrophy. XLV. A cutting or tearing pain in the accession of fevers. XLVI. tossing or concussion of the limbs, being a mixture of a paralytic and convulsive disorder. XLVII. *Tremor* of the limbs. It is known to be scorbutic by the pulse alone. XLVIII. Ulcers of the *penis*. XLIX. Dry ulcers. The book is concluded with seventy-two observations, containing a variety of cases in these diseases.

1608. *Felicis Plateri praxeos medicæ lib. 3. cap. 4. de defædatione*. Under which title, he treats of the *lues venerea*, *scorbutica*, and *elephantica*.

He seems not to have seen *Eugalenus's* book, or at least has copied nothing from it: for he still gives the same description of the scurvy, as *Wierus*, and all other authors preceding *Eugalenus*, have done. He, however, takes notice of one symptom not mentioned by them, *viz.* tumours, sometimes indolent, at other times more painful, resembling

resembling a scrophulous gland. These are seated either on the glandular parts of the body, or in the interstices of the muscles. The sweat of scorbutic persons is foetid; their urine red and turbid; their pulse feeble; as had been observed by all others before *Eugalenus*. He seems inclined to believe, that, like the *lues venerea*, the scurvy might have been brought from abroad, especially by sailors. It sometimes produces convulsions and palsies; and may end in an atrophy, consumption, dropsy, or dysentery. He recommends for prevention, as also cure, a confection of mustard-seed and honey; as likewise the juice of oranges. This last is to be used as an application to the putrid gums; as also *sal. prunell.* dissolved in a proper liquor. The patient may be sweated with *decoct. lignorum*.

1608. *Relaxao do Viage de Don Sebastiao Vizcaino, &c.* or the Voyage of *Don Sebastian Vizcaino*, performed in the year 1602, to the western coast of *California*, with two large ships and a frigate.

It will not be foreign to the purpose, to mention here the sickness which raged among the squadron, being the same, which in these parts generally seizes on those who are coming from *China* to *New Spain*, and which proves so fatal as to sweep off half the

the ship's company. In this latitude the air is very sharp and cold, which pierces those of weak constitutions, and perhaps of a pestilential nature; unless we suppose that its great subtilty is sufficient to cause such a disease in bodies attenuated by fatigues. Its first symptom is an universal pain all over the body; which now becomes so tender, as not to bear the least touch; and sometimes this will extort tears and cries from the most resolute men. After this, the body, especially the lower parts, is covered with purple spots, larger, and more prominent, than grains of mustard-seed: the next symptom is blotches of the same colour, two fingers broad. They appear first under the hams, and spread from the middle of the thigh to the flexure of the knee, rendering the parts so rigid, that the legs resemble petrifications, it being impossible to move them in the least from that posture in which this symptom seized them. The patients swell so prodigiously, that they cannot be moved from the one side to the other, without extreme torture. And these stains extend themselves so, that the calf of the leg and thigh becomes wholly livid; and thus the morbid humour pervades the whole body, and seizes the shoulders in particular, more than any other part, causing, at the same time, excruciating pains in the loins and kidneys. Nor  
is

is the least ease to be expected from change of place, as the slightest motion is attended with such severe pains; that they must be very fond of life; who would not willingly lay it down on the first appearance of so terrible a distemper. This virulent humour makes such ravages on the body, that it is entirely covered with ulcers; and the poor patients are unable to bear the least pressure, even the very cloaths laid on them deprives them of life. Thus they lay groaning, and incapable of any relief. For the greatest assistance possible to be given them, if I may be allowed the expression, is not to touch them, nor even the bed cloaths. These effects, however melancholy, are not the only produced by this pestilential humour. In many, the gums both of the upper and lower jaw, are swelled both within and without, to such a degree, that the teeth cannot touch one another; and withal so loose and bare, that they shake with the least motion of the head; and some of the patients spit their teeth out with the saliva. Thus they were unable to receive any food but liquids, as gruel, broth, milk of almonds, and the like. This gradually brought on such a weakness, that they died whilst talking with their friends.

Such was the distemper with which all were afflicted; which removed numbers from this world to the mansions of eternity.

When



When the ship *Capitana*, on her return came to us on this coast, her condition was truly deplorable; all the people on board, the general, and three soldiers excepted, labouring under the above mentioned disease, and it was with great pain that the father commissary went about administering the sacrament to the sick. As for father *Antonio de la Ascension*, he was not able to stir; and the disease was so excruciating, that nothing was heard in the ship but cries and lamentations. Some, by way of ease, made loud complaints, others lamented their sins with the deepest contrition; some died talking; some sleeping; some eating; some whilst sitting up in their beds.

The sight of so many fellow adventurers lying dead, together with the cries, groans, and lamentation of the afflicted, would have moved the most obdurate breast, and Providence was pleased to inspire hearts, which before were strangers to every humane and tender sentiment, with such fervent benevolence, that those in health attended the sick, and performed all services to them with as much diligence and care, as if every one had only a single patient. The religious, especially father *Thomas de Aquino*, foreseeing these terrible extremities, had, at *Acapulco*, provided themselves with cordials and preserves, which were all reserved for this day of affliction; and doubtless  
many

many owed their recovery to the prudence and liberality of the fathers in the distribution of them.

From what has been said, some idea may be formed of the condition of the *Capitana*, at their arrival in this harbour: we shall therefore only add, that by the distemper above described, they were helpless and sick, covered with ulcers, and their gums so swelled, that they could neither speak nor eat: and the malignity of the distemper such, that none thought of ever being restored to perfect health. Nothing was heard in the ship at her arrival here, but cries and passionate invocations of heaven. However, in 19 days, all of them recovered their health and strength; so that when they departed, the sails were loosed, the ship worked, and every part of the duty performed as in the preceding year, when they visited this harbour on their passage. Such salutary effects had the fresh provisions, fruits, &c. sent on board by the general; the eating of a fruit which abounds in these islands, and by the natives called *Xocobuiltzles*, was also of very great service. It resembles an apple; the leaves of the tree are exactly like those of the pine-apple; and the fruit grows in clusters, like that of the cypress: it is also nearly of the shape of the cypress nut: the rind or shell is yellow; and the pulp like that of a white tuna, with seeds something larger

larger than those of the tuna. It has a very pleasing taste, and tartish sweetness. This fruit is endued with such virtue, that it cleansed and relieved the gums, fastened the teeth; and after eating twice of it, the mouth would be cleansed so as to eat any other kind of food without pain. The use of this fruit was discovered in the following manner: some soldiers going up the island, with the Father Commissary to a burial, *Antonio Luis*, the officer, seeing the fruit, from a curiosity of being acquainted with the products of the soil, plucked one, and began, though with extreme pain in his teeth and gums, to bite it; and finding it of an exquisite taste, he eat the whole; and immediately voided from his mouth a great quantity of purulent blood: and on putting the other to his mouth, he found that the pain in his teeth was much less, and he could chew it with great ease. On his return to the ship, he related the happy effects of this fruit; and distributed some among his friends, who all found the same pleasing consequences, which induced them to go ashore, and gather a great quantity for the relief of others. So that, on the general's return, he found many, whom he despaired of seeing again, able to eat the fresh provisions continually brought to them. These were the only means by which, within 19 days, they perfectly recovered

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from



from such a dreadful and fatal distemper. This fruit is the chief subsistence of the *Indian* warriors of the provinces of *Acaponeta* and *Chametla*, which lie within the government of *New Galicia*: But their general way is to roast or boil it, as more wholesome and palatable.

1609. *Gregor. Horstii tractatus de scorbuto.*

This author is in many places seemingly inconsistent with himself; having first followed *Forestus*, then *Eugalenus*, in his description of the disease; concluding with a diet, regimen, and cure, transcribed chiefly out of *Albertus*. The disposing causes are, thick foul air, and gross viscid food; both which, as productive of the scurvy, he pretty well describes. He observes, that though in the *Lower Saxony*, and *Old Marche* of *Brandenburgh*, it was a disease generally very well known; yet in some places it was a more uncommon and slighter disease than in others; being most frequent and dangerous where the inhabitants used thick unwholesome new ale, and where the soil was marshy and damp. So that the year before, when he practised in the *Old Marche*, he found it extremely frequent at *Soltquell*; but much less so in the neighbouring country. In that place, besides using the same gross food as other northern countries do, the situation was very marshy;



and they drank thick new ale without hops, which had undergone no fermentation or depuration. He recommends spirit of *vitriol* given along with other antiscorbutic remedies; and has perhaps nothing else new on the disease, but theory.

*Matthæi Martini de scorbuto commentatio.*

He copies entirely from *Eugalenus* his description of the scurvy, adding some new symptoms first mentioned by himself; such as a swelling of the eyes, frequent darkness over them; virulent ulcers in the throat; such variety of pains in all parts of the body as cannot be expressed, *viz.* tensive, pulling, pricking, biting, corroding, gnawing, &c. on the muscles, membranes, and nerves. These are not only severest in the night (as is most commonly the case) but afflict likewise in the evening, morning, and through the day. The pains may all with great certainty be known to proceed from the scurvy, by the smallness and inequality of the pulse. Even pains peculiar to each part, are rendered wonderfully anomalous by the scurvy. This disease is nearly allied to the plague; as it occasions carbuncles, buboes, cancers, &c. Most tertian vernal agues are scorbutic. A sudden and unaccountable loosening and fastening of the teeth alternately; large fissures in the lips, closing in a most surprising manner after drinking, are symptoms

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toms of the scurvy. Here *Eugalenus* is every where an oracle; his whole book being transcribed, and digested into a much more methodical order, with the addition of some things from *Wierus*, *Albertus*, &c.

1624. *Dan. Sennerti tractatus de scorbuto. Ejusdem practicæ medicinæ lib. 3. part 5.*

He has transcribed from *Eugalenus* and *Martinus* all that they have said on the disease; which, together with his theory, makes up the greatest part of his book. What he calls his own new and uncommon observations, are as follow. One is the case of a student, who, upon the disappearance of an itch, was seized with a *gutta serena*, difficulty of breathing, and tightness of the breast. He recovered his sight by the use of some purgative medicines, and diuretics of the antiscorbutic kind. The other, a boy of twelve years of age, who had also the itch; and it being repelled by an improper unction, he lost his sight, and afterwards died epileptic. The author having often remarked, after an itch in such a manner injudiciously treated, pains and prickings in the breast to ensue, with pleurifies; and likewise tertian and quartan fevers, which were removed upon the appearance of the eruption, but returned again upon its disappearing; from thence he concludes the

ſcorbutic humour combined with the itch, to have produced thoſe ſurpriſing ſymptoms.

He then proceeds to ſtill more uncommon and remarkable ſymptoms of the ſcurvy; and, upon the teſtimony of *Doringius*, relates caſes of a jaundice ending in a dropſy; an aſthma; a *tinea*, covering not only the whole ſcalp, but the forehead; a *herpes* or ringworm of the left arm; a gangrene in the fore-finger; a hæmorrhage from the lips, no conſpicuous orifice of a vein being diſcovered; a palpitatiſon of the heart; burning and intolerable pain in the ſoles of the feet, with livid ſpots on the legs; and a running of putrid and purulent matter from the *uterus*. *Timoth. Ulicus* obſerved not only the knees, but the whole body, as it were, contracted; with an excreeſcence of fleſh from the eyes. In ſome, though leſs frequently, upon each motion of their joints, a noiſe was plainly heard as from broken bones, or like the crackling of nuts. Where there was a dropſy, in a night's time the whole teeth became looſe, ſo that the patient was in danger of loſing them all; but next day they were found firm in their ſockets. In a patient, where no ſpots could be made to appear, even by the help of medicines, upon forcing a ſweat, the fleſhy part of the arm was ſeized with a ſenſe of heat and burning, as if drops of boiling water had been thrown upon it; mean while nothing was to be ſeen appearing outwardly. A



widow labouring under a continual fever, had her whole body covered with large black spots; her face resembling in colour the skin of smoked bacon when boiled. From all which he concludes, such is the strange variety of diseases and symptoms occasioned by the scurvy, that not only the vulgar, but even a physician unacquainted with the distemper, would be greatly amazed, and might believe the person to have died of poison. He very ingeniously, however, accounts for them all, according to his own *hypothesis*; making up sixty-two symptoms, by adding several to what are mentioned by *Eugalenus*, viz. blindness; a stench of the body; a stoppage of the *menfes* in women; in place of which they have a white acrid saltish running, apt to infect men: and men from this disease are rendered unfit for generation, by having a watery vitiated *semen*. He is very prolix on the cure; and abounds with almost all the prescriptions given by preceding authors, together with what he learned from other persons (*e*). He recommends steel where there is not the convenience of mineral waters; but forbids the use of vinegar in this disease.

(*e*) Where there is a heat of the body, or fever, he uses the cooling antiscorbutics, viz. *cichoreum*, *endivia*, *acetosa*, *acetosella*, *succ. citri*, *aurantior. limon. sp. salis*, *vitriol. vel sulphur*.



1626. *Arnoldi Weickardi thesaur. pharmaceutic. galeno-chemic. sive tract. practic. &c. lib. 3. cap. 5. de stomacace, seu scorbuto.*

This author, although usually ranked among the number of writers on the scurvy, has nothing new upon it. He makes no mention of the symptoms. His cure consists in bleeding, purging, and afterwards sweating the patient, and in administering the common antiscorbutic medicines in very improper forms; all transcribed from other authors.

1627. *Frederic Vander Mye, de morbis et symptomatibus popularibus Bredanis, tempore obsidionis, et eorum immutationibus pro anni victusque diversitate, &c. tractatus duo.*

How far the passions and dispositions of the mind contribute to the production and cure of diseases, and how much their symptoms and appearances are diversified by different seasons and by different food, nowhere more clearly appeared than in the siege of *Breda*. We here saw the progress of the plague, scurvy, and such like diseases, increased upon the report spread of bad news, but in a manner altogether checked by the arrival of joyful tidings. We here beheld some apparently relieved, many perfectly cured, by their faith in imaginary remedies. Grief and fear greatly injure the human body, and in a particular man-

ner give strength and vigour to the plague and scurvy.

But we proceed to relate the order in which these diseases occurred, and the influence of the various causes which gave rise and diversity to their appearances. The preceding summer being very warm and dry, produced inflammatory fevers, pains of the side and breast, and fore-throats of a mild nature. Soon after this the plague was brought hither by infection from *Holland*. In the autumn the weather was cloudy and rainy, with southerly winds; the winter also proved wet and open, the season being windy though mild. Here the author very minutely describes the influence of such a state of weather, concurring with the various incidents of joy and grief, hope and despair, in diversifying the symptoms of that dreadful calamity, and in encreasing or abating the mortality of it. But as such remarks are foreign to our purpose, we shall only observe, that in the end of winter a frost came on, and put an entire stop to the plague. An universal joy now prevailed, occasioned by the daily arrival of messengers encouraging the besieged with the hopes of a speedy relief, and by their own army being already in sight. But these hopes were soon baffled, the attempts of the *Dutch* army proving fruitless. Scarcity of provisions encreasing in the town, and as the frost went off the moist and unwholesome vapours  
from

from the lakes, added to a damp cloudy rainy *equinox*, produced a new calamity.

The appearance of livid spots on the body, occasioned at first a general consternation. The surgeons who were ignorant, declared the plague to have broken out again ; but upon a closer examination, it was found to be the scurvy. This disease seemed to absorb all others ; so that for six weeks there was no talk of any other distemper in the town. The calamity became great and universal ; few escaped it ; many deprived of all motion, wasting away by piece-meal, toothless and starved, as not being able to chew their food, died in a most piteous condition.

The scurvy proceeded from grief and disappointment, as also from unwholesome food. The States of *Holland* had taken care to provide this city for a siege, with rye, cheese, and dried fish. The cheese and fish had at times been renewed, but their stock of rye had been in store for thirty years, and was become quite spoiled and musty. Being altogether improper for baking, it was mixed up with other grain, and all who eat of it soon began to be attacked with the scurvy. Eating of the old cheese, which was rotten, as also of dogs and horse-flesh, but particularly the wetness of the season, contributed much to the production of the distemper: the air which the soldiers breathed, and the houses where  
they



they lay, being extremely damp. They also lay together, so received it by infection; for the disease proves infectious when persons use the same improper food, and breathe the same impure air.

In some the gums were rotten; in others spots only appeared on the body, especially in such as had discharges of blood, which sometimes prevented, at other times diminished the swelling of the gums. The spots were chiefly upon the legs. They were also to be seen upon the back, arms, breast, neck, as likewise upon the face, even when the gums continued sound; chiefly in such as took care to preserve their teeth, and were continually washing their mouth with astringent compositions of salt, alum, and the like. At first the spots were red, then became purple, afterwards livid, and last of all quite black. The livid spots were very dangerous, but the black still more malignant and fatal. A few of the eruptions put on the appearance of a *St. Anthony's Fire*, and the *cuticle* afterwards fell off in scales. In most patients the skin was of a purple hue. An enervated, heavy and languid body, without having any complaint of real sickness, and a foetid breath, were symptoms common to all. The knees became afflicted with violent pains at times.

The tendons of the posterior muscles of  
the



the thigh turned as rigid and hard as a piece of wood, so that the leg being bent altogether back to the buttock, it became quite immovable; and of the joint in the knee, there remained no vestige. Exquisite pains were felt along the course of the *sciatic* nerve, and in the deep-seated joint of the thigh bone. Some expired suddenly and unexpectedly when at their meals; especially those who had been troubled with palpitations of the heart. The heart itself is greatly affected in the scurvy with palpitations, tremors, frequent stoppage of its motion, a frequent and great oppression, and a defect of natural heat; hence a redundancy of watery and excrementitious humours in the whole body passing off by profuse spitting, urine, and foetid sweats. In many the gums grew up to such a pitch as to bury the whole teeth, and sometimes part of the cheek bone dropped off. In this case the misery was intolerable, though the pains gave some little relief by short intermissions; the gangrenous flesh of the gums not having been speedily removed; the taint had spread and preyed upon the bone. The disease was seldom accompanied with a fever, but frequently with a flux. Where there was a fever, it was generally slow and irregular. We observed one or two of these fevers somewhat to resemble the plague. The mouth was dry, though the patient had but little

little inclination to drink; the pulse was small and irregular; there were frequent retchings and at times an unspeakable uneasiness in the breast; hard, black, crusty abscesses appeared on the legs, the anguish of which occasioned often a pain, seldom a tumour in the groin. But fevers at this time were very uncommon.

Of those who were afflicted with the flux, few escaped, and that with great difficulty. They afterwards became bloated, relaxed and dropfical. Watery swellings of the testicles were frequent. The unhappy patients took a dislike to drugs, and were apparently injured by the operation of violent purges. Some died early in the disease, *viz.* those who had seldom any evacuation of blood by the nose or stool and seemed from the beginning indolent, dispirited, and blown up as it were with wind. Their stools were greasy, foetid, and of various colours, but not frequent. The blood drawn from the veins appeared livid, was foetid and thick, but did not coagulate. The discharges by stool in this disease were indeed commonly watery and greasy, but a flux did not relieve the disease. When there were acute pains of the belly, intestines, and stomach, in this case little hopes of life remained, by reason of the intenseness of the pains, the strength of the patient having been exhausted by the violence of the distemper.

stemper. In a word, whether the disease was protracted to a longer or shorter period, most died with an inward indisposition in the belly; the flux proving rather a distinguishing sign of the scurvy than a critical and salutary discharge.

It was observed before, that the scurvy broke out about the equinox, and it quickly encreased to an almost incredible degree. On the 20th of *March*, 1625, an account was taken of the number of patients, and there were found 1608 soldiers labouring under it. The sick were ordered to be classed into three divisions; for the superintendence of each of which a physician, an apothecary, and two surgeons were appointed. Three hours were employed every day in visiting and prescribing for the patients. We here beheld an exact picture of the disease, and at first, even during a time of scarcity, were fortunate enough in its cure. At this period fluxes were so trifling and uncommon, that we gave no attention to them, directing our whole care to remove the disease itself (*f*).

The

(*f*) In the beginning, the shops being well provided with medicines, this decoction was usually prescribed. *R. Lign. guaiac. lib. i. cort. ejusd. ℥iv. rad. sarsaparil. ℥i. ss. enul. camp. petrosel āā ℥i. cort. tamarisc. rad. cappar. āā ℥ij. bacc. juniperi, lauri, sem. nasturt. hort. anisi, faenicul. carv. āā ℥vi. citri ℥ij. genist. ℥ss. herb. absinth. chamædr. scolopend. fumar. lupuli, āā m. ij. cinanom ℥iv. aq.*



The number of the afflicted began afterwards daily to decrease, owing partly to the lucky circumstance of our spies having brought into the town a quantity of tobacco, by the use of which many were preserved from the disease, while others were recovered: to this likewise the more liberal use of wine, permitted at this time to be publickly sold, was supposed to have contributed its share: now also the days began to lengthen, the sun to shine forth with comforting heat, and the nights grew warmer; so that in less than a month's time we found the number of scorbutic patients reduced to 800. But these were left in a most pitiful condition indeed! the shops were now exhausted of medicines; the ordinary remedies administered did not avail; our provisions grew daily worse, and so scarce, that the corrupted grain, which by order of the magistrates had been formerly condemned was now ordered to be distributed to the soldiers, and to complete our misfortunes, no appearance presented itself of relief, all expectation from the *Dutch* army was gone: *una salus victis nullam sperare salutem.*

We were at this time quite at a loss what measures to pursue: however we put on the

*aq. sent. lib. cxx. coq. ad quartæ partis consumptionem.*  
 The following liniment was directed for the gums. R.  
*Mel. lib. iij. sal. prunel. alumin. aa ʒiij. ung. Ægyptiac. ʒi. lb.*



the best countenance. We changed the medicines, extolled the efficacy of our prescriptions, doubled their dose, talked largely of the number cured, magnifying in every respect our skill and success. By these means we protracted time for near a month longer. But the miserably afflicted began to discover the deceit, particularly such of them as had been before shut up in besieged places, and had observed the like artifices practised. The soldiers, no longer able to suffer in a situation harder to be borne than human nature is accustomed to, gave themselves up entirely to despair. They refused to do any longer duty, delivered up their arms to the Governor, and threatening a mutiny, conspired to surrender the city to the enemy. This the terriblest circumstance of all, *viz.* their absolute despair, gave rise to a variety of misery; hence proceeded fluxes, dropsies, and every species of distress (*a*), attended with a great mortality.

*Quis tibi nunc civis cernenti talia sensus.*

The physicians at this time giving up entirely with the cure of the disease, direct their whole art to remove the flux, and alleviate the more pressing symptoms. Nothing was left unattempted to recal the drooping spirits of the soldiers, and to allay  
their

(*a*) In the original, *Omne chaos morborum.*

their turbulent minds. Recourse was had even to opium itself. By such means a truce was gained, but of short duration; for the evacuations being thereby stopped, the legs became more unwieldy. A dropſy enſued, the tendons became rigid, and ſudden death ſtepped quickly in to put an end to farther woe.

On the 2d of *May*, 1625, when the Prince of *Orange* heard of their diſtreſs, and underſtood that the city was in danger of being delivered up to the enemy by the ſoldiers, he wrote letters addreſſed to the men, promiſing them the moſt ſpeedy relief. Theſe were accompanied with medicines againſt the ſcurvy, ſaid to be of great price, but ſtill of greater efficacy: many more were yet to be ſent. The effects of this deceit were truly aſtoniſhing! three ſmall phials of medicine were given to each phyſician, not enough for the recovery of two patients. It was publicly given out, that three or four drops were ſufficient to impart a healing virtue to a gallon of liquor. We now diſplayed our wonder-working balſams. Nor were even the commanders let into the ſecret of the cheat put upon the ſoldiers. They flocked in crowds about us, every one ſoliciting that part may be reſerved for their uſe. Chearfulneſs again appears on every countenance; and an univerſal faith prevails in the ſovereign virtues of the remedy.

medy. The herbs now began to spring up above the ground; we of these made decoctions; to which wormwood and camphire were added, that by their prevalent flavour, the medicines might appear of no mean efficacy. The stiff contracted limbs were anointed with wax melted in rape-feed, or lint-feed oil. The invention of new and untried physic is boasted; and amidst a defect of every necessary and useful medicine, a strange medley of drugs was compounded. The effect however of the delusion was really astonishing: for many were quickly and perfectly recovered. Such as had not moved their limbs for a month before, were seen walking the streets sound, upright, and in perfect health. They boasted of their cure by the Prince's remedy; the motion of their joints being restored by a simple friction with oil, Nature now of itself well performing its office, or at least with a small assistance from medicine. Many who declared they had been rendered worse by all former remedies which had been administered, recovered in a few days, to their inexpressible joy, and the no less general surprise, by the taking (almost by their having brought to them) what we affirmed to be their gracious Prince's cure (*b*).

A a

Soon

(*b*) This curious relation would perhaps hardly gain credit, was it not in every respect consonant to the most

Soon after this their old calamity the plague broke out again. Not one in a hundred escaped of those who were seized with it. So that a victorious *Spanish* army, an eight months famine, the rage of the plague within, and the fury of the bombshells from without, depopulating and laying waste the city, the promiscuous funerals of parents and friends, the dismal apprehensions of a disheartened and reduced garrison, want of medicines and common necessaries, bad and unnatural food, having all conspired to the ruin of  
this

accurate observations, and best attested descriptions of the disease. See Lord *Anson's* voyage, part 3. *Item*, Mr. *Ives's* journals, p. 94, &c. It is given us by an eye-witness, an author of great candour and veracity, who, as he informs us, wrote every day down the state of his patients; and seems more to be surprised with their unexpected recovery, than he possibly would have been, had he formerly been better acquainted with the nature of this surprising disease. These facts were then also notoriously known to many, at the time when he published his book, *viz.* the second year after they happened.

Might not the speedy recovery of the patients be partly owing to the decoction of the green herbs beginning to sprout up? Be that as it may. An important lesson in physic is here to be learned, *viz.* the wonderful and powerful influence of the passions of the mind upon the state and disorders of the body. This is too often overlooked in the cure of diseases; many of which are sometimes attempted by the sole mechanical operation of drugs, without calling in to assistance the strong powers of imagination, or the concurring influences of the soul. Hence it is, that the same remedy will not always produce the like effect even in the same person, when given by different hands; and that common cures often prove wonderfully successful in the hands of bold quacks, but do not answer the purpose in a timorous and distrustful practitioner.



this important place, it was surrendered by capitulation in *June*.

As to the scurvy. This calamity proved most fatal to the *English* soldiers, as they very early began to feed on dogs flesh, were in want of their beloved tobacco, and lay in the most wet damp barracks. It was much less frequent among the *Waloons* and *Flemings*, they being more careful and delicate in their diet, and having much better quarters. Among the *French* it was seldom to be met with, owing entirely to their being stationed in the driest part of the town, and to their natural sprightly disposition, which kept them constantly employed in some motion or exercise, singing, and the like. I do not here touch upon the many different symptoms described by authors in this disease; those that occurred in this siege, I have faithfully related. From which it will appear, that the scurvy is not a complication of many different diseases, but is itself a simple identical disease. It is extremely difficult, during the time of a long close siege, to preserve the citizens and soldiers from this cruel disaster. I am persuaded the best method would be to permit them the use of brandy or spirits during a cold moist season, and when wholesome food is wanting. Washing the mouth with brandy is excellent for preserving the gums and teeth.

1627. *Gul. Fabricii Hildani observ. et curationum chirurgic. cent. 5. obs. 5.*

There is here a short letter to the author from *Ludov. Schmid*, giving an account of the Prince of *Baden*'s youngest son, a child of fourteen months, afflicted with the scurvy, who was cured with antiscorbutic medicines. *Hildanus*, in his answer, mentions an obstinate scorbutic ulcer cured likewise by antiscorbutic medicines; which is all that is to be met with on this disease in the works of that celebrated practitioner.

1633. *Joannis Hartmanni praxeos chymiatricæ, p. 345. de scorbuto. Ed. Genev. Opus posthumum.*

He is the first who observes the pernicious effects of mercury in the scurvy; for the cure of which he relies much upon some chemical preparations (a).

1640. *Lazari Riverii praxeos medicæ lib. 12. cap. 6. de scorbutica affectione.*

As the scurvy was hitherto so little known in the southern parts of *Europe*, that it had not been so much as mentioned by any author there, he likewise would have omitted treating of it; the disease never appearing in *France*, attended with all the symptoms described by northern writers. However, as diseases were observed accompanied with  
some

(a) *Tartar. vitriolat. spir. vini tartarizat. &c.*

some of its symptoms, and as those authors inform us, that one symptom peculiar to the distemper was sufficient to discover it, he would therefore describe it. But as it was by no means common in his country, where most physicians believed they had no such disease, he does not pretend to describe the true scurvy; therefore calls it the *affectio scorbutica*, as approaching near to it. He thinks the scurvy nothing else but the *hypochondriac* disease, attended with such extraordinary and unusual symptoms as denote a degree of malignity.

1645. *Consilium medicæ facultatis Hafniensis de scorbuto.*

This was published for the benefit of the poor in the country, and is divided into four sections. The 1st recites the cause of the disease, and the signs by which it is known; the 2d, how it may be prevented; the 3d, how it ought to be cured; the 4th, what is proper for the removal of the chief symptoms.

*Seçt. 1.* They observe, that it is a disease frequent among them and other northern nations. It attacks the patient in various shapes, according to his habit and constitution, or other diseases with which it may be complicated. Its immediate cause, is a bad digestion, owing to a crude, corrupted humour, oppressing the organs,

both of the first digestion in the stomach, and of sanguification. Hence ensue for the most part difficulty of breathing, swelling, putrefaction, and bleeding of the gums; loose teeth; a weakness, swelling, and stiffness of the legs; spots, and the like. The external causes are, 1. The impure, gross, moist, and cold air of their country; those persons being most subject to it who live in the northern parts near the sea, or where they are surrounded with lakes. 2. Gross and corrupted food, *viz.* bad bread, not sufficiently baked, made of spoiled flour; salted and dried flesh and fish; old cheese; rancid butter; pease, and other grains, when spoiled; together with unwholesome malt liquors. 3. Those of a sedentary inactive way of life are most afflicted with it; together with those, 4. who are apt to be costive, or labour under a suppression of any natural evacuation; as also the low-spirited and dejected. 5. This disease often succeeds others; such as obstructions of the liver and spleen, and particularly quartan agues. It is likewise hereditary and infectious. From these external causes proceeds the internal or immediate cause of the disease before mentioned. Although the scurvy may not easily be discovered in the beginning, by reason of its appearing under the form of other diseases; as also from its unexpected and slow attacks,



tacks, (so that, in countries where it is prevalent, we are to suspect anomalous diseases not yielding to the usual remedies, especially if the patient is of a melancholy disposition, to be scorbutic); yet when the distemper is violent, it is easily known. It is usually preceded by a lassitude over the whole body, weakness of the legs, difficulty of breathing when walking, a livid colour of the face, and by a greater fullness of the habit of body. In its progress, flying heats become troublesome; the gums itch, with a great flow of *saliva*; the urine is sometimes turbid, at other times quite watery. When farther advanced, the difficulty of breathing is so great, that the patient cannot walk or move himself but he falls into a faint; of which he recovers when laid in bed. It is attended with colic pains; the gums are swelled, and bleed upon the least touch; the teeth are loose, and fall out without pain, the flesh at their roots being quite putrid; the breath is foetid; the legs swell, and grow stiff, so that the patients cannot walk. Sometimes on the legs, and even over the whole body, there appear various red, purple, or azure spots. Now and then they are afflicted with the *St. Anthony's fire*, malignant ulcers, and nocturnal pains; and sometimes the body wastes away. Different fevers, and various symptoms,

almost of every kind that can be mentioned, often accompany this disease. The urine is turbid, thick, and clayish, of a purple colour; but it does not long retain the same appearance. The pulse is variable; sometimes weak, at other times strong, when the patient seems very weak; and sometimes it is scarce to be felt. This disease is easily removed by proper remedies in the beginning; but when advanced, it is not so easy to prevent relapses. When proper diet and medicines are neglected, health is seldom restored. It commonly ends in a dropsy or consumption. A difficulty of breathing, and black spots on the legs, are dangerous symptoms; as also continual pains and flatulencies about the navel. An hereditary scurvy is seldom cured. It is a more dangerous disease in old persons than in young. When the mouth is affected, remedies are speedily to be used; otherwise the disease spreads farther, and may infect the whole throat. Fevers and ulcers accompanying this disease, cannot be cured without the assistance of antiscorbutic medicines.

*Sect. 2.* Prevention is proposed, by living in dry lodgings; fumigating the apartments with the steam of aromatic woods and gums; and by avoiding such food as has been observed productive of the disease. For this is likewise recommended the use of a wine  
medicated

medicated with wormwood; and several other warm, bitter, aromatic ingredients. The body is at all times to be kept in a lax state, and the other evacuations (especially when suppressed) are duly to be promoted. Exercise, baths, physic in the spring and autumn, are also necessary. Those, who are much subject to it, are to take now and then two or three spoonfuls of an antiscorbutic water; which may be made more pleasant and stronger, by adding occasionally some of their scorbutic syrup, which is the same with *Forestus's (a)*.

*Seet. 3. and 4.* containing the indications of cure, and the treatment of the symptoms, have nothing new; the rules being pretty much the same as those of *Albertus*. The whole is concluded with a number of long prescriptions, adapted to the various intentions of prevention and cure. Here the prices of the several medicines are marked for the benefit of the poor.

(a) R. Rad. raphan. rust. lib. iii. scorzon. unc. ii. cort. rad. cappar. tamarisc. ana unc. ss. fol. cochlear. nasturt. aq. petrosel. becabung. recent. ana manip. iii. sem. cochlear. cardui bened. aquileg. fenicul. ana dr. iii. crem. tartar. dr. ii. gran. paradisi. cardamom. ana dr. i. Assande vini Rhenan. lib. xii. aq. cochlear. fumar. ana lib. i. Stent in digestionem 24 horis, dein per cineres destillatur. Or they may take the juice of scurvygrass mixed with wine: or their elect. scorbuticum, which is the confect of several antiscorbutic herbs, with the addition of a very small quantity of spir. viuiol.

1647. *Bericht und unterricht von der krankheit des schmerzmachenden scorboets*: or, An account and information concerning that painful disease the scurvy. By *John Drawitzs*.

This book has undergone no less than four editions, being esteemed the best written upon the subject in the *German* language. The diseases treated of as proceeding from the scurvy, are as follow. 1. The gout, 2. A spasmodic disorder. 3. The palsy. 4. Pains in the extremities, though not in the joints. 5. The headach. 6. The toothach. 7. The pleurisy. 8. The bellyach; or the scorbutic colic, and iliac passion. 9. A pain about the *os sacrum*, back, and *perinæum*, resembling a true fit of the stone. He had been informed from the *East-Indies*, that the sailors there were speedily and effectually cured of the scurvy, by eating oranges; which he finds great difficulty to reconcile to his theory of the disease. He had also heard from *Dantzick*, that some masters of ships carried out with them an acid water, got in the preparation of *diaphoretic antimony*, which prevented the scurvy at sea.

1662. *Baldassaris Timæi opera medico-practica*.

This author gives us many histories in his writings, of such cases as he deemed scorbutic,



scorbutic, viz. Book 1. of practical cases and observations; case 3. a scorbutic head-ach; case 7. a scorbutic delirium; and case 15. the hypochondriac melancholy beginning with the scurvy. In his 3d book, case 24. an *hydrops ascites*, joined with the scurvy; and case 32. the *affectio hypochondriaca*, with this disease also; case 35. a scurvy and atrophy, of which the patient died; case 36. the *arthritidis vaga scorbutica*. Book 6. case 15. *scabies pruriginosa scorbutica*. Book 8. case 15. a scorbutic tertian; and case 18. a scorbutic quartan.

In his epistles, book 3. epistle 10. 11. and 12. the *cachexia scorbutica*; epistle 20. and 28. the *affectio hypochondriaca scorbutica*; and book 5. epistle 9. the *arthritidis vaga*. His method of cure, which has nothing new in it, is to be found in the 34th case of his 3d book, by which he says he generally succeeded, unless the scurvy was hereditary, or very deeply rooted: as likewise in the 29th and 30th epistles of his 3d book; where we have the treatment of the Queen of Sweden, when labouring under this disease, by the celebrated *Hermannus Conringius*. And there (epistle 29.) we have mention made of a new scorbutic symptom, by *Otto OEslerus*, viz. a burning internal pain, seated in the mesentery, attended with violent thirst, and colics most violent in the night.

1663. *Valentini Andreæ Moellenbrocii, de varis, seu arthritide vaga scorbutica, tractatus.*

He makes the scurvy a most universal disease, a calamity common almost to all mankind. Its cause is, a volatile salt in the blood, endued with great acrimony and malignity. The last of these properties he thinks demonstrable, from the sudden weakness and prostration of strength, great oppression and difficulty of breathing which occur even in the beginning of the disease, as if the patient had swallowed poison; as also from an eruption of livid spots, which often make their appearance after death.

1667. *Thomæ Willis tractatus de scorbuto.*

He sets out with telling us, that a great variety of symptoms, and diseases of the most opposite kinds, are supposed to proceed from the scurvy; which, like a condemned and infamous name, has the scandal of most diseases charged to its account. How far he clears up this confusion, or has abridged the number, will appear by the following detail he gives of scorbutic symptoms. He observes, that no simple description or definition of this distemper can be given; and, consequently, that the best method of describing it, is according to the different parts affected of the body; in all which it produces manifold symptoms.

He begins with the head: where the scurvy causes headachs, violent and habitual; and sometimes vague, or periodical; oftentimes sleepiness, and dulness of the spirits, at other times obstinate watchings; frequent giddiness, convulsions, palsies, salivations, ulcers of the gums, loose teeth, and foetid breath.

The breast is affected with pains in different parts of its membranes, chiefly on the breast-bone, where they are very violent, acute, and darting; frequent asthma's; difficult and unequal respiration; straitness of the breast; violent cough; irregular pulse; palpitation of the heart; frequent faintings, and the continual dread of them.

In the *abdomen*, where this disease has its principal seat, it begets a multitude of evils, viz. *nausea*, vomiting, *cardialgia*, flatulencies, frequent colics, and most troublesome shifting pains; and almost constant purging, sometimes the dysentery, or *tenesmus*; the *atrophia*, and now and then the *ascites*. The urine is very often reddish and lixivial, having a cake suspended in it, or adhering to the sides of the glass: and sometimes, though seldom, a great quantity of pale watery urine is discharged.

In the limbs, or even over the whole body, there are wandering pains, often very acute, and becoming worse at night; a lassitude; wasting of the flesh; pain of the back; a weakness of the other joints; spots of  
various

various colours on the skin; tumours, tubercles, and often malignant ulcers; a *stupor* or stinging pain about the muscles; a sense of cold as it were in the parts; contractions and *subfultus* of the tendons. Besides these, scorbutic people are subject to irregular effervescencies of the blood, irregular fevers, and profuse hæmorrhages. He concludes this long detail with observing, that these are the most common and usual symptoms of the scurvy, sometimes more, sometimes fewer, of this or that kind, afflicting the diseased: but besides what have been already mentioned, there occur in it more uncommon and extraordinary appearances.

The principal causes are, unwholesome air, and a vitiated texture of the blood by preceding sickness. In this distemper, either the blood, nervous juice, or both are affected. The fault of the blood is its being either *sulphureo-saline*, or *salino-sulphureous*. If the first be the case, and the sulphurs superabound, then repeated bleedings, a cooling regimen, and the most temperate remedies are proper; avoiding above all things the hot and acrid antiscorbutic medicines. But, on the contrary, where there is the *salino-sulphureous* state, and the salts of the blood are predominant, then the warmer medicines are proper, and such as are possessed of a volatile salt, together with steel and



and the like. The fault in the nervous juice is threefold. It is, *1st*, Either too thin and poor; or, *2dly*, It has degenerated from its spirituous saline nature into a sharpness; or, *3dly*, It may abound with foreign and morbid particles. And according to these imagined faults in the blood and nervous juice, he makes a second distribution of the symptoms, and accounts for the whole number he enumerates in this disease, which he supposes to be hereditary and infectious.

The *indications* of cure are divided into three classes. 1. The preservatory; under which he gives the process of cure, or rather the method in general of removing the causes of the disease. 2. The curatory, or means of alleviating and relieving the most urgent symptoms. The 3d comprehends what he calls *the vital indications*, or the means of preserving and restoring the strength and health of the patient.

The cure is accomplished by purging, digestive and antiscorbutic medicines; with blood-letting occasionally repeated. If the stomach is much disordered, or oppressed with phlegm, he gives a vomit, weaker or stronger, according to the strength or habit of the patient. This in some he repeats every month, where it is indicated: otherwise he begins the cure with a purge, which he repeats occasionally, and of a different kind,

kind, suited to the warmer or colder constitution of the patient; or, to use his own terms, according as the *dyscrasy* of the blood is *sulphureo-saline*, or *nitro-sulphureous*. In both cases he furnishes us with variety of prescriptions; observing, that they should be repeated no oftener than at an interval of five or six days; as too violent and frequent purges serve only to weaken the tone of the *viscera*; and strength of the patient, without removing the disease. After once or twice purging, if a fulness of blood, and its viscidty, make it necessary, the patient is to be bled in the arm, or with leeches in the hæmorrhoidal veins; rather repeating the operation, than taking away too much at a time. Those evacuations being made according as they are severally indicated; provided no particular symptom be urgent, he proceeds to the general method of cure, *viz.* removing the cause, and extirpating the disease. For these purposes, the digestive and specific antiscorbutic medicines (divided into two classes, *viz.* hot and cold) are to be given every day, unless when under the operation of a purge; to these, if needful, sweating medicines may be joined (*g*). For

(*g*) He calls those *digestive medicines*, which assist or restore the functions of the stomach, and other chylopoietic *viscera*; and *antiscorbutics* or *specifics*, such as remove the scorbutic dyscrasy of the blood: both which are to be joined together, or at least given the same day. *Cremor, sal, or tinctura tartari, tartar. vitriol. chalybeat. el. propr. &c.* are proper digestives. They are to be administered in a small dose, evening and morning.

For the cold scurvy, he abounds with an ample variety of antiscorbutic compositions (*b*).

In the hot scurvy, the more cooling and temperate antiscorbutics are necessary (*i*).

After having delivered the cure of the disease in general, he proceeds to the indications for removal of the most urgent symptoms (*k*).

He

(*b*) *Cochlearia, nasturtium aq. becabunga, cort. winteran. bacc. juniper. rad. raphani*, and other acrid aromatic herbs and roots, together with their conserves, the candied spices, *pulv. ari comp. steel, &c.* He has often successfully prescribed the following remedy. *R. Sum. genissæ manip. iii. minutim incis. Coquant. in cervis. fort. lib. iii. ad medietatem.* Two or three ounces to be given twice a-day.

(*i*) Of these he gives the same variety; making use, in most prescriptions, of the *testaceous* powders, the absorbents, *sal. absinth. &c.* He recommends wines made of gooseberries, and other summer fruits, but especially cyder: observes *rad. lapathi acuti* to be among the best of our antiscorbutics. This infused in ale, with brook-lime, watercresses, sliced oranges, citrons, pine-tops, &c. makes a noble remedy.

(*k*) For a difficulty of breathing, and asthmatic fits, he recommends cardiacs and antispasmodics, *viz. sp. cornu cervi, tinct. castor. flor. benzoin. el. propr. &c.* given in any scorbutic liquor. If the *dyspnœa* be entirely spasmodic, opiates afford the greatest relief: acrid glysters, sudorifics, and diuretics, are likewise serviceable. In scorbutic disorders of the stomach, vomits, purges of rhubarb, *el. propr. &c.* with fomentations to the part, are necessary: opiates sometimes give ease. In scorbutic colics, glysters are to be given; fomentations, liniments, and cataplasms, used externally; and opiates internally, especially when joined with purgatives: the *testaceous* powders are proper; likewise the use of some purging mineral water, as *Epsom*. An inveterate *diarrhœa*, such as scorbutic persons are subject to, is not to be stopt by astringents: the mineral waters impregnated with steel and vitriol, are in this case

He afterwards relates a symptom which he had observed three or four times, *viz.* a crackling of the bones upon moving the joints. Even upon turning in bed, by the rubbing of the bones of the back on each other, a considerable noise was perceived, like to the rough handling of a skeleton; which he remarks is an almost incurable symptom.

Lastly, We have what he calls the *vital indications*. He here directs the use of cordials, restoratives, opiates, &c. together with a proper diet. He blames the immoderate use of sugar in the present age, for the frequency and violence of the scurvy; and concludes with some histories of cases.

1668. *Morbus polyrhizos et polymorphæus*. A treatise of the scurvy. By *Everard Maynwaringe*.

To the causes of this distemper usually assigned by others, he adds the use of tobacco, and immoderate venery; particularly the first, which he inveighs against at great length. He condemns all former theories and methods of cure recommended by authors; pretending to be possessed of most effectual remedies; which, however, he does not make public.

the best medicines; and next to these, preparations of steel, especially its *crocus*. A *vertigo*, faintings, palsy, and convulsions, require a mixture of cephalic and antiscorbutic remedies. The other symptoms are to be treated likewise with such medicines as are proper for the original disease; compounded with antiscorbutics.



1669. *Praxeos Barbettianæ, cum notis Frederici Deckers, lib. 4. cap. 3. de scorbuto, et affectione hypochondriaca malè vulgò dicta hysterica.*

*Barbette* gives a description of the scurvy, and its symptoms, pretty much from *Eugenus*: cautions against bleeding, and violent purgatives, in the cure; but thinks gentle physic proper at times, and that the diseased humour should be prepared by inciding remedies; the most proper for this purpose being volatile salts. After a long list of the common antiscorbutic medicines (to which *Deckers* subjoins many more, adapted to the particular symptoms of the disease) he observes, that the spirit of scurvy-grass and *dulcified* spirit of *sal ammoniac*, are the principal remedies. He concludes with two cases: one a young man not able to walk through his chamber, who recovered in seven days by a decoction of *rad. raphani* in whey; another, a merchant, having scorbutic spots, who was cured by the use of *spir. sal. ammoniac.* and proper diet. *Deckers* adds another case, and seemingly a very genuine scurvy, which was removed by fourteen drops, for a dose, of the *sp. sal. ammoniac.* given in an infusion of *rad. raphani* in wine.

1672. *De scorbuto liber singularis; auctore Gualtero Charleton.*

Observing it might be a task fit only for *Jove* himself to give an accurate account of

the scurvy, and all its symptoms, he thinks it necessary to give only a catalogue of those which most frequently occur, and are the most afflicting. In this number he ranks almost all the symptoms enumerated by *Eugalenus*, *Sennertus*, and *Willis*; and afterwards distinguishes the disease itself into three kinds, from its different causes. The first is denominated a *rancid scurvy*, from the predominancy of the sulphurs in the blood combined with some of its salts; the second, a *scurvy from fixed salt*, where the tartareous or terrestrial saline particles prevail; and the third, an *acid scurvy*, owing to a sharpness and acidity of the blood and juices.

The symptoms peculiar to the first species, are, spots, pustules, tubercles, and ulcerations, upon the external parts of the body; internally, heartburn, vomiting, purging, colics, together with frequent effervescencies of the blood. When this species of the scurvy is inveterate, the *nervous system* becomes affected. The symptoms are then, a giddiness; tensive headach; sleepiness, or immoderate watchings; the night-mare, and sometimes madness.

Of the second species, the symptoms are, straitness of the breast, palpitation of the heart, and faintings; numbness and lassitude of the body; convulsive motions, and wandering pains in the joints.

In

In the third, or acid scurvy, there are continual irritations of the nerves; which are increased by the slightest passion of the mind; frequent *rigors* (a certain sign of acidity in the humours); a sense of cold in the back part of the head, and spine of the back, sometimes running through the limbs; flatulent spasms; convulsions, and what are commonly called *hysteric* complaints; sometimes costiveness; at other times the dysentery; melancholy, with dread and despair; atrophy; ulcerations; lastly, a gangrene, which generally closes the scene. From this acidity in the blood, proceed likewise, palpitations of the heart; a sudden stoppage of the pulse, attended with great oppression on the breast; ending in a faint, and a cold sweat. When this species of the scurvy has become inveterate and confirmed, it begets most violent and dreadful symptoms, *viz.* intolerable nocturnal pains, cancers, &c.

In the cure of the first species, we are to begin with gentle *cholagogue* purgatives prudently administered and repeated, and with bleeding, if the disease is but commencing; proceeding to the digestive or temperate alterative medicines, that may correct the hot *sulphureo-saline* state of the humours (1).

B b 3

For

(1) If the patient be of a hot temperament, and lean, scurvy-grass, and other hot antiscorbutics, are to be avoided. Asses milk with juice of dandelion, or a water distilled from the milder

For cure of the second species, proceeding from a fixed salt, the only proper medicines are those which abound with a volatile salt, viz. the warm antiscorbutics (*m*).

The cure of the third species, or acid scurvy, is to be begun with gentle laxatives, which makes way for bleeding; proceeding afterwards to deobstruents (such of this class as are mild) joined with temperate antiscorbutics, but especially such remedies as are proper in the hypochondriac disease with obstructed *viscera*. Afterwards he endeavours to correct the acidity (*n*). The cure here, as in the before-mentioned scurvies, is to be concluded by corroborants; such particularly

milder antiscorbutics with cyder or cows whey, is then to be used. A pint of warm whey, with the addition of ten drops of *sp. cochlear.* or *sp. sal. d.* may be drank night and morning for some weeks together. The mineral waters are likewise serviceable; observing at the same time proper rules with regard to diet and exercise. After those courses (during which the patient must take a purge every week) the cure is to be completed by restoratives and corroborants. The best is, a small subacid wine, medicated with the temperate, but aromatic and stomachic antiscorbutics, or confections of the subacid fruits, &c.

(*m*) Digestive and cathartic medicines must be interposed at times, together with sudorifics and diuretics, according to the tendency of the tartareous humour to the skin or kidneys. Steel mineral waters are to be used, if the patient is of a hot temperament. After those courses, recovery is to be perfected by corroborants and analeptics. The best of these is fennel-wine.

(*n*) Volatile salts of any kind, or the testaceous powders, lixivial salts, oily emulsions, and chalybeate medicines, Milk almost of any kind is proper; as likewise whey medicated with the temperate antiscorbutics; broths of snails, cray-fish, &c.



particularly as are recommended by authors at the close of the *hypochondriac* disease.

He finishes his book with laying down the method of removing several of the most urgent symptoms in this disease. The principal of which are to be treated with antiscorbutics joined to the remedies proper for such diseases.

1674. *Francisci Deleboe Sylvii opera medica.*

This celebrated author has little upon this disease but theory. He only observes (*o*) that there is no distemper in which volatile salts are so efficacious and necessary as in the scurvy; herbs abounding with these salts, as scurvy-grass, rochett, cressles, horse-radish, and mustard-seed, being its best remedies. In imitation of those, for many years past he had given, with great success in this distemper, volatile salts obtained from different parts of animals. Moreover, acids that are spirituous, either of the natural or chemical sort, are likewise serviceable in the scurvy, viz. juice of oranges, sorrel, &c. *sp. sal. vel nitr. dul.* For cure of the scorbutic spots observed after the epidemical fever, of which he is there treating, he mixed these volatile salts and spirituous acids together; which proved very serviceable, and sudorific.

B b 4

(*o*) *Prax. medic. append. tract. 10. § 863, &c.*

1675. *The disease of London ; or, A new discovery of the scurvy.* By Gideon Harvey.

He divides the disease into two great branches, *viz.* a *mouth-scurvy*, and *leg-scurvy*. To which a third may be added, which he calls the *joint-scurvy*. They are thus denominated from the parts affected. The immediate cause of the first, is an acid lymph in the stomach ; the occasional causes being the frequent use of mercury, a saline air, salt diet, brackish water used for brewing of ale, gluttony, debauchery, &c. The second, or leg-scurvy, he attributes to a cause opposite to that of an acid, *viz.* a lixivial alcalious salt. He terms it a *saponary state of blood*. The occasional causes of this are pretty much the same with the former, *viz.* saline air, and salt food ; the use of sea-salt, distilled spirits, and tobacco. An acid scurvy continuing long, changes into a saponary scurvy ; or is followed with swelling and ulcers of the legs, &c. He afterwards makes many other distinctions in this disease. For a preservative against it he recommends change of air, and wholesome, nourishing, easy-digested food. In the cure, bleeding is proper, and issues both for that and its prevention. In the mouth-scurvy, they are to be put in the left arm ; in some cases in the neck, or right arm ; in the leg-scurvy, above the knee ; in the joint-scurvy, more than one are to be made. Aloetic pills are  
4 amongst

amongst the best preservatives against this distemper. They are to be given in the cure of a recent, or even inveterate scurvy : but at the same time are proper only in the acid kind ; as the laxatives in the lixivial or saponary scurvy must be of the mildest sort. The acid scurvy requires warmer medicines ; the lixivial the more temperate, cooling, mucilaginous, &c. He concludes with the cure of a stomachic scurvy, hepatic, &c.

1681. *Abrahami Muntingii de vera antiquorum herba Britannica, ejusdemque efficacia contra stomacacen seu scelotyrben, Frisiis et Batavis de Scheurbuyck, dissertatio historico-medica.*

He pretends, after much labour, to have discovered the true *herba Britannica* of the ancients, which had been unknown to the world for many ages, viz. that celebrated plant which, according to *Pliny's* account, cured the *Roman* army under *Cæsar Germanicus* (see p. 290.). He would have it to be *hydrolapathum nigrum* (a), the great water-dock ; and bestows the most extraordinary encomiums upon it ; giving instances of several remarkable cures performed by its use, in the scurvy.

(a) An infusion of this herb, under the name of its essence, has for some years past been sold in London as a great specific for the scurvy, to the no small emolument of the proprietor, Dr. Hill.

1683. *Traité du scorbut, par L. Chameau.*

The scurvy is in a particular manner frequent among the *English*, as the author had observed during his residence for some time among them; and for their sakes chiefly he published his book. He makes it to be a contagious dissolution of the blood, by a very acrid subtile salt: confutes the distinctions made of the disease by Dr. *Willis*, and extols milk as the most excellent antiscorbutic remedy; accounting all warm and acrid medicines for the most part pernicious.

*Une voyage aux Indes orientales, écrit par M. Dellon, M. D. Supplement, chap. 2.* Of the scurvy, called by the *French* the land evil.

This is the most dangerous and troublesome of all the distempers incident in a long voyage, being contagious, and scarce ever to be cured at sea. The symptoms first appear in the mouth and gums, which swell, grow black, and emit a disagreeable scent. Deep incisions are requisite in order to remove a considerable quantity of corrupted flesh and matter, which not only loosens the teeth, but makes them fall out. The next symptoms that appear are certain black spots on the arms, legs, and thighs, and then over the body. The broader these spots are, and the nearer the heart, the more dangerous is the distemper. The corruption in the gums, and  
2 blotches



blotches over the body, are followed by a *nausea*, laziness, fainting fits, pains in the head, arms, and legs, and last of all with a looseness. There is seldom any fever; the pulse in this malady declining very little from its natural state.

For prevention he recommends that the ship be victualled with sound wholesome provisions; that she be kept neat and clean, washed with sea-water every day, and sprinkled with vinegar twice or thrice a week. Each person on board ought to provide himself with juice of citrons, lemons, *ros solis*, and dried fruits, especially prunes, and not to abstain long from drinking. But if the disease has already made its attack, then he proposes first a moderate bleeding, a little gentle physic, and above all repeated clysters, if there is not a scarcity of water on board. The gums are to be rubbed with a mixture of vinegar or juice of lemons with some salt, until they bleed. The blotches on the body are to be washed and rubbed with warm sea-water until they smart: or (if it can be got) with the blood of a sea hog, which has been found by experience to have a specific quality against this evil. If in spite of all endeavours the heart becomes affected with the malignant vapours from the corrupted parts, recourse must be had to cordials. From the first attack of the disease, the patient must abstain  
from

from every thing salted. If he cannot have fresh provisions, he must feed on rice, barley, and prunes, and drink wine mixed with water, which will be of greater service to him than all the cordials in the ship. He concludes with telling us, that it is of great use to send the sick on shore in hot weather or in warm countries; but if the ship comes to an anchor in a cold climate, the utmost care is to be taken not to expose them to a cold air. They are rather to be kept up close and warm, sweating being conducive to their cure, especially if at the same time they are provided with a good diet of easy digestion, and good nourishment.

1684. *Nauwkeurige verhandelinge van de fcheurbuik en des selfs toevallen*: or, A curious treatise on the scurvy, and its symptoms. By Stephen Blancard. *Ejusdem praxeos medicæ cap. 15. de scorbuto.*

Though *Willis* and *Charleton* have written the best upon the scurvy, they have not yet solved all the difficulties that occur in it; which this author thinks he does by his theory of fermentation, founded upon the *Cartesian* philosophy. The malady proceeds from a thickness of blood. Of this there are two kinds, *viz.* a cold and *phlegmatic* viscosity; or there may be a heat and an acidity in that fluid: hence the disease is properly divided into a *hot* and *cold scurvy*.

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In the first species, whatever incides and attenuates viscid pituitous humours, such as the warm aromatics and spices; in the other (or acid scurvy) the *testaceous* powders, and all other absorbents; fixed, volatile, and alkaline salts; chalybeats, but particularly drinking of tea and coffee, are the proper remedies. Bleeding is of no use. Vomits and purgatives are sometimes necessary. All acids, viscid and salted foods, are pernicious.

1684. *Jo. Dolæi medicinæ theoretico-practicæ encyclopædiæ lib. 3. cap. 12. de scorbuto.*

The scurvy is a disease nearly allied to the hypochondriac disease, being an acid indispotion of the blood. He pretends to cure all scurvies in twelve days, by mercury dulcified in a particular manner.

1685. *Michaelis Ettmulleri collegii practici de morbis humani corporis part. 2. caput ultimum, exhibens duos affectus complicatissimos; nempe, malum hypochondriacum, et scorbutum.*

He accounts the scurvy the highest degree of the hypochondriac disease. All the symptoms of this latter occur in it, besides many more. He has nothing new, all he says being transcribed from other authors; but confounds the two diseases together, so as to make steel, and most other remedies proper in the hypochondriac disease, useful  
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in the scurvy. He observes, that mercury is extremely pernicious in the scurvy; and so much dreaded by the *Dutch*, that even in venereal cases, they were afraid to use it, on account of their scorbutic habits of body. *Dutch* seamen carry to sea mustard-seed, which both preserves them from the disease, and cures it. In winter, when the antiscorbutic plants cannot be procured, a composition with mustard-seed is to be prescribed (*p*).

1685. *Thomæ Sydenham opera universa.*

The author has no where treated expressly of this disease, but in a posthumous work ascribed to him (*q*). There the scurvy is said to be accompanied with, 1. spontaneous lassitude; 2. heaviness; 3. difficulty of breathing, especially after exercise; 4. rottenness of the gums; 5. foetid breath; 6. frequent bleeding at the nose; 7. difficulty of walking; 8. a swelling sometimes, at other times a wasting of the legs; on which spots always appear, that are either livid, or of a leaden, yellow, or purple colour; 9. a fallow complexion. For cure, eight ounces of blood are to be taken from the arm, provided there be no sign of a dropsy; next morning a purging potion is to be given, and repeated twice, at the interval of three days betwixt each dose. On the intermediate days the anti-

(*p*) *Phytolog.* p. 98. *Vid. Sinap.*

(*q*) *Processus integri in morbis ferè omnibus curandis.*



antiscorbutic medicines are to be used, and continued for a month or two (*r*). But the more genuine sentiments of this candid author are to be found in his other works.

*Cap. 4. de febribus continuis, ann. 1661, 62, 63, 64,* he observes, that the two great subterfuges of ignorant physicians, were malignity and the scurvy; which they blamed for disorders and symptoms often owing to their own ill management. Thus, whatever bad and irregular symptoms have been brought on in fevers, perhaps by their unseasonable evacuations, these they ascribe to the malignity of the disease; but if the long continuance of the distemper should wipe off this aspersions of malignity, whatever afterwards obstructs the cure must be the scurvy; both of which are blamed without reason.

*Sect. 6. cap. 5. de rheumatismo.* To deliver my sentiments freely, though I do not at all doubt that the scurvy is to be met with in these northern countries, yet I am persuaded it is not so frequent as generally supposed. For most of those disorders we term *scorbutic*, are the effects of approaching ills  
not

(*r*) *R. Conf. cochlear. hort. unc. ii. conf. lujulæ unc. i. p. arî comp. dr. vi. syr. aurantior. q. s. F. elect.* Of this the quantity of a large nutmeg is to be taken three times a-day, with six spoonfuls of the *aq. raphan. comp.* or *aq. cochlear. recent.* The patient is to have for common drink, an infusion of horse-raddish, scurvygrass, raisins, and oranges, in small beer or in white wine. Those medicines are likewise beneficial in the scorbutic or hysteric rheumatism, bleeding and purging excepted.

not yet formed into diseases, or the relics of some disease imperfectly cured. Thus, for instance, where a matter suited to produce the gout is newly generated, there appear various symptoms, which occasion us to suspect the scurvy; till the formation and actual appearance of the gout remove all doubt concerning the distemper. And in the same manner, many symptoms ascribed to the scurvy afflict gouty people after the fit is over, especially if it has been improperly treated. And this is to be understood not only of the gout, but also of the dropsy. The proverb is, That where the scurvy ends, there the dropsy begins; which is to be understood in this sense, that, upon the appearance of the dropsy, the preconceived opinion of the scurvy falls to the ground. And the same may be said of several other chronic diseases that are but forming, and others that are not totally cured. He however thinks, there is a species of rheumatism near akin to the scurvy in its capital symptoms, and which requires the same method of cure. The pains shift from one place to another; rarely occasion a swelling; there is no fever; but it is attended with irregular symptoms; such especially as have taken much of the *Peruvian* bark are subject to it. Though it is otherwise a very obstinate disease, yet it may be effectually cured by the use of the antiscorbutic electuary  
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before-mentioned, and a water distilled from scurvygrafs, brooklime, cresses, &c.

1694. *Martini Lister tractatus de quibusdam morbis chronicis exercitatio 5. de scorbuto.*

He treats of the scurvy next to the venereal disease, because they are nearly allied; having so many symptoms common to both, that they are not easily distinguished from each other, but by an experienced physician. The scurvy has not been expressly treated of by the ancients, as being in their time prevalent only in a remote corner of the world little known to them. *Eugalenus* was the first who accurately described this disease. It was formerly confined to *Flanders*; but has acquired great strength since our navigation to the *Indies*, being now universal, and common to seamen of every nation. He ascribes it to the use of salt food, old saltish cheese, and the like; or it may be occasioned by ale made of brackish water. He observes the brewers have a bad custom of adding salt and quick lime to their malt-liquors; which fines and preserves them without hops. He fancies the salt sea-air greatly productive of this malady; as he had been informed, that even saltish rains fell in hot countries. He afterwards very ingeniously accounts for all the symptoms of the scurvy enumerated by *Eugalenus*;

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which



which he supposes to proceed from the use of this sea-salt, occasioning a brinish chyle, lymph, &c. and converting the whole humours of the body into a pickle. Juice of scurvygrass, lemons, and oranges, all sorts of fruits, and pot-herbs (the more acid the better) are excellent remedies; as also vinegar, and spirit of vitriol. He pretends to be the first who takes notice of fatal hæmorrhages sometimes occurring in this disease, and gives some instances of them from his own observations.

1696. *Sea-diseases; or, A treatise of their nature, causes, and cure.* By William Cockburn.

The scurvy being generated by the salt provisions altogether unavoidable at sea, makes one of the constant diseases in navies. A fourth part of the seamen do not contract it directly, in declining from a state of health, but by being put too soon on the sea-provisions, after recovering from fevers, and other distempers. It attacks commonly the weak, lazy, and inactive. Refraining from the sea-diet, and living upon green *trade* (as it is called) on shore, proves an absolute cure. It is worthy observation, how suddenly and how perfectly they recover of this distemper by eating greens, *viz.* coleworts, carrots, cabbages, turnips, &c. Men put on shore in the most pitiful condition  
that.



that can be imagined, are able in three or four days, by means of this food only, to walk several miles into the country. When Lord *Berkeley* commanded the fleet at *Torbay* in 1695, the author prevailed with his Lordship to erect tents for the sick on shore. Above a hundred of the most afflicted scorbutic patients, perfect moving skeletons, hardly able to get out of their ships, were landed. They had fresh provisions given them, with carrots, turnips, and other greens. In a week they were able to crawl about; and before the fleet sailed, they returned healthy to their ships. He regrets, that this distemper had as yet been left without a remedy at sea. If proper care was taken about their diet, seamen would not be so liable to it. He condemns the division into a hot and cold scurvy, made by Dr. *Willis*. The first alone is properly the true and real scurvy, and the latter nothing else but the *hypochondriac* disease. And upon this occasion he observes the necessity of having proper names and descriptions of diseases; as the use of ambiguous terms is apt to mislead, and to have fatal consequences in the cure of them.

1705. *Genees en Heelkonstige Redenvoering van de Scheurbot, &c. &c. &c. Uit eigene ondervindinge opgesteld, Door Yvo Gawkes, M. D. Or, A compleat description of the Scurvy, &c. &c. from the experience of Doctor Yvo Gawkes.*

This practical treatise is esteemed the best that has been published on the scurvy in the *Dutch* language. It contains eighteen cases of patients, all of whom, including men, women, and children, were afflicted with the true scurvy, except one person whose case was doubtful. From a contemplation of the symptoms, and an enumeration of the remedies, by which he performed the cure of those patients, he infers the scurvy does not proceed from an acid or thick blood, but from a volatile alkalious and dissolved state of that fluid. The book contains an accurate description of the scurvy, and some good observations, which are chiefly valuable for being the result of the author's own experience. He describes the cases of some young children, who undoubtedly laboured under this malady (*s*).

*Archibaldi*

(*s*) His remedies were, a gargle for the gums of alum water and honey, with an addition of the spirit of vitriol; three ounces of the following purging medicine were taken night and morning.

R. Fol. senæ unc. i. sem. anisi dr. ii. infunde in aquæ calidæ q. s. per noctem; dein adde herb. acetos. manipul. vi. cochleariæ manipul. iii. tamarind. unc. i. fs. colaturæ lib. ii. b. adde syr. e cichoreo cum rheo unc. ii. fs.

*Archibaldi Pitcarnii element. medicinæ physico-mathematic. lib. 2. cap. 23. de scorbuto.*

The reader must here be cautioned, that every thing in this posthumous work is not to be ascribed to *Pitcairn*. The symptoms of the scurvy are said to be, a redness, itching, putrefaction, and bleeding of the gums; loose teeth; spots on the legs, first red, then livid, and blackish; an unusual lassitude; a red sandy sediment in the urine, so that it appears lixivial; an unequal pulse; wandering pains; toothachs; redness, or heat of the body; foetid breath; fluxes with or without blood. The immediate cause is, a broken texture of the blood; and this dissolution of that fluid may be occasioned even by bleeding; which is by no means proper for scorbutic patients. But he talks only of the hot scurvy, or what *Willis* terms the *sulphureo-saline*; this being properly the disease, if we would distinguish it from the hypochondriac distemper. He recommends milk, or a milk diet, as the best cure. But if it does not succeed, or any thing forbids its use, then chalybeats are to be given, with the addition of astringents, and the fixed temperate antiscorbutics, especially if faintings, fluxes, or a difficulty of breathing, afflict the patient. For the wandering gout, or scorbutic pains, after gentle purging, a decoction of *guajac* and *sarsaparilla*, is to be administered; observing, that if these pains are attended with few or no other

scorbutic symptoms, they are then to be deemed rheumatic. This may easily be discovered by their admitting of repeated and plentiful bleedings; which are so very hurtful in the scurvy.

1708. *Hermanni Boerhaave aphorismi de cognoscendis et curandis morbis. Aph. 1148. Sc. de scorbuto.*

Besides the common causes usually assigned by authors as productive of the scurvy both at sea and land, he, from *Sydenham*, adds that particular of having taken too great a quantity of the *Peruvian* bark; then describes the symptoms peculiar to the malady in its beginning, progress, and more advanced stages, contained in the four following sections.

*Seçt. 1.* An unusual laziness; an inclination to rest; a spontaneous lassitude; a general heaviness; a pain of all the muscles as after too great fatigue, particularly in the legs and loins; an extreme difficulty in walking, especially up or down a steep place; in the morning upon awaking, the limbs and muscles feel as if wearied and bruised. *Seçt. 2.* A difficulty of breathing, panting, and almost suffocation, upon every little motion; a swelling of the legs, often disappearing, and an inability to move them, from their weight; red, yellow, or purple spots; a pale tawny colour in the face; a beginning stench of the mouth; a swelling, pain, heat, and itching of the gums, which  
bleed



bleed upon the least pressure; bare and loose teeth; pains of different sorts wandering over all parts of the body, external as well as internal, occasioning surprising anguish, resembling pleuritic, stomachic, iliac, colic, nephritic, cystic, hepatic, and splenetic pains. Hæmorrhages occur in this stage, but slight.

*Sect. 3.* A most offensive rottenness, inflammation, bleeding, and gangrene of the gums; loose, yellow, black, and carious teeth; varicose veins under the tongue; hæmorrhages, frequently mortal, from under the skin, without any apparent wound; as also from the lips, stomach, liver, lungs, spleen, *pancreas*, nose, &c.; ulcers of the worst kind upon every part of the body, chiefly the legs, yielding to no remedies, of a gangrenous disposition, and most foetid smell; *scabies*; crusts; a dry and gentle leprosy; violent, piercing, universal nocturnal pains; livid spots.

*Sect. 4.* Fevers of many kinds, hot, malignant, intermitting all manner of ways, vague, periodical, continued, occasioning an atrophy; vomitings; *diarrhæa*; dysenteries; severe stranguries; faintings; and an oppression upon the breast, often suddenly mortal; a dropsy; consumption; convulsion; *tremor*; palsy; contraction of the *tendons*; black spots; vomiting and purging of blood; putrefaction of the liver, spleen, *pancreas*, and mesentery.

He supposes the immediate cause of the scurvy to be a singular state of blood; in

which one part of that fluid is too thick and viscid ; while, at the same time, the other part is too thin or dissolved, saltish and acrid, Which latter, or its acrimony, is either of an acid or alkaline quality : a distinction here carefully to be remarked. Upon this hypothesis, he founds the following rules, *viz.* That part of the humour which is too thick, viscid, and stagnating, must be attenuated, rendered thinner, and put in motion ; mean while, what is already too thin, is to be thickened, and the predominating acrimony corrected according to its different kind and species. Now, as a singular regard must be had at the same time to these so opposite intentions of cure, he thinks it the masterpiece of art to cure the scurvy. And after observing that smart evacuations always exasperate, and often render it incurable, he lays down a process of cure adapted to the different stages and symptoms, as distributed in the four classes or sections (*t*).

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(*t*) In the first stage (see sect. 1.) we are to begin with a gentle, attenuating, deobstruent purgative, often repeated in a small dose ; next, to proceed in the use of attenuants, and what are called *digestive medicines* ; (Vid. *Willis*. It is needless to give *Boerhaave's* prescriptions here, as almost all of them in his *Materia medica* are taken out of *Willis* ; as is indeed his process of cure) ; concluding with a long continued course of the milder specifics, exhibited in almost any form. In the second stage (sect. 2.) all that has been mentioned is necessary, with the addition of the more acrid antiscorbutics. Baths for the body and feet, prepared with antiscorbutic ingredients ; also hot, dry friction, and often blood.

He concludes the subject with observing, that, in order to a successful cure of this disease, it is principally required to investigate the peculiar predominating acrimony in the humours; and as this acrimony may be either saline and muriatic, acid and austere, alkaline and fœtid, or rancid and oily; so it requires different and opposite cures; what is serviceable to one scorbutic patient, proving poisonous to another. The name of the distemper is not so much to be studied, but each particular species of it, according to the different kinds of acrimony above specified, as if it was a distinct disease.

1712. *Jo. Henrici de Heucher cautiones in cognoscendo curandoque scorbuto necessariæ.*

This pamphlet contains some of the most exceptionable doctrines of *Willis*, *Eugalenus*, &c. Of which the following may suffice as a specimen.

blood-letting, for certain reasons he mentions, are proper. According to the acrid thinness of the fluids, heat, or danger of a hæmorrhage; or, on the contrary, the viscosity and inaction of the humours, paleness, coldness of the body, &c. the antiscorbutics given, are to be moderately astringent, somewhat cooling, or hot or acrid. In the third species or stage (sect. 3.) all the already prescribed measures are to be used. The patient is also to take great quantities of soft antiseptic, antiscorbutic liquors, promoting for a considerable time gentle evacuations, by sweat, urine, and stool. In the fourth stage or species, (sect. 4.) the case is for the most part incurable: medicines are to be varied according to the different symptoms; sometimes mercurials do service, as likewise what was ordered for the third species.

a specimen. Mercury is very justly sometimes recommended in the scurvy by *Boerhaave*, when it is accompanied with fevers of various kinds, vomiting, purgings, sometimes of blood; violent stranguries, faintings, and oppression on the breast, often mortal; dropsy; consumption; convulsions; palsies; voiding of blood; putrefaction of the liver, spleen, *pancreas*, and mesentery.

1714. *A short essay on the scurvy, in which the causes and cure of that disease are briefly stated and demonstrated.*

Such persons as have long languished under a scorbutic habit, and have been disappointed of their expectations from the use of ordinary means, will find relief by having recourse to the author's never-failing medicines. He observes there were great disputes in his time concerning the doctrines of acid and alkali: some physicians believing the scurvy and other diseases to proceed from an acidity, others from an alcalescency in the blood; from these disputes about the cure, the poor patients suffered greatly, being very differently treated, according as they fell into the hands of one or other of the contending parties. The author supposes both parties to be in the wrong.



1732. 1734. *An account of the scurvy at Wiburg. Communicated by Dr. Abraham Nitzsch to Dr. Schulze. Commerc. literar. Norimb. ann. 1734, p. 162.*

It may be proper, first, to observe, that the scurvy is here a common disease. But what drew particular attention to it this year, 1732, was the uncommon number of the afflicted, and of those who died, together with its unusual duration. It persisted in its ravage from the beginning of the year until the month of *August*, with such remarkable violence, that I was sent thither by express orders in the month of *June*. I observed the appearances of the disease were not the same in all; but varied according to the different constitutions of the patients.

Those who were of a lax habit, laboured under swelling of the legs, (rarely of the belly) yielding easily to the impression of the finger, but often becoming harder upon the continuance of the malady. The *hypochondria* for the most part were tumid, the flexor tendons of the leg always contracted, with livid spots on the legs, knees, thighs, and back. Those spots, particularly on the legs and if the patient was full of blood, became often inflamed, and were attended with most acute pain, and quickness of the pulse. Now and then the white of the eye altogether

altogether bloody; and sometimes the eye lids were greatly swelled, being distended with effused, stagnating blood. In some the spots were pretty large, especially upon the thighs and back; in others they resembled only flea-bites, and were accompanied with swelling of the legs, universal lassitude, swelled, bleeding, and putrid gums; as also a pale wan countenance. Several were distressed with a great difficulty of breathing, cough and spitting, giddiness, and faintings, most commonly when in an erect posture; the latter often proved fatal to those who had been long afflicted. The appetite from the beginning was somewhat impaired, often leaving the patient upon his being affected with flatulencies and *nausea*, but returning upon the accession of a purging. The feet, *scrotum* and belly were sometimes greatly distended with a transparent watery swelling, and the skin inflamed. The gums having become a mass of spongy flesh, discharged, upon squeezing, a thin foetid matter; and the salivary glands were sometimes so stuffed, as to acquire the hardness of a scirrhus, which could not be resolved by any other means than by a natural and spontaneous salivation.

Persons of a thin habit were afflicted with symptoms different from those who were corpulent. They were every day more and more emaciated, and racked with violent

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shooting

shooting pains on the bones of the legs accompanied with a fever. The anguish did not fix in one place, but by shifting produced gouty pains, colics, the spasmodic asthma, headachs, toothachs, and contractions. By volatile medicines having been improperly given, the bowels, the liver and spleen, became hard; upon which ensued either a dropsy, consumption or flux, which constantly proved fatal. The gums were swelled and hard, painful to the touch, and often over-run with a cancerous ulceration.

In order to put a stop to this dreadful calamity, it was necessary that the remedies should be suited to the habit and constitution of the patient (*t*).

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(*t*) He therefore prescribed for those who laboured under the slow or cold scurvy, a decoction of *sum. pin. bacc. juniper.* and *trifol. fibrin.* Where there was reason to apprehend a swelling of the abdominal viscera, he gave the neutral salts, and alkaline tinctures: but where there was a fever, and inflammation on the *tibia*, the saline nitrous absorbents internally, and externally *sp. vin. camp.* with saffron. For the stiff tendons he used *ung. ner-vin. cum ol. philosop.* &c. and baths; for the swelled, bleeding gums, *ung. Ægyptiac. mel. ros.* and *spir. cochlear.* or *tinct. gum. lacc.* and *sp. coch.* or common water acidulated with *sp. vitriol.* The air was corrected three times a-day by a fume of juniper wood and berries. The *paracentesis* often succeeded with those who had the *ascites*, when free from a fever, and an oedematous swelling of the abdomen. It restored them to perfect health; as did also scarifications upon the calf of the leg and *scrotum*, when there appeared a tense watery swelling upon these parts; provided proper internals were administered, *viz.* aperient, diuretic, and strengthening



This present year, the *Cuirassiers* lately come from the *Ukraine* to *Petersburg* have furnished me with several other observations upon this disease. The symptoms were as usual. It was always a salutary sign when the spots appearing continued out. In two cases their sudden disappearance proved fatal. Besides the use of a decoction of pine tops, I found it necessary, every second or third day, to give a pretty smart purge: which had so remarkable good effects, that though many were bloated, yet none became dropfical. Bleeding with caution near the decline of the disease, when the pulse was strong,

strengthening medicines, such as *tinct. tartar. mart. antim.* neutral salts, &c. If there was any danger of a gangrene from these scarifications, as often happened, it was stopped by nervous and antiseptic applications.

In the painful scurvy, upon account of the dry habit of body, medicines heating and exagitating the blood, formerly given, were laid aside, and emollient remedies were prescribed, *viz.* a decoction either of barley or oats; or of *rasur. cornu cervi*, with *rad. scorzon. summit. millefol. et flor. chamæmel.*: as also oily medicines, *viz. ol. amygd. d. et sperm. ceti*; which often miraculously allayed arthritic pains, and the oppressive complaints in the breast. Antispasmodics were sometimes given, *viz. nitr. depurat. cinnabar. antimonii*, epileptic powders, &c. and occasionally absorbents, and the *testaceous* powders. When the *hypochondriaca* were obstructed, *rad. cichor. vel tarax.* was added to the decoction; and for the swelling, heat, and pain of the gums, the pulp of citron proved an excellent and agreeable remedy. By this treatment, and the blessing of Heaven, a stop was put to the calamity; inso-much that the number of the diseased, and of those who died, diminished every day, and in the space of a month it quite disappeared.



strong, evidently assisted in the cure. I can solemnly affirm it was followed with an increase of strength, a perfect relaxation of the tendons, which had before been attempted to no purpose by warm steams and baths, and a more speedy recovery. The disease left us in *May*, having acquired its virulence in *February*.

1734. *Observationes circa scorbutum; ejusque indolem, causas, signa, et curam. Auctore Joanne Fred. Bachstrom.*

From want of proper attention to the history of the scurvy, its causes have been generally, though wrongfully, supposed to be, cold in northern climates, sea-air, the use of salt meats, &c. whereas this evil is solely owing to a total abstinence from fresh vegetable food, and greens; which is alone the true primary cause of the disease. And where persons, either through neglect or from necessity, refrain for a considerable time from eating the fresh fruits of the earth, and greens, no age, no climate or soil, are exempted from its attack. Other secondary causes may likewise concur: but recent vegetables are found alone effectual to preserve the body from this malady; and most speedily to cure it, even in a few days, when the case is not rendered desperate by the patient's being dropical or consumptive. All which is founded on the following observations.

He remarks, that the scurvy is most frequent among northern nations, and in the coldest countries. There it is not confined to the sea alone, but rages with great violence at land, afflicting both natives and foreigners ; of which the poor seamen left to winter in *Greenland*, who were all cut off by this distemper, afford a memorable instance. But the opinion of its being produced there by cold, he thinks irreconcilable with the daily experience of its attacking seamen in their voyages to the *Indies*, even when under the torrid zone.

That it is not peculiar to the sea, the following histories sufficiently evince. During the late siege of *Thorn*, above 5 or 6000 of the garrison, besides a great number of the inhabitants, died of this distemper ; the surrender of the town being more owing to the havock made by this dreadful calamity, than to the bravery of the besiegers. Upon which he observes, that, allowing this disease to be most frequent among the northern nations in winter, yet the siege of that place was carried on in the heat of summer ; and the *Swedes*, the besiegers, a northern nation, kept altogether free from the scurvy. The mischief first attacked chiefly the blockaded *Saxon* garrison. They being almost all cut off, the inhabitants were at last obliged to do duty upon the walls ; of whom it also destroyed  
a great

a great number. But no sooner was the siege raised, and the gates of the town open for the admission of vegetables and greens from the country, but the mortality quickly ceased, and the disease at once disappeared:

In the end of the last war with the *Turks*; when the Imperial army wintered in *Hungary*, the country having been laid waste about *Tameswere*, by the calamities of the preceding war, many thousands of the common soldiers (but not one officer, as having a different diet) were cut off by the scurvy. The physician to that army employed his utmost skill, and used the most approved antiscorbutic remedies. Notwithstanding which, the mortality went on increasing during the winter. Unacquainted with the disease, or rather its remedy, he demanded a consultation of the college of physicians at *Vienna* for the preservation of the troops; whose prescriptions and advice were of no service. The disease still persisted with increasing virulence until the spring, that the earth was covered with greens and vegetables. And the physician now rejoiced as much in having found out the true cause of this evil, as before he had regretted his unhappy disappointment in the removal of so general and dreadful a calamity.

As some are of opinion, that warm and inland countries are altogether free from

this distemper, he gives an account from an officer of a *German* garrison in *Italy*, where many of the soldiers were cut off by it at a great distance from the sea. The officer himself, an *Italian*, was miserably afflicted, and given over by his physicians, who were altogether ignorant of his case; when a *German* surgeon, by lucky accident passing that way, rescued him from the jaws of death. He cured him in a few days, to the surprise of his physicians, by ordering his servant to the fields to supply him with green vegetables, especially the *sifymbrium* or red water mint, which grew thereabouts very plentifully.

The following relation is no less curious. A sailor in the *Greenland* ships was so over-run and disabled with the scurvy, that his companions put him into a boat, and sent him on shore; leaving him there to perish, without the least expectation of a recovery. The poor wretch had quite lost the use of his limbs; he could only crawl about on the ground. This he found covered with a plant, which he, continually grazing like a beast of the field, plucked up with his teeth. In a short time he was by this means perfectly recovered; and, upon his returning home, it was found to be the herb scurvy-grass.

From all which the author concludes, that as abstinence from recent vegetables is altogether



altogether and solely the cause of the distemper, so these alone are its effectual remedies. Accordingly he bestows the epithet of *antiscorbutic* on all of that class which are wholesome and eatable; observing Nature every where affords a supply of remedies, even in *Greenland*, and the most frozen countries. There no sooner the snow melts from the rivers, but their borders are covered with brooklime, cresses, and scurvy-grass, in ample prodigality. There Nature dictates to those barbarous nations, that what she thus blesses them with in such bounteous profusion, affords present health and relief in their malady. Of this all physicians acquainted with the nature of the scurvy, must be likewise sensible. The most common herbs and fresh fruits excel the most pompous medicines, especially those of the animal and mineral kinds. He divides antiscorbutics into three classes. The first contains the common pot-herbs, and all plants of an insipid, or rather sweetish taste, fruits of trees, &c. of this quality; and when in want of those, even grass itself may be eat. In the second class, he ranks all vegetables, roots, fruits, berries, &c. that are of a tart or acid taste: and these being of a middling quality betwixt the insipid plants of the first class, and the stronger bitters he includes in the third, they will prove more effectual than the first,

without being liable to some inconveniencies which may attend those of the third class. In this last he comprehends all fresh herbs, roots, and fruits, of a bitter and strong taste, of the nature of scurvygrass, cresses, &c. These last are with caution to be prescribed at first, or in great quantities. For prevention he recommends living much upon green vegetables, when they can be got; otherwise, upon preserved fruits, herbs, roots, &c. He advises seamen when at land to be more careful of laying up a store of greens than of flesh; and, in case of necessity, would have them when at sea to make trial of the sea-weeds that grow upon the ship's bottom; being persuaded, that the great physician of nature had not left them without a remedy, although he had never heard of its being tried (*b*). After a long abstinence from vegetables, the diseased are to begin with the milder antiscorbutics, proceeding by degrees to those of a stronger nature. In examining the mineral and fossil remedies, which have been so much recommended for the scurvy, he observes of nitre, that as it is a copious ingredient in most plants, it may perhaps be serviceable; but otherwise, all those classes are to be avoided. He condemns the use of steel, mercury, and alum; as likewise ful-

(*b*) I am informed they were tried in Lord Anson's ship.

fulphureous and vitriolic medicines, especially the strong acid of vitriol, which some account a specific in the scurvy; but they will find themselves disappointed.

1734. *Parcerga medica conscripta à Daniano Sinopeo.*

In *Cronstadt*, which is a low marshy island, and where the weather for the most part is cold, rainy, and cloudy, the scurvy is a common disease. It is most frequent and violent in the beginning of spring; but less frequent and more mild during the rest of the seasons, unless the weather proves cold and wet: and for the same reason it is more frequent some years than others.

The symptoms are, a putrid swelling of the gums, lassitude, and a remarkable pain and weakness of the legs; swelling of the feet and knees; contraction of the tendons a bloated, and as it were, dropfical habit of body, with a dark yellowish hue; costiveness, and a thick reddish urine. After those appearances, ensue pain, and even contractions of the upper extremities; livid spots of different sizes; pains in the shoulders, and small of the back. These latter prove very violent in such as are tainted with the venereal poison. Few die of this distemper; for the most part only those who have become consumptive or dropfical.

The learned author, in his very elegant and accurate account of the diseases which prevailed at *Cronstadt*, from the year 1730 to the end of 1733, observes, that when he first came there, *ann.* 1730, true pleurifies, peripneumonies, &c. reigned. Those fevers ceased in the spring; and an unusual dry and warm summer succeeding, there were few acute diseases, and even old habitual complaints became more tolerable. A dry and cold autumn, with a seasonable snowy winter, gave rise to but very few acute diseases; till about the beginning of *February*, when a catarrhal fever commenced. The weather proved then very unsettled; the spring was cold and moist; the summer much the same, with little heat. This catarrhal fever raged about twenty days. Upon its remission, pleurifies, peripneumonies, rheumatisms, &c. took place; and an intermitting fever, which continued the whole spring; as also the scurvy. This last made its appearance in the month of *March*, 1731, seizing at first only a few; but in a short time the number of scorbutic patients was equal to those in fevers; and afterwards exceeded them. It began with a bloated fallow complexion, livid spots, &c. and was accompanied with such symptoms as have been before mentioned. In the months of *April* and *May* it raged with uncommon violence, and continued almost  
till



till the middle of *July*; when it was abated by the heat of the season. Some patients became dropfical, others consumptive. Some laboured under the most violent colics, with obstinate constipation of the belly; others were seized with a mortification of the mouth and gums, scorbutic tumours, &c. Soft livid swellings arose upon the body: they were judged to be full of matter; but, upon opening them, nothing was discharged but a black dissolved blood: the ulcer was surrounded by a fungous rotten flesh, whose basis seemed very deep, and bled upon the gentlest touch (*c*).

Although the scurvy was a distemper bad enough of itself, it was, however, often rendered worse by being complicated with other intercurrent diseases, *viz.* fevers, and rheumatisms, but especially the intermitting fever. All who recovered from this last, became scorbutic. There was scarce any person either in the hospital or town, who laboured under even a chronic disease, who was not more or less affected by the scurvy. Hence all diseases whatever became more troublesome and obstinate this spring.

The scurvy having entirely ceased in *July*, a few mild fevers took place the rest of the summer, and autumn.

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In

(*c*) A very accurate description of scorbutic tumours and ulcers. Compare it with *Poupart's*, p. 242. *Dr. Huxham's*, p. 52. and other observations, p. 119, &c.

In the beginning of the year 1732 a gentle vernal fever prevailed; soon after, the *bastard* pleurisy was more frequent; and, lastly, the scurvy. All those diseases entirely ceased upon the appearance of a warm and dry summer. This continued but for a month, when the weather changed to rain and cold; which induced a universal distemper, *viz.* a catarrh, with cough, &c. It spread itself over all the countries about, raged much at *Petersburg*, and affected even those who were at sea.

After many curious observations foreign to our purpose, he remarks, that the vernal scurvy, *ann.* 1733, was milder than any of the former; but, nevertheless, contrary to custom, continued during the whole summer and autumn, the seasons proving wet and uncomfortable (*u*). The remedies used, were, essences and conserves of the antiscorbutic plants, hot aromatics, bitters, &c. The author gave many medicines; but, unluckily, few or none that were truly antiscorbutic.

(*u*) He has one singular observation, That the *scabies* and *purpura* prevailed at the same time with the scurvy.

1737. 1720. Geo. Henrici Krameri  
*dissertatio epistolica de scorbuto.*

*The case of the Imperial troops in Hungary;  
transmitted in a letter to the college of  
physicians in Vienna, by the author.*

The calamity which afflicts the Imperial troops, is not that species of scurvy described by *Eugalenus* and others. It differs from it in three particulars.

1<sup>st</sup>, It is not infectious. No officers are seized with it; and only the regiments of such nations as use too gross diet. 2<sup>dly</sup>, It is not a primary, but a secondary disease. It attacks only those who have recovered from fevers, and especially such as have had frequent relapses. 3<sup>dly</sup>, It is not attended with the many symptoms described by those authors. The appearances in all are constantly uniform, and as follow.

In the first stage the gums are swelled; they are apt to bleed, and stained with livid spots. Upon which ensue great putrefaction, a most offensive stench from the mouth, and a falling out of the teeth.

In the second stage or degree of the malady, there is for the most part a contraction of the joint of the knee, so that the patient cannot extend his leg. Violent shooting pains are felt in this joint, as likewise

wise often in the other joints of the body. The contracted knees are also swelled, with incredible pain and *rigor* of the tendons; and the skin is covered with bluish stains interspersed with small miliary eruptions. In one night's time the eyes, and even other parts of the body, become covered with large livid spots, as if the patient had received several bruises. These spots are altogether without pain. The muscles of the legs, thighs, and even cheeks, become greatly swelled, and hard, nay altogether indurated. But those swellings, as also the large stains, never suppurate. The pulse is quick, small, and hard; the urine red, with a thick unequal sediment.

If the patient still continues to use an improper diet, as is the case of many of our common soldiers from want of necessaries in *Hungary*, the malady advances to its third stage. The gums become prodigiously swelled, together with the cheeks. A mortification, or *caries* of the jaw, ensues; both which prove incurable. The difficulty of breathing is so great, that the patients not only faint away upon the slightest motion of the body; but frequently, when walking about, drop down suddenly dead. They generally complain excessively of this difficulty of breathing a few days before death, though they have neither cough nor spitting. All the species of dropries, and watery swellings on the body, accompany the



the advanced stages of this calamity; in so much that, by lying with the head in a declining posture, the face in half an hour becomes so swelled, that the person cannot open his eyes. Such swellings often disappear and return. They are subject to profuse bleedings at the nose; and, in these deplorable circumstances, to a purging with frequent discharges of blood by stool, which often closes the scene. In the beginning of the disease, the appetite and thirst are natural; but towards the close of the malady, the appetite fails and the thirst is increased. Of the many other symptoms described in this disease by authors, none else occur but those alone which have been mentioned.

This is the fatal mischief which destroys many of our people in *Hungary*, at farthest in the space of two or three months, but for the most part in three or four weeks. If the patient survives until summer, he either perfectly recovers, or remains incurably contracted.

The causes of this evil are, frequent relapses after fevers, which have been epidemic in the country; the moist and marshy soil; but especially gross and viscid diet, viz. flesh and the grosser farines, coarse heavy bread, and pudding (or a food called *rollatschen*) eaten by the *Bohemians* more than by all others. They are indeed almost

most the only nation who suffer. One thing remarkable is, that this disease does not appear in *Hungary* in summer, autumn, nor in winter; but every year in the beginning of spring.

I come now to what has been attempted, both by myself and others, towards the cure: and must first observe, that 400 of the troops near *Belgrade* having taken mercury without my advice, the dreadful consequence was, they all died in a salivation! Shunning therefore that fatal drug, I generally at first gave a vomit, in order to cleanse the stomach, and so to procure a more certain entrance of the specific antiscorbutics, with their full virtues, into the blood. I then administered, in every form that could be thought of, or that has been recommended by authors, the most approved antiscorbutic remedies (*w*); but, alas, all was in vain!

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(*w*) *Radices, raphan. taraxic. ari, asari, gentianæ, angelic. helen. acori, sarsaparill. chinæ, &c. Folia, et herbæ aridæ*, (for here the green fresh plants cannot be procured) *becabung. nasturt. trifol. fib. cochlear. acetosf. scordii, rutæ murar. rosmar. salv. cent. min. sedi minim. &c. Ligna guajac. sassapbras, &c. Strobili pin. cortices winteran. guajac. aurantior. Baccæ juniperi, lauri, &c.* I have also given salts of every kind, volatile and fixed, particularly *sal vol. cornu cervi, arcan. duplicat. sal. tartar. fix. sal ammoniac. crud. cremor tartar.* with chalybeates of all sorts. *Spir. sal. ammon. sal. vol. ol. spir. et tinct. tartari, tinct. bezoard. spir. cochlear. &c.* In place of the juice of citrons and lemons, which cannot be got here, I gave *acet. theriac.* or vinegar, in which many of the before-mentioned ingredients, particularly the celebrated *rad. armoraciæ*, were infused. I was not sparing of the most costly medicines, *tinct. mart. antimonii, lunæ belvet. &c.*

In a word, there is nothing that has been recommended by the best classical and standard authors (*d*), which I have not made trial of, except the juices of the fresh green plants, and their quintessence recommended by *May* (*e*): It not being in my power to procure those herbs, or their juices; because, as I observed before, they do not grow in this country. We have nothing here but wild rocket and wild mustard (*f*); but even of these, who can gather a sufficient quantity for such a number of the distressed? Milk, were it proper, cannot be purchased for so great a multitude of people: and the same may be said of whey.

After having met with such melancholy disappointments, in the trial of what has been recommended by others, and whatever I could think of myself; reflecting that tedious fevers had generally preceded, and that a slow fever still accompanied the disease, I had recourse to the *cort. peruv.* given in the form either of electuary or infusion. By this, in a few days, I formerly cured sixty soldiers in the regiment of *Bagnan*, who were in the second stage of  
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(*d*) Here he enumerates sixteen modern writers on the scurvy, of the greatest repute, with an &c.

(*e*) A medicine of Dr. *Michael's*. Vid. p. 141. The author afterwards observes, that it was of no efficacy.

(*f*) *Eruca lutea et rapistrum arvense.*

the disease. It is now two years since : but at the same time they had a proper diet, and such food as cannot at this time be procured. I have already tried mustard-seed, which is said to have saved the besieged garrison of *Rochelle*, when over-run with this disease ; but here, like all other remedies, it is of no efficacy. I need not say any thing of external applications : as such powerful internal helps do not avail, little can be expected from them. I shall only observe, that different regiments have used the baths of the country ; but all to no purpose.

I therefore humbly request, that if any of you, gentlemen, be possessed of an *arcanum*, or a remedy that may overcome this *Herculean* disease, you will favour me with it ; as also your best advice. Perhaps some of you may have the knowledge of the fixed mercury boasted of by *Dolæus* and *Helmont*, which will cure the scurvy without the aid of such a proper diet as cannot at this time be procured for the wretched sufferers in *Hungary*.

A copy of this melancholy case of the troops was delivered to each member of the college of physicians in *Vienna* ; and, by order of the Dean of Faculty, all were desired in three days time to give in their opinion in writing. Which produced the following answer.

We



We have received your very accurate account of the scurvy, which commits such dreadful havock among the Imperial troops during the spring in *Hungary*; and it is ordered directly to be printed. After having had all circumstances duly weighed by the most experienced of our faculty, the first rule we prescribe, is great attention to the *nonnaturals*. Without this, the most excellent medicines may fail; but when a proper regard is had to these, simpler remedies will do great things. As the sources of this calamity seem to be impure air, and an unwholesome marshy soil (evils not easily remedied); the troops must often shift their quarters, and remove into a better air. When in unhealthful stations, they are, by way of prevention, to use the smoak of tobacco, juniper, &c. They should have always dry straw to lay upon the ground; and as wholesome food as can be procured for them.

As to the cure (after noting with infamy those who have recommended a mercurial salivation in this disease, as more properly destroyers of the human race than physicians) we would advise a gentle vomit of *ipécacuan* to be premised; and afterwards the approved antiscorbutics of the vegetable kind to be given, *viz.* scurvy-grass, brooklime, cresses, fumitory, *St. John's* wort, marsh-trefoil, &c. The juice, extract, tincture, decoction, &c. of these, may

may be administered either in whey or broth. As you have none of those plants, we have sent you their seeds to be sown in the country; and until such time as they grow up, have supplied you with a quantity of the dried herbs, and of their inspissated juices. Besides which, we would recommend two remedies of great and experienced virtues (*f*).

*The author's farther explanations and experience in this disease.*

The scurvy attacked only those who, after frequent relapses, and a recovery from fevers, used a crude viscid diet. Hence not one officer was seized with it; nor even any of the common men among the dragoons, as their pay and living were better. It was always accompanied with remains of the fever in the pulse and urine. Both in *Hungary* and in *Piedmont*, where the troops were lately afflicted with it, the natives were at the same time altogether exempted from it. The disease occurs oftentimes in *Germany*, among such people as live altogether on the boiled pulses, without eating any green vegetables or summer-fruits. In  
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(*f*) The one a paste of *pulv. rad. chin. sarsaparil. et bordei*, from *Hoferus*; the other, a distilled antiscorbutic water, from *Zwingerus*. The author afterwards observes they were of no efficacy.

the hospital at *Dresden* there are scorbutic patients every year. It is often a fatal mischief in besieged towns, as also to seamen in long voyages. It is, however, quickly cured in cold countries; as in *Greenland*, by scurvygrass; and in warmer countries, by the juice of oranges. *Dutch* sailors effectually prevent this distress, by eating once or twice a-week pickled cabbage. When blood was injudiciously drawn for relief of the scorbutic *asthma*, there was no separation of the watery part: it was covered a-top with a white greasy film. The contraction occurs in no other joint but the knee. The disease constantly begins, and regularly advances, in the manner as described in the relation transmitted to the college. No person can be supposed to labour under the scurvy, or any symptom of it, unless the gums are affected. Putrefaction of the gums is the primary and inseparable symptom of the malady in its very first stage. A great difficulty of breathing, dropsy, and dysentery, attending the last stage, render the case often incurable. As to scorbutic pains, it is remarkable they afflict equally both day and night, and are not increased by heat, or by lying in bed. The knees, when swelled, are generally covered with large effusions of blood under the skin. These never come to suppuration on any part of the body, ex-

cept on the gums, where they often break and ulcerate. The flexor tendons of the legs alone become rigid, *viz.* the tendons of the *seminervosus* and *semimembranosus* muscles. Colics afflict in this disease when there is a *diarrhæa* or dysentery, but never otherwise. In many thousand scorbutic patients, I never once saw the true pleurisy, nephritic pains, strangury, nor bleedings from the skin, except where there was a wound; although scorbutic people are subject to discharges of blood from the lungs, stomach, intestines, &c.; nor did I ever observe any other ulcers than what have been described, in the gums and cheeks, much less any species whatever of a *scabies*. Scorbutic persons are never afflicted with epileptic fits, palsies, tremors, &c. Their death is for the most part tranquil, if you except their laborious breathing.

I can aver from experience in above a thousand cases, that this malady is most effectually cured by the fresh juice of scurvy-grass and cresses, either mixed or separately, taken to the quantity of three ounces twice or thrice a-day in warm broth. These juices occasion slight flushings of the face, are carminative, and promote urine and perspiration. As those herbs cannot be obtained fresh in many parts of *Hungary*, nor in warm climates, the disease may be effectually cured by three or four ounces of the



the juice of oranges or citrons, taken twice a-day in a pint of water with sugar, or rather in whey. By juice of citron in whey, twenty patients were lately cured in the hospital of *St. Mark* at *Vienna*. As to a preservative medicine against it, I know of none but the tincture of the *Peruvian* bark, taken at bed-time to the quantity of two *drachms*, either by itself, or mixed with other bitters. By this remedy the famous Count *Bonneval* preserved himself and his domestics, many years in *Hungary*, free from the distempers of the country.

1739. *Frederici Hoffmanni medicinæ rationalis systematicæ tom. 4. part. 5. cap. 1. de scorbuto, ejusque vera indole.*

In what he terms a compleat history of this disease (in an enumeration of the symptoms, classed in *Willis's* manner according to the different parts of the body affected) among other things he observes, the scorbutic colic is distinguished from all others, by the pain being so shooting, acute, and intolerable. The belly is not, as in other colics, distended with wind: but the navel is drawn inwards, so as to form a cavity sufficient to hold one's fist. It is very obstinate, yielding neither to medicines nor fomentations; and has often this peculiar to it, that it terminates in a palsy. After

a preceding scorbutic *asthma*, the patient is very apt to fall into a dropsy, especially if violent purgatives have been used. The scorbutic toothach is distinguished from all others, by its suddenly attacking, and as suddenly leaving the patient. Scorbutic headaches are most troublesome in the evening; but upon a sweat breaking out, they leave the patient. Some in this disease keep awake for many weeks without being sensibly weakened by it. Scorbutic ulcers appear in the following manner. First, the part is painful; then the cuticle separates in like manner as if boiling water had been poured upon it; a watery humour ouzes forth, and the part becomes extremely painful; but true *purulent* matter is scarce ever observed to flow from the ulcer. At other times, scorbutic ulcers continue deep, and quite dry, without affording any discharge; and these are very apt to gangrene.

He thinks the best cure for the scurvy is the mineral waters. They are sufficient to effect it, as long experience had convinced him, when aided by a proper diet and regimen. For this purpose, he recommends the *Caroline* and *Selters* waters. Where the conveniency of mineral waters is wanting, he advises drinking simple, pure, and light water of any sort; which will often remove the disease. But it is still

better if the water partakes of steel principles, such as the *Lauchstadt* spring, two miles from *Hall*. It is to be both outwardly and inwardly used. He likewise recommends a milk-diet, especially asses milk. When a scorbutic habit of body is complicated with obstructed *viscera*, cachexies, the hypochondriac disease, or the *purpura chronica*; then the cure succeeds better, if the milk be taken mixed with the mineral water. He observes the great detriment of mercury in this distemper; and mentions various antiscorbutics, bitters, emollients, &c. that may be proper.

1744. *Siris: A chain of philosophical reflexions and inquiries concerning the virtues of tar-water. By the Right Rev. Dr. George Berkeley, Lord Bishop of Cloyne.*

The scurvy may be cured (if the author may judge by what he has experienced) by the sole, regular, constant, and copious use of tar-water.

1747. *Theoretisch practische abhandlung des scharbockes, wie sich derselbige vornemlich bey denen kayserlich Russischen armeen an verschiedenen orten geaußert und gezeigt hat, &c.: or, A theoretical and practical treatise on the scurvy, as it has appeared chiefly in the Imperial Russian armies, together with a circumstantial description of its causes, its*

two classes and their different species, the ordinary and extraordinary symptoms, the remedies for it, and the necessary regimen. By *Abraham Nitzsch*.

Three different opinions of physicians concerning this disease deserve censure. 1<sup>st</sup>, Some extend the term of scurvy by much too far, comprehending under it almost all diseases in which there is a considerable impurity or corruption of the juices. 2<sup>dly</sup>, Some though not entirely denying the existence of the scurvy, yet limit or circumscribe it within too narrow bounds. 3<sup>dly</sup>, Others have described its causes, its different kinds and its cure, in too vague and indefinite a manner.

It has been difficult for physicians to make a perfect system of this disease, as it does not usually occur in their common practice; being confined chiefly among the poorer sort of idle people, who are in distressed circumstances, and who live in a moist air. Besides, the frequent modern practice of drinking tea and coffee, by thinning the blood and diluting its salts, has in place of the scurvy in many countries where, according to the relation of credible authors, it in former times greatly prevailed, introduced a new disease, *viz.* the *purpura*, as Dr. *Hoffman* has shewn (*a*).

It may be proper to premise that I am  
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(*a*) *Hoffmani disputatio de purpuræ genuina origine, &c.*



unacquainted with the nature and appearances of the scurvy, so common and fatal at sea ; but that this disease was among the first which occurred to my observation in the army, and it arose to such a pitch of violence, as not only to require the utmost care and skill of the physicians and surgeons, but also to command the attention of the generals.

This evil has been attributed to the use of salted flesh-meats, the vapours arising from the sea have also been blamed ; but such opinions are confuted by daily experience. Others would ascribe it to a mere want of a sufficient quantity of vegetables, neglecting more considerable circumstances, as will appear by the following observations. There being two classes of this distemper, that which is denominated the *slow* or *cold* scurvy, may rather be said to proceed from a concurrence of causes, and their operation for a considerable time, *viz.* a constitution impaired by trouble and diseases ; improper, gross, and corrupt aliment ; much fatigue, grief, or anxiety of mind ; a moist air, accompanied either with cold or with heat ; confinement in low damp crowded places ; as also drinking impure putrid water. These acting in conjunction produce the scurvy, and are sufficient to heighten the evil to an extreme degree of violence.

As such causes operate but slowly in the human body, the progress of the malady is very gradual. The healthful colour of the face more and more disappears. There is a general lassitude. The thighs and legs feel heavy, and a remarkable weakness is perceived in the knees and ancles. At the same time, the gums begin to swell and corrupt. The preternatural colour of the face afterwards encreases, the legs begin to be painful, the cheeks and joints to swell, the gums become surprisngly rotten, the body more feeble, and a difficulty of breathing ensues upon using of exercise, the knees and joints being stiff. Finally, the appetite gradually decays, and the body becomes constipated. In a certain kind of this disease, commonly several blue spots appear all at once. By these, and the former symptoms daily gaining ground, the true nature of the distemper fully and plainly appears. And this is the slow or cold scurvy, which is by far the most frequent malady; the symptoms and causes of the other, or *hot scurvy*, being very different. It arises from an *inert* chyle tending to *putrescence* in the first passages, with a great laxity of the *viscera* and of the secretory and excretory organs, as also of all the solids: from whence the blood acquires a thickness, and is rendered in a manner putrescent, shewing itself by a remarkable

markable bad colour, and a preternatural swelling or inflation of the body. It is usually a tedious troublesome disease. The hot scurvy is not so commonly met with. It proceeds from a prevailing alcallescent acrimony and thinness of the blood, occasioning a total waste of the body, and at all times the most violent symptoms, attended with great pain and a constant fever. In both there is a general weariness; a particular debility of the joints; the gums are partly spongy and fetid, partly hard, swelled, and hot; the pains in the limbs are sometimes fixed, at other times they shift; the knees are stiff, and sometimes also swelled, nay, much inflamed and violently pained; more or less hypochondriac symptoms, and a fever attend it. And these are the genuine essential signs of scurvy: but before we proceed to the hot scurvy, of which there is but one single species, it may be proper to distinguish the different kinds of cold scurvies.

The first is what occasions large, black, and blue spots, on the legs and joints; sometimes on the breast and back, not unusually on one or both eyelids, and on the white of the eye; which appears swelled, and of a deep red colour. The gums are greatly swelled, discoloured, and very lax or spongy; and when pressed, discharge either a yellow ill-scented blood, or matter.

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The parotid glands are also usually much enlarged and hardened. This species, proceeding from a remarkable coagulation of the red globules of the blood, I call a livid scurvy; being the only species that is accompanied with dark or reddish large spots, or livid streaks upon the skin. The patient commonly when they appear is very feverish, and the pains are very violent. It occurred chiefly at *Wiburg*, ann. 1732; and again at *Petersburgh*, ann. 1733.

In the second species, the red globules of the blood are not so much coagulated; it proceeds chiefly from a viscosity of the watery or serous parts of the blood. The spots appear of a deep red, turning afterwards to a darkish yellow; being very small, so as to resemble lentils, flea-bites, or *petechiæ*; and are discovered no where else but on the legs and thighs, attended with a pain in those parts. Sometimes reddish blue spots appear above the knee, and in the ham; according to the redness of which the pain and swelling there, as also the quickness of the pulse, is always increased. The gums are not so lax as in the former species: the upper part of them, however, is commonly excoriated. On the palate or inside of the gums several tumours appear, or on the inside of the cheeks may be observed swellings, sometimes



times hard, knotty, and wart-like: and sometimes a uniform hard swelling extends itself even to the back part of the mouth. This species, from the form of the spots, is denominated a *lenticular* or *petechial scurvy*. The patient spits more, and the breath is more foetid, than in any other species of scurvy. Sometimes the temporal muscle is swelled and hardened under the zygomatic process; but the parotid glands never are. It shewed itself, *ann.* 1732, at *Wiburg*, only in a few patients; but afflicted much greater numbers, *ann.* 1737, in the intrenchments at *Ust-Samara*.

A third species of this disease proceeds from a corruption of the fat or oily particles of the blood. There being no viscidty of the blood, there are consequently no spots. On the contrary, an universal pale swelling covers the body; which becomes of a yellowish colour, when those oily particles turn rancid. When the fat assumes a hardness like tallow, the thighs and arms are vastly swelled, and so hard as not to yield to the impression of the finger; and very hard tumours, or *tophi*, form on the hands and fore-part of the legs. Now in this species the serous or watery parts of the blood become much more easily and quickly vapid than in the others, and the saline particles daily more and more acrimonious. Hence the cheeks are more  
swelled,

swelled, the knees more violently contracted, the teeth looser, and the gums much more lax and spongy. Sometimes a fungous flesh rises at the angle of the lower jaw, and the jaws are locked either with or without an induration of the parotid gland, *crotaphite* or *massèter* muscles. When this vapid *serum* or water is accumulated in the cellular membrane under the skin, an universal dropfy is produced; or when within the substance of the lungs an asthma, upon which a dropfy of the breast ensues; when in the belly, a dropfy is formed there; and lastly, when discharged by the glands of the intestines, a flux distresses the patient. Further, when this vapid serum, by an addition of oily and saline particles, has acquired an acrimony, it occasions the most violent and gnawing pains in various parts of the body. Wherever the serum corrupts, the pains become there altogether intolerable; chiefly upon those parts where the ribs are joined to the breast bone; part of the bones of which may be taken out quite carious. It also produces a convulsive suffocating asthma, a wasting painful flux, and afterwards a gangrene of the cheeks, or an incurable dropfy of the belly. This species is of longer duration than any other, continuing often the whole summer, until late in autumn. And as it is accompanied with no spots,

spots, it may be denominated the *pale scurvy*; but more particularly when the fat of the body is only thick and viscous, it might then be called the *mucous pale scurvy*; and when it is become rancid, the *rancescent scurvy*; or when hard, and tallow-like, the *tophaceous scurvy*; lastly, when the serum is become acrimonious, the *muriatic scurvy*. The mucous sort was the first the author met with, and remarked it most frequent before *Asôph*, in the general field-hospital at *St. Anne*; as also in the *Neister* campaign. He observed the tophaceous first in *Finland*, at *Borgo*, ann. 1742; and the muriatic, where the cartilages of the ribs were entirely separated from the breast-bone (g), as was plainly to be seen and felt, at the field-hospital at *Abo*, ann. 1743.

These are the chief kinds of the slow scurvy, which occurred in the *Russian* armies, and fell under the author's observation. There is indeed yet another species of it, proceeding probably from a total dissolution of the red part of the blood; which occasions an extraordinary weakness and redness of the body, swelled pendulous cheeks, a bloated habit of body extremely stinking, fungous gums, full of a bloody humour, with somewhat contracted or rather weak knees, &c. But this he never observed

(g) Cases similar to those at *Paris*. Vid. dissections, part 2. cap. 7.

ved, except in some few patients in the intrenchments of *Ust-Samara*.

Thus much of the cold scurvy. There remains the other general branch of this disease, *viz.* the *hot* and *painful scurvy*. It is distinguished from the former, 1<sup>st</sup>, By there being no fullness or swelling of the body; on the contrary, there is rather a decay or wasting (*b*). 2<sup>dly</sup>, The gums are neither so spongy nor do they yield so bloody, foetid, or discoloured an humour; but are rather very hard, swelled, hot, and so painful, that the gentlest touch gives agony. 3<sup>dly</sup>, The pains are not so fixed as in the cold scurvy. The patient makes continual complaints, sighing and bemoaning his unhappy condition; and has a constant, though irregular, fever. The pains fly from one member to another; sometimes from the joints and back to the whole or half of the head, teeth, and neck; where, after occasioning the most exquisite torture, they again instantly attack the outside or inside of the breast, occasioning extreme oppression, stitches, &c.: afterwards, seating themselves in the belly, they produce colics, nephritic pains (*i*), and stoppage of urine,

(*b*) Vid. part 2. p. 260.

(*i*) Vid. *Sinop.* part 3. p. 400. By the account of northern writers it would seem, that venereal diseases do not so readily yield to mercurial medicines there, as they do in warmer climates. *Sinopeus* tells us, that he found great difficulty to cure even a common *gonorrhœa* at *Cronstadt*.



urine, and in the limbs all sorts of convulsive contractions. *4thly*, The knees are inflexible and contracted: but, unless it has been occasioned by some outward accident, they are not so much swelled or inflamed as in the cold scurvy. *5thly*, No spots are seen. *6thly*, There is a difference to be perceived in the urine, which in the livid and petechial scurvies, though not accompanied with any remarkable degree of fever, is commonly of a deep red colour, and undergoes little alteration by standing: but in the hot scurvy, as there is always a fever, it drops a copious sediment, and shews a film swimming at the top. This hot scurvy he has remarked sometimes; but he no where saw more patients labouring under it than at *Wiburgh* and *Cobilack*.

It may not be improper to describe the various causes which produced this calamity, *viz.* principally the pale scurvy, in the order in which they occurred.

*1st*, As to the siege of *Asoph*: This place was attacked in the spring *ann.* 1736, in  
very

*fact.* And as for the pox, except it was very recent, the taint could not be subdued by repeated salivations: for the disease generally broke out again, always in the spring, together with the scurvy; the latter seeming constantly to awake any sparks of the venereal poison lurking in the body. During the prevalence of the scurvy, those who, for venereal complaints, underwent a slight salivation, fell into a dreadful scurvy; which being removed, left a worse *lues* behind it.

very piercing cold weather, accompanied with frequent rain, sleet, and sometimes with snow. And as there were no woods in the neighbourhood, the troops suffered extremely, during this rigorous season, for want of fuel. Nor did the regiments fare better who were ordered to join us; as most of them were obliged to begin a long journey by land, upon a very short warning; or were transported in boats down the *Don*, together with the artillery, from the garrison of *Nova Pawloffsky*, and the adjacent places. Now, as this siege, by various accidents, was protracted for three months, the inconveniencies and hardships which the troops suffered, were extremely great.

1<sup>st</sup>, The weather became afterwards excessive hot; and was quite unsupportable during sun-shine, and on calm days. 2<sup>dly</sup>, We had a great deal of moist rainy weather; which greatly incommoded our army, which was incamped on slippery and hilly ground; as also the sick in their tents, who were not well attended; their tents were also ill contrived, and badly sheltered. 3<sup>dly</sup>, Sicknefs was occasioned by the too frequent eating of fish badly dressed, with which the plentiful river *Don* abounds. 4<sup>thly</sup>, The bread was not sufficiently baked, for want of fuel. 5<sup>thly</sup>, The water was very impure, being taken up from the formidable parts of the *Don*, and it became every day

day more impure. To which may be added, the preceding camp-disorders, *viz.* fluxes and obstinate quartan agues; besides the passions of the mind raging in the breasts of the soldiers, *viz.* revenge, anger, discontent, &c. and the great fatigues they underwent.

As to what regards the fortress of St. *Anne*; though this place is situated pretty high, yet the country about it lies so low with respect to *Great and Small Russia*, that it is from thence annually overflowed, generally in the months of *March* and *April*, for thirty versts around, upon the breaking loose of the ice and snow. It appears at this time like a great sea; and many parts are sunk several fathom below water. This inundation of the *Don* brings along with it an incredible number of excellent and very fat fish; which were sold excessively cheap, and eat in immoderate quantities. During the inundation, the air is very raw, cold, and windy. At the time of its drying up, the days are excessively hot; and the sun is scorching, when the weather is fair; but the nights, on the contrary, are intolerably cold, and the air is foggy and moist. As the morasses dry up, and the remaining fish (especially cray-fish, of which there is an astonishing quantity left behind) begin to putrify, the air becomes offensive; and so thick, that it is several hours every morning,

before the sun has power to dissipate the noxious vapours. Upon the retreating of the flood, the ground shews a sandy bottom, and is formed into little islands and banks of sand, surrounded with fords filled with stagnating water. What was drank, was often not taken where the stream was quick and deep, but in such fords where it was muddy and greasy. The fish remaining behind, were eat in immoderate quantities badly dressed. The barracks were built on morasses, damp ground, and too low. Lastly, The soldiers being the only inhabitants of the garrison, were obliged to stand every day up to their middle in water, in order to unload the necessary wood; which is always sent them for fuel and building from the *Ukraine*.

The principal reason why, of those regiments who marched to *Oczakow*, such a considerable number were attacked by the scurvy, and brought into the hospital at *Cobilack*, was, the excessive fatigues they underwent through the whole winter, partly in cutting open the ice of the *Neiper*, to prevent the incursions of the *Tartars*; and partly in performing other hard and severe military duties, either in stormy rainy weather, or during excessive frost and cold, without having proper conveniencies, lodgings, or diet. Even those who underwent no fatigue, being afflicted with dif-



ferent complaints, for want of sufficient attendance, rest, and quiet, in the army, became also scorbutic.

As to what regards the great number of scorbutic patients, which occurred not only during the march of the army from *Oczakow*, but also during the *Neister* campaign; the author treats only of the latter, as having been there in person; and because, according to his best information, the occasions and causes of the malady in both differed very little, or rather not at all.

The most part of the recruits required to complete the army, joined it seldom sooner than when either the army was ready to march, or was actually in motion. And though they were generally young raw fellows, excessively fatigued after a long and tedious journey; yet it was not possible then to grant them any rest or necessary refreshment. They were directly incorporated into the respective regiments; and entered at once upon a new way of life, *viz.* of constant disquiet, military hardships and severities, and of great fatigue. The marches were begun early in the morning, often during thick fogs and dews, heavy rains, or severe cold. Towards the middle of the day, they were oppressed with intolerable scorching heat, and clouds of dust, or with much rain. The march was protracted for the most part till noon,

and often beyond that time, according as water, wood, and forage were to be met with in those desert places. Thus the poor foldier, after a fatiguing journey, quite spent with thirst, and enfeebled by the excessive heat of the sun, or drenched in rain, arrived at last at the camp. But often, even here, no rest could be permitted him. He was obliged, according as it was his tour, to go upon the piquet, *tabunen*, or the centinel's duty. Another great hardship was the want of good and clean water upon the roads. Overcome by the excessive heat, some threw themselves naked into every dirty muddy pond they met; while others endeavoured to allay their violent thirst, occasioned by the dust and sun, by greedily drinking up every drop of filthy stagnating water they saw upon the ground. This bred many diseases, especially continual inflammatory fevers, &c. men full of blood were attacked with apoplectic fits; which if not removed by immediately blood-letting, they quickly expired. Their blood was so inflamed, that it came out of the veins as thick as pitch. But the hardships which the sick underwent, were still greater. They were by most regiments carried in open carts, exposed to all the inclemencies of the climate and weather, *viz.* to rain, dust, and wind, heat and cold. In passing the defiles, being

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generally the last, it was always several hours before they arrived in camp after their regiments; notwithstanding on the marching-days they set out early in the morning, long before the rest of the army; and after having been quite wet with rain in their carts, were then taken out, and laid upon their beds stretched out under moist canvas, upon the cold wet ground. Nor, in such afflicting circumstances for the sick, was it a small addition to their misery, that, in this desolate and uninhabited country, proper food and drink could not be procured, in order to restore them to health. Hence it is not to be wondered at, that from such causes, as also by reason of the great preceding sickness and fevers in the camp (which, for want of conveniencies and proper treatment, were not brought to a perfect crisis) the scurvy raged with such uncommon destruction.

It is, however, remarkable, that this fatal calamity was greatly prevented in the *Chocim* campaign, *ann.* 1739, by sending the recruits much earlier; so that they had sufficient time to be refreshed after their journey, and were accustomed a little to the military life and diet before they marched: as also by every regiment's being provided with a certain number of covered waggons for their sick; in which they were at all times sheltered from rain, dust, wind, and weather.

The happy effect of those excellent regulations was, that in a whole division, consisting of ten or twelve regiments, we had scarcely as many scorbutic cases as occurred in the former campaign in one regiment only; and of these an incredible less number died.

From these observations it appears that the scurvy occurs as well in the hottest climates, and in the midst of the continent, as in the cold northern regions, or near the sea. The pale scurvy is the only species of the *slow* scurvy which is not confined to certain months of the year. In the livid scurvy, the blood is very liable to an expansion, which has occasioned this species sometimes to have been mistaken for the hot scurvy: heating and irritating remedies for this reason must be avoided. The acrid antiscorbutics are serviceable in the petechial and pale *mucous* scurvies; as also in the tophaceous, where it is proper to give salts along with them, such as salt of worm-wood, *cream* of tartar, and *vitriolated* tartar; but in the rancescent and muriatic scurvies, they are very pernicious. It is to be observed, that the rancescent and muriatic scurvies do not affect the whole body. They are rather symptoms incident to other species; as for example, to the livid scurvy, though but seldom and in few parts of the body; to the pale scurvy, more frequently and  
then



Chap. II. *Scurvies in the Russian armies.* 439

then in many parts of the body. The rancescent appears principally in the cheeks; the muriatic commonly first at the ribs, and their articulation with the breast-bone.

As to the proper regimen, the sick in the slow scurvy ought to have particularly spacious dry rooms, in which too many of them are not to be crouded. The apartments are to be kept clean and airy, and often perfumed with the steam of strong vinegar poured on hot stones, or of burnt juniper-berries. Those who are very feeble, and such as are afflicted with the hot or with the muriatic scurvy, cannot bear exercise, or being exposed to a cold moist air. Patients in the pale scurvy especially, require hot and dry rooms; whereas those in the hot scurvy bear with a moist air better than with an air too hot and dry; and are particularly much refreshed in hot and dry weather by having fresh sand, or grass in their room, or water sprinkled on the floor.

Bathing is prejudicial in the beginning of the slow scurvy. Fresh vegetables, though otherwise proper, are not to be permitted when the body is already much wasted, or in a flux. Horse-raddish and fir-tops steeped and fermented with beer; or infused in brandy; and mustard, where no fever or other symptoms forbid their use, are extremely serviceable, principally in the petechial and pale mucous scurvies, after cleansing the stomach and intestines.

1748. *A voyage round the world, in the years 1740, 41, 42, 43, 44, by George Anson, Esq; late Lord Anson, commander in chief of a Squadron of his Majesty's ships, sent upon an expedition to the South seas. Compiled from his papers and materials, by Richard Walter, M. A. &c.*

Soon after our passing straits *Le Maire*, the scurvy began to make its appearance amongst us: and our long continuance at sea, the fatigue we underwent, and the various disappointments we met with, had occasioned its spreading to such a degree, that, at the latter end of *April*, there were but few on board who were not in some degree afflicted with it; and in that month no less than forty-three died of it on board the *Centurion*. But though we thought, that the distemper had then risen to an extraordinary height; and were willing to hope, that as we advanced to the northward, its malignity would abate: yet we found, on the contrary, that, in the month of *May*, we lost near double that number. And as we did not get to land till the middle of *June*, the mortality went on increasing; so that, after the loss of above 200 men, we could not at last muster more than six foremast men in a watch, capable of duty.

This disease, so frequently attending all long voyages, and so particularly destructive to us, is surely the most singular and unaccountable

countable of any that affects the human body. Its symptoms are unconstant and innumerable, and its progress and effects extremely irregular : for scarcely any two persons have the same complaints ; and where there hath been found some conformity in the symptoms, the order of their appearance has been totally different. However, though it frequently puts on the form of many other diseases, and is therefore not to be described by any exclusive and infallible criterions ; yet there are some symptoms which are more general than the rest, and occurring the oftenest, deserve a more particular enumeration. These common appearances are, large discoloured spots dispersed over the whole surface of the body ; swelled legs ; putrid gums ; and above all, an extraordinary lassitude of the whole body, especially after any exercise, however inconsiderable : and this lassitude at last degenerates into a proneness to swoon, on the least exertion of strength, or even on the least motion. This disease is likewise usually attended with a strange dejection of spirits ; and with shiverings, tremblings, and a disposition to be seized with the most dreadful terrors on the slightest accident. Indeed it was most remarkable, in all our reiterated experience of this malady, that whatever discouraged our people, or at any time damped their hopes, never failed to add  
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new vigour to the distemper: for it usually killed those who were in the last stages of it, and confined those to their hammocks who were before capable of some kind of duty. So that it seemed, as if alacrity of mind, and sanguine thoughts, were no contemptible preservatives from its fatal malignity.

But it is not easy to complete the long roll of the various concomitants of this disease. For it often produced putrid fevers, pleurifies, the jaundice, and violent rheumatic pains. And sometimes it occasioned an obstinate costiveness; which was generally attended with a difficulty of breathing; and this was esteemed the most deadly of all the scorbutic symptoms. At other times the whole body, but more especially the legs, were subject to ulcers of the worst kind, attended with rotten bones, and such a luxuriance of fungous flesh as yielded to no remedy. But a most extraordinary circumstance, and what would be scarcely credible upon any single evidence, is, that the scars of wounds which had been for many years healed, were forced open again by this virulent distemper. Of this there was a remarkable instance in one of the invalids on board the *Centurion*, who had been wounded above fifty years before at the battle of the *Boyne*: for though he was cured soon after, and had continued well for



for a great number of years past; yet, on his being attacked by the scurvy, his wounds, in the progress of his disease, broke out afresh, and appeared as if they never had been healed. Nay, what is still more astonishing, the *callus* of a broken bone, which had been compleatly formed for a long time, was found to be hereby dissolved; and the fracture seemed as if it had never been consolidated. Indeed, the effects of this disease were in almost every instance wonderful. For many of our people, though confined to their hammocks, appeared to have no inconsiderable share of health; for they eat and drank heartily, were chearful, and talked with much seeming vigour, and with a loud strong tone of voice; and yet on their being the least moved, though it was only from one part of the ship to the other, and that in their hammocks, they have immediately expired. And others, who have confided in their seeming strength, and have resolved to get out of their hammocks, have died before they could well reach the deck. And it was no uncommon thing for those who could do some kind of duty, and walk the deck, to drop down dead in an instant, on any endeavours to act with their utmost vigour; many of our people having perished in this manner, during the course of this voyage.

Upon

Upon arriving at the island of *Juan Fernandes*, 167 sick persons were put on shore, besides at least a dozen who died in the boats, on their being exposed to the fresh air. The extreme weakness of the sick may be collected from the numbers who died after they got on shore: for it had generally been found, that the land, and the refreshments it produces, very soon recover most stages of the sea-scurvy; yet it was near twenty days after their landing, before the mortality was tolerably ceased: and for the first ten or twelve days, they buried rarely less than six each day; and many of those who survived, recovered by very slow and insensible degrees. Indeed those who were well enough, at their first getting on shore, to creep out of their tents, and crawl about, were soon relieved, and recovered their health and strength in a very short time; but in the rest, the disease seemed to have acquired a degree of inveteracy altogether without example.

It was very remarkable what happened to the *Gloucester*, which, like the other ships in that squadron, had suffered the most unparalleled hardships, and buried three fourths of her crew in this disease; that, upon landing the remainder of her sick, less than eighty in number, very few of them died. Whether it was (as the ingenious author observes) that the farthest ad-  
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vanced in the distemper were already dead, or the greens and fresh provisions sent on board them when plying off that island, had prepared those who remained for a speedy recovery; their sick, however, in general, got much sooner well than the *Centurion's* crew.

The havock which this dreadful calamity made in those ships, was truly surprising. The *Centurion*, from her leaving *England*, when at this island, had buried 292 men, and had but 214 remaining of her complement. The *Gloucester*, out of a smaller complement, buried the same number, and had only 82 alive. This dreadful mortality had fallen severer on the invalids and marines than on the sailors: for on board the *Centurion*, out of fifty invalids, and seventy-nine marines, there remained only four invalids, including officers, and eleven marines; and on board the *Gloucester*, every invalid died, and only two marines escaped out of forty-eight.

In less, however, than seven weeks after leaving the coast of *Mexico*, having continued in perfect health for a considerable time before, this fatal disease broke out again amongst them. Upon which occasion, the ingenious author makes the following remarks.

Some amongst us were willing to believe, that in this warm climate the violence of  
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the disease, and its fatality, might be in some degree mitigated. But the ravage of the distemper at that time convinced them of the falsity of this speculation; as it likewise exploded other opinions about the cause and nature of this disease. For it has been generally presumed, that plenty of water, and of fresh provisions, are effectual preventives of this malady. But it happened in the present case, we had a considerable stock of fresh provisions on board, being the hogs and fowls taken at *Paita*. We besides, almost daily, caught great abundance of bonito's, dolphins and albigores: and the unsettled season having proved extremely rainy, supplied us with plenty of water; so that each man had five pints a-day during the passage. But notwithstanding this plenty of water, and fresh provisions distributed among the sick, the whole crew often fed upon fish; yet neither were the sick hereby relieved, nor the progress and advancement of the disease retarded. It has likewise been believed by many, that keeping the ship clean and airy betwixt decks, might prevent, or at least mitigate the scurvy: yet we observed, during the latter part of our run, that, though we kept all our ports open, and took uncommon pains in sweetening and cleansing the ship; yet neither the progress, nor the virulence of the disease were thereby sensibly abated. The  
surgeon



surgeon at this time having declared, that all his measures were totally ineffectual for the relief of his patients, it was resolved to try the effects of *Ward's* drop and pill; and one, or both of them, at different times, were given to persons in every stage of the distemper. Out of the numbers who took them, one, soon after swallowing the pill, was seized with a violent bleeding at the nose. He was before given over by the surgeon, and lay almost at the point of death; but he immediately found himself much better, and continued to recover, though slowly, till we arrived on shore near a fortnight after. A few others were relieved for some days. But the disease returned again with as much virulence as ever; though neither did these, nor the rest who received no benefit, appear to be reduced to a worse condition than they would have been if they had taken nothing. The most remarkable property of these medicines in almost every one that took them, was, that they operated in proportion to the vigour of the patient. So that those who were within two or three days of dying, were scarcely affected; and as the patient was differently advanced in the disease, the operation was either a gentle perspiration, an easy vomit, or a moderate purge. But if they were taken by one in full strength, they then produced all the before-mentioned effects with considerable violence; which  
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sometimes continued for six or eight hours together with little intermission. Upon their arrival at *Tinian*, they soon began to feel the salutary influence of the land: for though they had buried in two days before twenty-one men, yet they did not lose above ten more from the day after they were landed; and reaped so much benefit from the fruits of the island, particularly those of the acid kind, that in a week's time there were but few of them who were not so far recovered as to be able to move about without help.

1748. *A voyage to Hudson's-Bay, by the Dobbs galley, and California, in the years 1746 and 1747, for discovering a north-west passage. By Henry Ellis.*

The bringing two casks of brandy from *York-fort* for our *Christmas* cheer, was attended with fatal consequences. The people had been healthy enough before this season of mirth came; but indulging themselves too freely, they were soon invaded by the scurvy, the constant attendant on the use of spirituous liquors. It is a melancholy, but withal a necessary task, to describe the progress of this foul and fatal distemper. Our men, when first seized with it, began to droop, to grow heavy, listless, and at length indolent, to the last degree: a tightness in the chest, pains in the breast, and a great difficulty in breathing followed; then

then ensued livid spots upon the thighs, swelled legs, contraction of the limbs, putrid gums, teeth loose, a coagulation of blood upon and near the back-bone, with countenances bloated and fallow; these symptoms continually increasing, till at length death carried them off, either by a flux or a dropfy. Those medicines, which in other countries are generally used with good effects, proved entirely ineffectual here. For unctions and fomentations, when applied to contracted limbs, afforded no relief: fresh provisions, indeed, when we could get them, did somewhat. But the only powerful and prevailing medicine was tar-water; and the steady use of this saved many, even after the disease was far advanced, when all other medicines lost their efficacy, and were tried to no purpose. As far as we could observe, this salutary drink operated no other way than by urine (*k*).

(*k*) Upon this relation, I must beg leave to observe, that though the immoderate use of spirits had certainly pernicious effects; yet the severity of the winter, their being denied proper refreshments from the *English* forts, and particularly, in such circumstances, a want of greens and herbage, which do not seem to have appeared on the ground till towards the latter end of *March*, p. 204, were what principally occasioned the disease. As he very justly accounts for its return upon their passage home, p. 281. where he says, “The uncomfortable weather we had, made so chiefly by the thick and noisome fogs, proved the cause that many of our people began now to relapse into their old distemper, the scurvy.” As to the good effects ascribed to the tar-water while at *Port-Nelson*, it were to be wished, both in this and

1749. *An historical account of a new method of extracting the foul air out of ships, &c. with the description and draught of the machines by which it is performed; by Samuel Sutton, the inventor. To which are annexed, Two relations given thereof to the Royal Society, by Dr. Mead, and Mr. Watson; and, A discourse on the scurvy, by Dr. Mead. Ejusdem monit. et præcept. medic. cap. 16. de scorbuto.*

The learned author very justly describes the most essential symptoms of the scurvy. He imagines the air even more than any other agent concerned in bringing on this calamity. How the sea-air acquires such noxious qualities, he accounts for in the following manner. In the first place, moisture weakens its spring; next a combination of foul particles, such as are contained in the breath of many persons crouded together, and some perhaps diseased; then the filthiness of water stagnating in the bottom of the ship; lastly, salts imbibed from the sea, some of which may probably have proceeded from putrified animals in that element, may  
 infuse

many other relations of the effects of medicines in this disease, that we had always been informed what other regimen the patients underwent, particularly as to their diet and lodgings. The mortality from this disease seems to have been increased in the latter end of *January*; and in the latter end of *March* several were in a bad way. Some likewise died of it on their passage home; which could not be for want of this medicine on board a ship, which has been often tried at sea.



insinuate themselves into the blood, and, in the nature of a ferment, corrupt the whole mass. Other causes, as bad diet, &c. concur to breed the disease. For the prevention of it, he recommends the use of Mr. Lowndes's salt made from brine, as preferable for salting provisions, both flesh and fish, to that made from sea-water, even to the bay-salt; would have stock fish used at sea, which is dried without any salt, instead of salt fish; and thinks, that the *Dutch gort*, which (as he had been informed) is a kind of barley ground, is not so hot and drying as oat-meal. Wine-vinegar is likewise a proper preservative. He observes, that the disease is cured by vegetables, and land-air; and that hotter and colder vegetables, when mixed, qualify each other, especially as the acid fruits in Lord Anson's voyage were found of most benefit. Milk of all sorts, and its whey, when it can be had, are proper antiscorbutic food and physic. But as the design of this discourse is principally to demonstrate the usefulness of Sutton's machine, he particularly insists upon the advantage that might reasonably be expected from it.

1750. *De tabe glandulari, sive de usu aquæ marinæ in morbis glandularum, dissertatio. Auctore Ricardo Ruffel, M. D.*

The use of sea-water would be very beneficial to sailors in bilious colics, both to

prevent the disease, and its return after the cure. This latter is to be effected by a warm bath and purging salts, after the inflammation has been removed by plentiful bleeding. In his letter to Dr. *Lee*, he observes, that, after taking into serious consideration the case of that scorbutic putrefaction which afflicts seamen, he finds, that it is falsely ascribed to their salt provisions. Salt not only preserves meat from corruption, but mariners also from that corrupt state. This is confirmed, by remarking the strength and good state of health which poor country-people enjoy whilst living upon the same food as seamen. Thus there are many in every country who have lived, perhaps for thirty years, altogether upon salt beef, bacon, and coarse puddings, unless upon a high holiday, when they are sometimes regaled with a bit of fresh meat ; and yet continue perfectly healthy and strong. So that the difference between those people and seamen lies only in this, that the latter have not the benefit of so much exercise, and live in a moist air, by which the tone of their fibres is relaxed, and perspiration stopt.

1750. *An essay on fevers, &c. By Dr. John Huxham. Appendix, A method for preserving the health of seamen in long cruises and voyages.*

He thinks the scurvy at sea owing to bad provisions, bad water, bad beer, &c. The pernicious effects of which will be considerably augmented by living in a moist, salt atmosphere, and breathing the foul air betwixt decks. The most effectual way of correcting this alkaliescent acrimony in the blood, is by vegetables and mineral acids: and for that purpose he particularly recommends cyder; of which each sailor should have at least a pint a-day.

1736. 1750. *Or a journal of voyages made by order of the court of Russia into Ramavatzin, by the coast of Siberia, &c. By M. Gmelin.*

On the 18th of *August* 1736, the ship entered the river *Karaulach*, in the latitude of 71 deg. The first care of the commanding officer was to build a habitation for their winter quarters. It was made of wood, 76 feet long, 25  $\frac{1}{2}$  broad, and 17 high. They divided it into four apartments, and the chinks being well corked up, it was to be kept warm with three stoves. On the 12th of *September* they took possession of their winter quarters, all of them being

then in perfect health except one soldier. Towards the end of *October* the cold became very severe, and the scurvy made its appearance. The sun was seen no more after the 5th of *November* for two months. On the 18th of *December* the lieutenant, a man of a strong and robust constitution, and another person, died of the scurvy. The sun making its appearance for the first time on the 19th of *January*, gave great expectation that the sick would by degrees be restored to health; but yet there died seven in this month, and in the two following months twenty-four persons.

The disease began by pains afflicting those parts of the body which were formerly subject to ulcers or other complaints. The appetite was a little diminished; after which followed a weakness of the body, accompanied with an extraordinary lethargic indolence. The legs became swelled, and were covered with blueish spots. The patients sneezed with difficulty, and then piercing pains were felt in the back. The teeth were all loose; the breath was foetid. Towards the close of the disease a dropsy came on; accompanied with a violent thirst. A dry cough and costiveness were symptoms common to all, insomuch that many remained constipated for two or three weeks; the strongest purgatives were of no effect; and in this condition one died after another.

Towards



Towards the close of life they had all a great propensity to go to stool, upon which many expired. Some, however, who were once open in their body, did not afterwards lose that benefit of nature; but then at each time they discharged blood, and continued so to do until death in a few days put an end to their misery.

With regard to the case of the lieutenant, it is said, that towards the end of the disease, it was remarked, he had a violent fever, an asthma, an insensibility over the whole body, and an hiccough, under which he expired. Upon opening the body, the right side was observed marked all over with blueish scorbutic spots. The *penis* was erect, and discharged blood into the bladder; in the cavity of which was found a quantity of coagulated blood and other impurities. The right lobe of the lungs was covered with a viscid humour; the throat and *aspera arteria* were inflamed; the heart and the great artery were distended with a blackish blood; and the kidneys as if they had been mortified: the stomach nevertheless was discovered sound, and without defect.

The most memorable circumstances which deserve attention, and could not be remedied during the course of this malady, were, 1<sup>st</sup>; Their winter quarters being too near the sea. 2<sup>dly</sup>, The cold was so

excessive in their habitation, that whatever quantity of fuel was heaped upon the fire, the furnaces were scarce warm; nor could the men be brought to a moderate degree of heat in any other way than by standing close to the vent-hole of the stove which opened into their chamber. *3dly*, The planks of their houses were always moist, and the walls as it were frozen over. *4thly*, None daring to stir abroad on account of very high winds, and great falls of snow, they were often obliged to keep the dead bodies four or six days unburied in their houses.

Of all the company, eight persons only had the good fortune to escape with life; whose preservation it is not easy to account for. 'Tis true, that the scurvy having spared them, they were kept in perpetual motion and exercise; being constantly employed in cutting down wood, in warming the chambers, in attending and assisting the distressed: and to this incessant labour they attributed in part their preservation. Nevertheless the *Russian* priest, who was not employed in so laborious occupations, imputed his safety to the contrivance of a vent he had made in his apartment, which gave free issue outwardly to the noxious exhalations arising from the humidity of the wood and clay of which the stoves were built; these he imagining to be the chief cause of the malady.

1750. *A dissertation on quick-lime and lime-water.* By Dr. Ch. Alston.

The Doctor informs us, that he published this paper chiefly for the use of mariners. He attributes the good effects of lime-water in putrid scurvies, and some other diseases, not so much to an antiseptic virtue (which it is possessed of) as to its penetrating, detergent, and diuretic qualities. He has discovered, that lime prevents the corruption of water, or insects breeding in it; and thinks this water will be useful in curing the diseases to which sea-faring people are most subject. One pound of fresh well-burnt quick-lime of any kind (1), is enough to be put in a hoghead of water; and this may be used, not only for common drink by the diseased, or for prevention by the healthy; but also by boiling, and exposing it to the air for a short time, it will become, after long keeping, sweet and wholesome water. When lime-water, by standing exposed for some time to the air, has thrown up all its crusts, none of the qualities of lime-water remain in it. From the remarkable quality he found in quick-lime to prevent water from corrupting, he often thought, that some of it put in the ship's well would effectually prevent the

(1) Stone-lime (not shell or chalk-limes) preserves water from putrefaction.

the corruption of the water there, and consequently the putrid streams of foul air arising from thence. All these experiments are safe, easy, and attended with no expence.

1753. *An essay on the sea-scurvy: wherein is proposed an easy method of curing that distemper at sea, and of preserving water sweet for any cruise at sea.* By Dr. Anthony Addington.

The description of the disease is borrowed from *Cockburn*, *Boerhaave*, *Hoffman*, *Eugalenus*, Lord *Anson's* voyage, &c. The cure proposed at sea, is to be begun, if there be any mark of fulness, by blood-letting. This is recommended upon the authority of *Hoffman*, *Boerhaave*, *Sennertus* and *Brucæus*, as also *Eugalenus*. In order to lessen the quantity of redundant blood still more, the patient is afterwards to be put under a course of gentle and daily purgation, with sea-water. *Boerhaave*, without any restriction to the habit of the patient, gives us the greatest expectations from a moderate and protracted course of purging in the scurvy; and *Hoffman* speaks to the same purpose. But where there are marks of virulence in the scurvy, it will be lost labour to rely on simple sea-water, unassisted with any other antiputrid medicine. So if, in conjunction with that water, we  
make



make a prudent use of the spirit of sea-salt, we shall but seldom be disappointed in our hopes of a cure. This is that safe and effectual corrector, which will counteract the putrifying quality of rock and bay salt, when they have been taken in such large quantities as to occasion the scurvy. Twenty drops of this spirit taken every day, will probably succeed with most patients. Five of them are to be given in the sea-water every morning, and the remainder at any other times in fresh water: to a pint of which ten drops will impart an agreeable acidity. When the vessels have been pretty well unloaded by the purgation with salt-water, and the bad symptoms begin to decline, the patient (with some exceptions) is to be bathed every morning in the sea just before he drinks the water. Sea-water is also to be used externally, where there are ulcers on the gums and legs, or *carious* bones. To give the greatest sanction that can be given to the outward application of sea-water in scorbutic ulcers, it is advised for them by *Hippocrates*. In scorbutic fluxes, mortifications, and hæmorrhages, the salt water is to be omitted. The most probable way to remove the last symptom, is, to bleed the patient as often and as much as his strength and age will permit; to open the belly, if costive, by glysters; and to oblige him to live entirely on the  
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unfermented farines, and to drink freely of water softened with *gum arabic*. and strongly acidulated with spirit of sea-salt. About an ounce and a half of spirit of salt to a tun of water, will preserve it from corrupting.

1755. *A treatise on the scurvy. Designed chiefly for the use of the British navy.* By Charles Bisset.

Chap. 1. *Of the progress and different species of the scurvy.*

After a description of the two first stages of this malady differing in nothing material from other accounts, he observes, that the disease being arrived at its third and last stage, some other symptoms and symptomatic diseases frequently arise, which with the former symptoms swiftly encrease, and soon and infallibly end in death; if the patient has not the benefit of a proper *regimen*, ripe fruits, or green vegetables. The forms the scurvy now assumes are divided into five classes.

The first is, when an *anasarca* is the most prevalent symptom: this does not often occur.

In the second species, the *anasarca* is almost wholly confined to the legs and feet: little elevated pustles about the bigness of a small pin-head at the roots of the hairs of the legs, are most conspicuous in this species and the third.

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In the third the legs are swelled and hard, chiefly at the calves, and sometimes they are greatly indurated without much swelling. The muscles of the thighs are often rigid and painful, and the benders of the legs sometimes contracted, with one or both knees rigid, having a hard discoloured swelling. There are discolourings on the skin as in the second species, also tumours, tubercles, bone-achs, hæmorrhages; sometimes *nodes* and *exostoses*, and other symptoms common to all, or most of the other kinds of scurvy. It is worse than the second, but better than the first species.

The fourth species is distinguished by a dry emaciated habit and legs, excruciating bone-achs, frequently most violent in the middle and forepart of the legs. The author saw but a few cases of this sort, which most commonly afflicts seasoned *Europeans* and old men in the *West-Indies*. It has a great affinity to a species of cachexy induced by intermittents in the *West-Indies*. The fifth species, the most malignant and fatal, is commonly preceded by a continued or remitting fever, and sometimes the second and third species degenerate into it, especially if supervened by any degree or species of fever. Besides the usual symptoms of a bloated complexion and œdematous legs, the specks at the roots of the hairs are seldom raised above the skin, the inside of the

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mouth

mouth is ulcerated, and sometimes there is a *caries* of the maxillary bones. It is attended sometimes with a flow, continued, remitting or irregular intermitting fever and thirst. Its progress is swift. It is sometimes formed by a complication of the scurvy with the cachexy from an intermittent; and it is generally this species which succeeds fevers at sea. Two cases occurred wherein the *diuresis* was much impaired, with thick turbid urine, and sometimes a spurious *ischuria*; in both the disease quickly encreased with profuse hæmorrhages at times from the nose. Such hæmorrhages however do not often occur, a cough scarce ever, nor any considerable *dyspnœa* in the scurvies in the *West-Indies*: nor did the author ever see one case of luxuriant spongy flesh arising from the gums.

Persons under a manifest scurvy are not invaded with the bilious fever in the *West-Indies*; yet this fever often attacks them when highly predisposed to the scurvy, as also when recovering from it, in both cases proving very fatal.

Chap. 2. *Of the external and internal causes of the scurvy, &c.*

The predisposing cause to this disease in the *West-Indies* is, according to the author's hypothesis, the intense diurnal heat, when the sun is in or near the zenith; joined with a constitution not seasoned to the torrid zone;



zone; which weakens the digestive and assimilating powers of the body. He does not think distilled spirits, as I had observed, are productive of the scurvy, or have any pernicious influence on this disease, if properly diluted; and censures pretty freely the opinion I gave in the first edition of this treatise, that such spirits check a fermentative tendency which ripe fruits and some vegetables have when taken into the stomach. He is inclined to believe, that malt-liquor, unless it operates as a laxative or diuretic, has no antiscorbutic, but a contrary quality.

Chap. 3. *Of the prevention of the scurvy on board his majesty's ships.*

Chap. 4. *Of the method of curing the scurvy, particularly at sea and in desert places.*

A discovery is here said to have been made in the *West-Indies* of a powerful antiscorbutic quality in rice, which he advises as the principal article of diet for the prevention and cure of the scurvy at sea.

Having before constituted five different species of scurvy; in the treatment of the first we must chiefly regard the dropsy: for the cure of which he furnishes us with great variety of all such medicines as have been recommended in dropical cases. He has observed good effects in scorbutic swellings and spots, by rubbing with a fresh cut lime,

but on the contrary, bad effects from embrocation with oily medicines. Sweet oranges will be best for this purpose in stiff and painful swellings, indurations, &c. The second species requires a greater proportion of attenuants and deobstruents than the first, with some demulcent medicines, and a much less proportion of purgatives, diuretics, diaphoretics, and corroborants. It is indeed for the most part soon cured by a proper vegetable diet only. The third species requires a still greater proportion of attenuants, deobstruents, and demulcents, together with some emollients: consequently sweet oranges will be the most suitable remedy for both external and internal use. The cure of the fourth species is to be attempted by attenuants, demulcents, emollients, sudorifics, and bathing in warm water; using afterwards the cold bath, exercise, and other corroborants. In the fifth species, the best internal remedies are juice of limes or lemons, shad-docks, pomegranates, cashew apples, and all subacid subastringent fruits, verjuice, spirit of vitriol, *Peruvian* bark, a decoction or extract of the twigs of green *guajac*, lime-water, tar-water, a decoction of sharp-pointed dock with orange-peel acidulated with *acacia*, and sweetned with molosses, &c. (o). He is of opinion,

(o) It is much to be regretted, that this author, who recommends such a variety of drugs in the scurvy, has not favoured

opinion, that *ung. Ægyptiac.* but especially the mineral acids, are hurtful applications to scorbutic gums. Sweet oranges are the most powerful known antiscorbutics.

Chap. 5. *Of the scurvy chiefly from acid, and acescent farinaceous food.*

This chapter is a part of the *Boerhaavian* doctrine contained in *Aphorism* 62, 63, &c. *de Morbis spontaneis ex acido humore*; and the following section *de Glutinoso spontaneo*, as also *Aph.* 1166, &c. *de Cachexia (p)*, illustrated by cases which occurred at *Cleveland* in *Yorkshire*.

Chap. 6. *Of scorbutic and malignant ulcers.*

Chap. 7. *Of the cure of scorbutic ulcers.*

Under these titles we have a long dissertation on different species of obstinate, habitual, and carious ulcers.

1761. *Tractatus de scorbuto, Joannis A Bona.*

He observes in his dedication, that no *Italian* author had before him treated expressly on the scurvy, so far as he knew. And in his preface gives the following reason for this publication. Fourteen years before, having cured a lady of quality at *Verona* of this disease, he was surprised

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favoured the public with a few practical cases, where the good effects of such medicines, as lime-water and many others recommended, were discovered.

(p) *Vid. Boerhaav. Aphorism.*

that several learned physicians, who had formerly attended her, were unacquainted with the nature of her case, and was amazed to hear them affirm it to be as it were ominous for *Italy*, where they had hitherto believed themselves to be altogether exempted from the scurvy.

The book was finished in the year 1750, but not put to the press till after the publication of the third volume of Baron *Van Swieten's* Commentaries on *Boerhaave's* Aphorisms (*a*). This author seems to have been diffident of his own sentiments in respect of this disease; but finding them so nearly to coincide with the Baron's, he took the courage at length to publish them. His book is properly a commentary on *Van Swieten's* commentary on what Dr. *Boerhaave* has published on the scurvy. Agreeable to the *Boerhaavian* system, the disease is divided into four distinct classes, according to the supposed prevailing acrimony in the blood.

This large volume, in which the author tells us, that he has given a complete history of the scurvy, contains few practical observations, and those mostly communicated to him by his friends.

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(*a*) It appears from some passages in this book, that Doctor *A Bona* had seen the first edition of my treatise on the Scurvy, wherein the distinctions made in the scurvy by *Boerhaave* are criticized.



The first is from professor *Targa*, who in the year 1752 observed many country people, living about ten miles from *Verona*, in a healthy climate under the *Alps*, afflicted with the scurvy. It proceeded from a want of corn, or a sort of famine, which had reduced those poor to the necessity of eating bad and unwholesome food. Towards the end of winter, and in the spring, the disease made its appearance. The symptoms were a lassitude, spots of various colours, bleeding swelled gums, loose teeth, acrimonious spittle, pain and contraction of the knees, a weak feeble pulse, &c. It attacked more women than men, and disappeared almost entirely when a succeeding plentiful harvest had put an end to their apprehension of a famine, and to the misery of the country.

A second observation is communicated by the same professor. A healthy old man, being confined to his bed for five months by a fracture of the head of the thigh bone, was, notwithstanding his having a very wholesome diet, seized with a scurvy, attended with all the symptoms before mentioned. The violence of those symptoms encreasing with the addition of a fever and flux, carried off the patient in the tenth month of his confinement.

The 3d observation was made by a physician, who for many years had the care

of lunatic patients in the hospital of *St. Ursula*. The greater part of those lunatics, who had been long confined in that hospital, were at length attacked with the scurvy. It was not equally violent in all, though sometimes it advanced to the 4th stage, and even some died of it in great misery. The doctor used all possible precautions against it, but to little purpose. The plaster, which overlaid the walls was removed, the beds, linen, and other furniture shifted, without producing any sensible good effect. And though some wards were small, others larger; some on the ground floor, and others above it, yet the patients in all of them were seized with the scurvy; such as were robust not being exempted. Those who were very indolent and lay in their bed the greatest part of the day, were sooner and more violently afflicted, and in some of them the disease proved so obstinate, that neither change of air, of their chamber or diet, or even setting them altogether free from their confinement, proved a means of their recovery. The whole body was sometimes stained with livid spots, and the ulcerated gums sprouted up to such a pitch as to cover all the teeth, although *antiscorbutic* decoctions and tinctures were of benefit to some, as also washing the mouth frequently with austere red wines, yet the effects of those remedies were not permanent.

Towards the conclusion of the book, there is an extract given by a clergyman from a very antient and curious *Greek* manuscript, preserved in the library of *St. Mark* at *Venice*. This manuscript, whose author is said to have been *Aelius Promotus*, contains a number of prescriptions for a bad breath, for painful ulcerated and wasted gums; for rottenness, bleedings, and fluxes of humour from the gums, and for various maladies of the teeth. Hence our author concludes, that the demonstrative signs of the scurvy being clearly described by *Promotus*, this disease, especially the *alkaline* scurvy, was known to the ancients.

1761. *Verhande lingen Vitgegeevin door de Hollandsche Maatschappij der Weeten-schappen te Haarlem.* Or, An essay on the causes and cure of the usual diseases in voyages to the *West-Indies*, together with the preservatives against them. In answer to the questions proposed by the society of sciences in *Holland*. By *Solomon de Monchy*.

He says, the *putrid* fever, the *malignant* fever, and the scurvy, are the most usual diseases in those voyages. Upon the subject of the latter disease, he offers nothing new, having (as it would appear) few opportunities of seeing scorbutic patients.

1764. *Oeconomical and medical observations, in two parts, from the year 1758, to the year 1763, tending to the improvement of military hospitals, and to the cure of camp diseases, &c.* By Richard Brocklesby. Page 301, *Of the scurvy among soldiers.*

The author informs us, that he saw several of the *French* prisoners confined in *Winchester* castle labouring under all the symptoms of the scurvy as enumerated in Lord *Anson's* voyage, except that of the dissolved *callus* of a fractured bone, which he never heard had happened in *England*.

The surgeons mates of the prison shewed him some men whose teeth were all loosened, and many had dropped out. The *tonsils* and upper parts of their mouth were swelled, and several had hard spongy excrescences pushed out from the roof of the mouth; the whole inside of their mouth being ulcerated. Every diseased part bled profusely. The spongy *laminæ* of the bones of the nose were sometimes destroyed. Many had the *uvea* of the eye as black as a coal. And two men had a great portion of the white of their eyes also discoloured (a). Those prisoners suffered, says our author, distressed by the scurvy unknown in our times,

(a) See a particular account of this scurvy in the supplement to this treatise.



times, except among the *British* troops in the winter, 1759, at *Quebec*, and among those who died at *Senegal* of this disease. To this marvellous account is subjoined the cure, which was performed by keeping the body lax, by aromatic cordials, wine, onions, garlic, vinegar, mustard seed, bitter infusions, &c. but above all by decoctions of the bark fowred with elixir of vitriol.

1764. *Experimental essays, &c. &c.* By David Macbride. *Essay IV. On the scurvy, with a proposal for trying new methods, to prevent, or cure the same at sea.*

The author of those useful and ingenious essays, being of opinion, that the cure of the *sea scurvy* depended chiefly, if not altogether, on the fermentative quality of fresh vegetables, which are found to conquer this destructive evil : It occurred to him, that malt taken in the way of medicine, would in all probability produce effects similar to those produced by green vegetables, and consequently cure the scurvy. Malt may be preserved sound and good, for years, and if carried to sea, in order to make wort occasionally, a remedy might always be had in readiness against that fatal disease. He therefore requests, that trial may be made of wort on scorbutic patients often. He advises to boil it up into a panado with sea biscuit, or some dried fruits. Of this

the patients are to make two meals a day, and drink a quart or more, (if it shall be found to agree) of the fresh infusion of the wort in the course of 24 hours, taking a smaller quantity at first, and gradually encreasing it. If it gripes or purges, the dose must be lessened, and some drops of the *acid elixir* of vitriol given with it, to check the too great fermentation, and make it sit easier on the stomach. When malt is not at hand, melasses, honey, or sugar, may be tried.

The wort is to be brewed (especially in hot weather) fresh every day in the following manner. Take one measure (suppose a quart) of the ground malt, and pour on it three measures of boiling water; stir them well, and let the mixture stand close covered up for three or four hours, then strain it (*b*).

We have here an extract from a book published about the year 1639 by *John Woodall*, an old *English* surgeon, containing an accurate account of the scurvy, taken from *Ecthius*, *Wierus*, and from the author's own observation.

(*b*) By an admiralty order, a trial of the effects of wort on scorbutic patients was made in *Haslar* hospital; I was then in *London*, and the experiment was conducted by my ingenious and learned colleague, *Dr. Farr*, now physician of *Plymouth* hospital.

1764. *An account of the diseases which were most frequent in the British military hospitals in Germany, from January, 1761, to the return of the troops to England in March, 1763. By Donald Monro. P. 250, Of the scurvy.*

The true scurvy attended with spungy foetid livid gums, livid blotches, ulcers of the legs, &c. began to shew itself at Bremen, in January, 1762. There the disease was observed only among the soldiers, not one of the officers having the least symptom of it. The first patient was an *invalid* who had been some weeks in the hospital, before his case was discovered to be the scurvy. He at first complained only of great weakness, and such a giddiness when he got out of bed, that he could scarce walk; and of what he called *flying* rheumatic pains in his legs. At length his gums became sore, swelled, soft and spungy; and his legs covered with scorbutic blotches, &c. The proofs of the scurvy being now evident, he was ordered an addition of greens to his diet, and a quart of lemmonade with a gill of brandy in it *per* day for his common drink. And for medicine, a decoction of the bark with elixir of vitriol. The gums were scarified where much swelled, and washed with an astringent *gargle*, then rubbed with a little burnt alum.

By

By pursuing this method, in a fortnight's time the symptoms decreased. During the cure he was bled for a pain in his side. In about six weeks he was dismissed the hospital, being perfectly reestablished in health.

We have an accurate account of several other similar cases of patients, who laboured under this malady in the hospital at *Bremen*, and who by the like treatment were restored to perfect health by this skilful physician.

1764. Ludovici Rouppe, *M. D. de morbis navigantium liber, sect. 2. cap. 2. de scorbuto.*

This book, in which the author is pleased to make very honourable mention of my treatise, contains many excellent observations, furnished from an extensive medical practice, both at sea and land. To the other causes usually assigned for the scurvy, he adds drinking to excess of spirituous liquors; and chewing or smoking tobacco: both which impede the digestion of the aliment. But chiefly he ascribes the disease to a neglect of bodily exercise or a sedentary life.

In a voyage from the *West-Indies* to *Holland* in the year 1760, when the scurvy began to spread itself among the company of the *Princess Caroline* (a *Dutch* ship of war) he selected three patients, who at that time complained only of pains in their limbs,



limbs, and a lassitude in their joints. To each of them he administered in the morning an ounce of the spirit of *scurvy grass* mixed with an ounce of *horse-raddish* water; at noon six *drachms* of *spiritus carminativus sylvii*, with an ounce of cinnamon water; and at night an ounce *aqua vitæ Matheoli*, mixed with an ounce of cinnamon water.

Some days afterwards finding their gums swelled, and other evident marks of the scurvy, he ordered them to drink a tea-cup-full every two hours of equal parts spirit of *scurvy grass* and *horse-radish* water, sweetened with sugar. But after the continuance of this prescription for several days, finding the symptoms to encrease, he discontinued it, and treated those men in the same manner as the other patients in the ship.

The consequence of this trial of the effects of *spirit of scurvy grass* was, that those three patients (who had taken it) all died, when they came on shore; being the only men of that ship who died of the disease. Hence our author concludes, that this boasted antiscorbutic remedy does not merit the encomiums which have been bestowed upon it.

He relates that a number of soldiers and poor people in *Landau* had lately been seized with an *itch* or *scabby* eruption on the skin, different from the true scurvy.

It

It was occasioned by their eating the salted flesh meats and old cheese, which during the late war had been laid up in the stores of that garrison. He thinks their eating greens at the same time, was the means of preventing their having the true scurvy.

Among other symptoms of this disease, he observes, that the patients are from the beginning melancholy or low spirited, and apt to be struck with terror upon the slightest accident. He could never inspire them with any degree of hope or confidence; they always imagined every person to be their enemy. In the progress of the malady they move their eyes slowly, and when they contemplate an object open their eyelids more than usual, as if under a constant apprehension of danger. They are particularly fearful of their officers, and conceal themselves in the dark places of the ship. When the disease is farther advanced, they often lose all hopes of a recovery, and the most bold intrepid fellows when in health, are then apt to be constantly melted down in tears. Lastly, as if the mind had grown *callus* by a long continuance of affliction, they become insensible of injuries, and weeping like children patiently bear their affliction, and the affronts put upon them by their officers. The belly is somewhat swelled from the beginning, and in the progress of the disease the face, especially  
the

the lower eye-lids, are apt to swell in the morning. They are subject to pains in various parts, which sometimes at first shift, but at length become fixed, generally in the joint of the knees, where the torture is exquisite; the *flexor tendons* being contracted, and the joint somewhat swelled. After the distemper has passed its 2d stage, the knees become greatly enlarged, and the legs in most patients as hard as wood; both legs and knees being racked with exquisite pain. Moreover, if life be so long preserved, the hardness of the legs is converted into a soft swelling; a contraction of the knees, their former pains and an inability to motion still remaining. This disease is not accompanied with any fever. He has seen some who were slightly scorbutic attacked with a fever, but never any who laboured under a confirmed scurvy. The dropfy and a mortification are the last and deadly symptoms of the distemper.

After a very accurate detail of the symptoms, the author proceeds to the remarks he made on the inspection of the blood and dissections of dead bodies.

In the first stage, the blood as it flowed from the veins was thick and black; and after standing, separated into a yellow water or *serum* and a *grumous* mass.

In the 2d stage, the blood was pretty much in the same condition, with this difference,

ference, that it flowed with greater difficulty from the veins, and was of a darker colour. Some drops of it received upon clean linen did instantly coagulate. This blood after standing some hours deposited a black muddy sediment, and the *serum* became reddish.

In the first stage, a greenish crust had sometimes been observed a-top of the *grumous* mass. In the second a thin greenish pellicle often shewed itself there; the *serum* separated itself more slowly, sometimes not at all, and always in less quantity than in the former stage.

In the last stage, the blood was quite black, and became for the most part soon covered over with a thin greenish pellicle, which was easily removed, and the *grumous* mass was not so strongly coagulated as in the former stages. There was however always a distinct separation of the parts of the blood.

In the first dead body mentioned to have been opened (which was of a person who died at the island *Curacoa* of a *yellow* fever and scurvy) we find nothing remarkable; but that about three pounds of a yellow or reddish water was contained in the belly, the liver was hard and very large, but upon cutting, it appeared of the natural colour. The gall bladder was replete with a yellow gall.

The



The 2d dissection was of a soldier, who after having suffered uncommon distress from the scurvy, which gradually passing through its three different stages terminated in a dropsy, was at length suffocated by it. The cellular membrane under the skin and between the muscles of the belly, was turgid with water. Three or four pints of yellow water were found betwixt those muscles and the *peritonæum*, and a like quantity in the cavity of the belly. The *omentum* was consumed. In the breast were some ounces of water. The lungs were of a red or livid colour, hard to the touch; and their blood vessels full of black blood. They were encrusted over with a fleshy substance half an inch thick, of a red colour like to that of the liver, and sunk in salt-water. The heart was large, and of a white colour; its right *ventricle* and *sinus* being distended with black coagulated blood, and with a yellow *polypous* substance. On the left side of it there was no blood, but a *polypous* substance extended into the artery.

Much the same appearances were observed in another person, who had been afflicted with almost all the symptoms of the scurvy. His legs had for three months been as hard as a piece of wood, until about ten days before his death, when they began to swell, his appetite and senses continuing entire to the last. He expired with his body surprisingly contracted.

A yellow

A yellow transparent gelatinous substance was found between the several *abdominal* muscles, and spread upon the *peritoneum*: as also a like substance (but not so tough) in the cavity of the belly. The spleen was hard large and white; the liver white and enlarged. The lungs and heart were in the same state as in the former dissection. The *cartilages* of the ribs were separated from the breast-bone, and upon cutting their ligaments, a glutinous yellow matter issued forth. This *purulent* matter (of which there was also a great quantity found in the joint of the knee) had tinged those cartilages of the breast with a yellow colour, as also the thigh-bone and head of the *tibia* in the joint of the knee. The *rotula* was rough and bare.

A man who had been afflicted with the scurvy for a whole winter died at *Naples*. His knees were greatly swelled, and a crackling noise had been perceived in the joint when moved. Above ten pounds of a turbid water having a disagreeable cadaverous stench was found in his belly. The liver and spleen were quite corrupted. The *mesentery* was full of knots, the lungs hard. The heart contained, besides some coagulated blood, a *polypous* substance. In the joint of the knee four ounces of greenish foetid matter had almost wholly consumed the *cartilages*, had rendered the bones rough

rough and *carious*, and almost entirely corroded the *capsule* of the joint.

In a man who died of hunger and the scurvy, the *omentum* was corrupted, the liver hard and enlarged, the gall-bladder full of a black greenish bile, the *mesentery* spotted with black and red blotches, the lungs were in a sound state, but the right *ventricle* of the heart contained black coagulated blood, and somewhat of a *polypous concretion* as in the former persons. He found the seat of the stains or spots not only in the *cellular membrane*, but even in the skin itself under the *scarf-skin*.

In others, who had died of the scurvy, he found pretty much the same appearances, *viz.* the lungs hard, its vessels turgid with black blood; in the right *ventricle* of the heart, the blood was coagulated and a *polypous* substance extended into the large blood-vessels. In those who died dropical, the bowels for the most part were corrupted, and as it were *water-soaked*; the gall bladder was full of a green or black bile, and the *mesenteric* glands obstructed.

From those dissections, his examination of the state of the blood, and a review of the symptoms of the disease, the author concludes against the opinion of there being a thinness or *fusion* of the blood and humours in this distemper, observing that this can only happen in the last stage, be-

ing rather the effect than the cause of the scurvy. In like manner the pleurisy cannot properly be termed a *putrid* disease, because it may and does often terminate in an *empyema*, or a collection of *purulent* matter.

With regard to the state of the blood, said by Dr. Mead to have been observed in Lord Anson's company, he observes, that allowances must be made for time and place, as also for the combination of the scurvy with other distempers. The author opened a person who died of the scurvy at *Curacoa*, whose blood was in the same state as that of Lord Anson's people, but the body was necessarily inspected in so hot a climate, while it seemed yet warm, and the blood was then thin and dissolved, which he never saw in any person who died of the scurvy in *Europe*.

The cure of the scurvy is to be performed, 1<sup>st</sup>, by a proper diet, viz. of unsalted flesh meat, and greens. 2<sup>dly</sup>, by having warm cloathing. 3<sup>dly</sup>, by exercises adapted to the patient's strength; and lastly, by proper remedies to remove the most urgent symptoms.

When the scorbutic pains are not removed by the general method of cure proper for the disease, the *oxymel* of *squills* proves an excellent remedy. If the pains still continue obstinate, the *Peruvian* bark is to be given,



given, first in a small quantity, and afterwards in an encreased dose, provided the patient's stomach will receive it; or lastly, those pains may be effectually removed by a blister applied to the affected part, if they be not seated in the legs, where the ulceration from the blister may perhaps prove difficult to heal; but if the pained parts be swelled or soft, they are to be treated in a different manner, *viz.* rubbed with a warm hand or with flannel, and afterward fomented with a decoction of the aromatic and *discutient* herbs, with an addition of *sal. ammoniac.* and vinegar or of soap. He concludes with several remarkable instances of the efficacy of the bark in this disease and in the cure of ulcers.

1766. *Essai sur les maladies qui attaquent le plus communement le gens de mer, &c.*  
Chap. 2d, *On the scurvy.*

This anonymous author supposes the scurvy to be contagious. For the cure of it he recommends an infusion of the dried leaves of cresses and scurvy-grass in boiling water, with an addition of syrup of lemons, or of lime juice and sugar. An infusion in wine of the antiscorbutic herbs may also be administered, with mustard-seed and some *sal ammoniac.* China oranges are the most powerful preservatives against this disease.

1767. *Traité des maladies des gens de mer.* Par M. Poissonnier Desperrieres (a). Chap. 1st, *Of the scurvy.*

This ingenious performance, after having met with the approbation of the academy of sciences at *Paris*, was presented to the King of *France* by the author in person.

He divides the scurvy into three stages: in the 1st, he allows the patient may sometimes lose a little blood, but with more confidence he recommends purges of tamarinds and cream of tartar, or of manna joined with bark and rhubarb, observing that a lax state of the body always gives relief in this stage. Blisters he found likewise useful, especially to remove wandering scorbutic pains, and he gives a remarkable instance of the good effects of one applied to the back; recourse must be had to the proper antiscorbutic medicines, *viz.* vegetables abounding with a volatile spirit, the juices of fruits, fermented liquors, &c.

In the second stage, all volatile, spirituous, and acrid medicines are to be laid aside, and in place of them the *saponaceous* juices of plants and fruits are to be administered. A  
drachm

(a) This is not the person, who claimed in *France* the discovery of freshening sea water by a simple distillation, three years after the discovery had been made by me in *England*. See Appendix to my Essay on Diseases incidental to *Europeans* in hot Climates.

drachm of cream of tartar, with an ounce of coarse sugar and four grains of the resin of *guajac* well mixed together, may be taken every day, and is very proper in this stage, which will admit only of very gentle physic.

In the 3d period or stage of the disease, bleeding, blistering, as also purges, and all spirituous, hot and acrid antiscorbutic medicines, are highly prejudicial. Clysters may be occasionally administred. But the juice of *China* oranges is the most excellent remedy, and cyder for common drink is preferable to all other fermented liquors.

1767. *An historical account of a new method of treating the scurvy at sea, containing ten cases, which shew that this destructive disease may be easily and effectually cured without the aid of fresh vegetable diet.* By David Macbride, M. D.

In these ten cases trials were made of curing the scurvy at sea by wort, in the manner directed, *ann.* 1764, by the author.

The four first cases occurred on board the *Fason* man of war; upon which it is remarked, that a looseness seems to be the only thing to be apprehended from the use of the wort in this disease; but that may be avoided by giving a small quantity of the wort at first, and encreasing it gradually, as the patient recovers strength. A few loose stools were always of service, and when they exceeded

they were easily checked by a proper use of opiates and astringents.

On board the *Nottingham East-India* ship trial of the wort was made at sea in the cases of six men afflicted with the scurvy : from this small trial he endeavours to prove, that the use of wort will generally in three or four days abate the scorbutic pains, excite a looseness, and disperse the eruptions ; that in ten days, or so, the wort, if taken in time, and to a sufficient quantity, will recover the scorbutic patient as far as to be fit for moderate duty.

1768. *Versuch, uber auferlesene Mittel, &c.* Or, *A translation into the German language of an Essay on preserving the health of seamen, by Dr. James Lind ; as also an abridgment of a treatise on the Scurvy, by the same author ; with annotations on that treatise, by John Christian Lange.*

This book was published at *Copenhagen*. The translator offers a modest defence of *Eugalenus*. He asserts that *Eugalenus* had treated the scurvy well, as there are other symptoms equally demonstrative of the scurvy with the putrid gums and spots. He gives several cases in proof of this opinion, which do not appear to be strictly scorbutic.



1768. *Libellus de natura, causa, curationeque scorbuti. Auctore* Nathaniele Hulme, M. D. *To which is annexed a proposal for preventing the scurvy in the British navy.*

Here the *nyctalopia*, a disease not unfrequent in hot climates, having been observed in some scorbutic patients in the straits of *Gibraltar*, is mentioned as a symptom of the scurvy.

A moist atmosphere he supposes does not contribute towards the production of that disease; but chiefly a cold air, inasmuch that in countries where the heat always exceeds seventy degrees in *Farenheit's* thermometer, the scurvy will seldom appear, though the air be moist and the sea diet be only used. He afterwards observes, that it is the sea diet, and not the air, which is the principal cause of the distemper.

The cure of the scurvy at sea, is to be performed, after the administration of a gentle purge, if the patient be costive, by giving a drachm of the *Peruvian* bark with an ounce of the juice of lemons, three times a day, bathing at the same time the limbs, morning and evening, with vinegar. By pursuing this method for a fortnight or three weeks, the disease is either perfectly cured, or all apprehension of danger from it will be removed, according to the experi-

ence of Mr. *Hodgkin*, an ingenious surgeon in the navy. Dr. *Hulme* found the juice of oranges equally beneficial with that of lemons; but the powder of the bark proved hurtful, when there was a great difficulty of breathing, which is usual in advanced stages of the disease. Avoiding therefore the bark in powder, the doctor infused two ounces and a half of bark with half an ounce of *myrrh* in a pint of brandy, and of this tincture he gave half an ounce mixed with an ounce of either the orange or lemon juice, with good effects, even in the scorbutic *asthma*. The tincture, with the addition of one *drachm* of camphire and another of saffron, was also found beneficial, when acidulated with *cream* of tartar instead of lemon or orange juice, and given to the quantity of half an ounce three times a day, diluted with four ounces of water. But neither the tincture thus administered, the elixir of vitriol, nor the spirit of sulphur or of sea salt, though joined with the bark, were equal to the virtues of the orange and lemon juice.

In a voyage to *India*, he had observed good effects from sweating scorbutic patients; for this purpose he used from a *drachm* to half an ounce of a tincture (*b*),  
similar

(*b*) Gummi benzoini, opii, croci, singulorum drachmam unam; camphoræ, olei essentialis anisi, singulorum scrupulos duos; spiritus vini Gallici libram unam. Digerentur simul dein cola. Fiat elixir sudorificum.

similar to the *elixir paregoricum Pharmacopœiæ Londinensis*, to be taken every night in a decoction of the shavings of fir, drinking afterwards a pint of that decoction warm. A sweat thus procured every night gave great relief to the stiff joints, the scorbutic pains, and scorbutic *asthma*. The patients used the fir decoction for common drink as a proper antiscorbutic, which may be improved by the addition of sugar and melasses.

Through the whole course of the disease the body must be kept lax by gentle purges. If at the commencement of it, the patient be seized with an acute pain of the breast, without having any fever, he may lose six or eight ounces of blood. If the stomach be oppressed (which is seldom the case) a vomit of *ipeacacoanha*, or of *oxymel scilliticum*, may be given with safety. The scorbutic *asthma* is to be removed by the juice of oranges or of lemons, by gentle purges, and by sweating the patients every night with the *sudorific elixir*, and the decoction of fir before mentioned. For the scorbutic *dysentery* and cholic pains attending it, the patient is advised to sit over the steams of warm vinegar.

Scorbutic ulcers require the application of dry lint and a gentle compression; if very *putrid* the tincture of myrrh or of the bark may be applied to them. Or if large  
and

and very painful, a poultice may be used of oat-meal boiled in vinegar and water, with the addition of a little oil.

Scorbutic pains and swellings are relieved by the application of vinegar alone, or rather with the addition of olive oil, or of *linimentum saponaceum Pharmacop. Lond.* But for this purpose the juice of oranges or lemons, with a little oil, exceeds all other applications. An incision is to be made upon the gums when distended with blood; after the discharge of the blood, the mouth is to be washed three or four times a day with a gargle of barley water and tincture of myrrh, with the addition of a little alum, which is all that is requisite.

The prevention of the scurvy at sea is to be accomplished by ships carrying to sea the juice of oranges or lemons and sugar, which should be mixed with their common drink. For this purpose one ounce and a half of the juice of oranges or lemons, and two ounces of sugar, should be daily allowed to each man in his majesty's navy.

Scorbutic patients he says should not be brought on shore until they have had green vegetables given them.



1769. *Practical thoughts on the prevention and cure of the scurvy. Especially in the British navy. By William Jervey, M. D.*

The author informs us, that he had seen numbers of scorbutic cases, which, as would appear, occurred at sea.

After a short enumeration of the characteristic symptoms of the disease, what he chiefly considers is, how far a ship's provisions as causes of the scurvy might be corrected or changed at the most moderate expence, and likewise how methods already discovered or proposed for prevention of this disease may with more ease be put in execution.

For this purpose the seamen when in harbour, should not only have vegetables to eat along with fresh meat, but large quantities of vegetables should be boiled in their water-gruel.

In order to have a sufficient supply of vegetables where there are a great number of ships, the government might purchase a large piece of ground to be laid out in a garden, where the marines or men from the ships might be employed as labourers, and to defray the expence either a half penny *per* day, or a small part of the prize money in time of war, may be deducted for this plentiful supply of vegetables to the fleet.

Ship

Ship biscuit being of a viscid and glutinous quality, bread for the ships might be baked in the manner of the *Spanish* or *Portuguese* biscuit or *rusk*, the latter being lighter, better baked, and not so viscid as our common biscuit.

In place of salt butter, and cheese, which are hurtful in the scurvy, he recommends oil, and in lieu of pease, rice should be substituted, as it contains nothing of the viscidness of pease, is less flatulent, and easier of digestion; boiled rice, eat with sugar, vinegar and oil, would prove beneficial, both for prevention and cure of the scurvy at sea. Oil and vinegar eat with biscuit and other ship provisions conduces to preserve health at sea.

The beer proving sometimes bad at sea, ships may be supplied with *spruce* beer or with melasses and the leaves and tops of the common *pitch* trees. When the men have spirits instead of beer, four parts of water should be put to the spirit, and a weak *punch* made of it by the addition of vinegar. By putting a few slices of lemons into a cask of vinegar, with the addition of a small quantity of spirit to preserve it, an agreeable sowering for making *punch* may be furnished for a whole voyage, and if the vinegar is good it will be found little inferior in flavour to lemon juice. The dampness of a ship might sometimes be corrected by having small *German* stoves betwixt decks.

As

As to the cure of the scurvy, in the beginning of the disease, no medicines seem more proper than *saline* draughts made of the ship's vinegar and salt of tartar, five or six *drachms* of the vinegar, according to its strength, should be put to a *scruple* of the salt of tartar, so that the acid may predominate. This diluted with an ounce and a half of water, and sweetned with a *drachm* of sugar, may be given twice or thrice a day, adding occasionally twenty or thirty drops of the tincture of myrrh, or a like quantity of *tinctura serpentariæ*. Infusions of the dry *vulnerary* herbs, such as *betonica*, *scabiosa*, *agrimonia*, *heder. terrest.* *hypericum*, or the like, may be given afterwards.

The diet should be rice steeped in water, with a fourth part vinegar, till it becomes quite soft and swelled, then boiled into a *ptisan* or gruel, and sweetened with sugar; a little cinnamon in powder, or any other mild aromatic may be added, with some oil or butter well washed and freshened to render it more nourishing.

*Portable soup* allowed the navy should be given once a day, but always gently acidulated with vinegar, as otherwise it will be apt, where there is a putrid scorbutic tendency, to encrease it.

By persisting in this gentle method and diet, after sometimes giving the *draughts* only once a day, or as the patient's symptoms

toms may indicate, this disease, if not carried off entirely, which can hardly be expected at sea, until the patient has the opportunity of enjoying the land air and fresh vegetables, yet may be so mitigated and prevented from encreasing, as to preserve life till there is that opportunity.

When the scurvy occurs on shore, where doubtless it frequently does, and where I think we have no cause to doubt, it may be often complicated with other symptoms, a dry inland air, with a dry, sandy, or gravelly soil, and the *esculent* and *succulent* fruits and herbs used in food, are proper. These, together with the common antiscorbutic herbs or their juices, used by way of medicine, with butter-milk, whey, and decoctions of *grass* roots, will speedily remove it; proper attention being paid to any other symptoms that may happen to accompany it.



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# POSTSCRIPT.

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## SECTION I.

### *Appearances on dissection of scorbutic bodies.*

SINCE the second edition of the preceding Treatise was published, I have had an opportunity of inspecting a number of the bodies of such as died of the scurvy in *Haslar* hospital. Outwardly several of them had the appearance of being much wasted and extenuated, but a few were still plump and corpulent, having the *tela cellulosa* sufficiently distended, and no apparent consumption of the body.

I did not find the bowels in so putrid a state as described by *Poupart* and others (*a*).

We frequently found the *spleen* to be putrid, the *omentum* almost wholly consumed, and it's remains tainted, in such as died of the scurvy in a very low, exhausted state after a fever. Appearances which we judge not to be peculiar to the scurvy, but usual in all those who have been much exhausted by sickness.

Some parts of the intestines, particularly the *colon*, in the bodies of such as died of scorbutic fluxes, were mortified, which is far from being an uncommon case in other fluxes. But except-  
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(*a*) See part II. chap. 7.

ing those cases, all the bowels of such as died of the scurvy were for the most part perfectly sound. The greatest signs of putrefaction were commonly observed in the limbs, especially in the legs and thighs, which are most frequently the seats of the disease.

Of those parts an accurate dissection cannot indeed be well performed, by reason of the fleshy or muscular fibres being extremely lax and tender. What also greatly obstructs the operator, is the large quantity of congealed blood, which presents itself, not only where no stains, or mark of it can be perceived on the surface of the body, and where no hardness of the flesh can be felt, but even in limbs greatly emaciated. The quantity of this effused stagnating blood was sometimes amazing: we have opened bodies in which almost a fourth part of this vital fluid had escaped from its vessels. It often lay in large concretions on the *periosteum*; and in the legs and thighs the bellies of the muscles seemed generally as it were stuffed with it. On the forepart of the leg, where there is no muscle, the stagnated blood is plainly perceived while the patient is alive, by the frequent appearances of large red or livid stains. These proceed from blood effused in the *cellular membrane*, which we found often an inch in thickness; where there were several separate discolourations or blotches, the blood was contained in distinct cysts or enlargements of this membrane; the intermediate portions of the membrane being thin and natural.

Once only I discovered a collection of blood under the *periosteum*. The patient became scorbutic by lying long in bed after a fever, and had complained much of a violent pain in the forepart

part of his leg. After his death five spoonfuls of bloody matter were found on the bone, lodged in a bag formed by the elevated membrane; several effusions of blood were also found in the bellies of the adjacent muscles, and immediately under the skin.

The blood which lay on the bone began to be converted into *pus*, and by its longer continuance must have corroded the bone. At the same time that the blood is forced out of its containing vessels into many different parts, especially of the lower extremities, there is often a quantity of serum or water collected and confined in the cells of the *tunica adiposa*.

It is said, that by violent exercise the blood of animals has been found extravasated in the *cellular* membrane.

Future anatomists may perhaps be so fortunate as to discover, that into those cells the arterial blood is poured in order to its being reabsorbed by the veins. But, notwithstanding all this, such large and deep extravasations into the bellies of the muscles and elsewhere, without being contained in the cellular membrane, must be acknowledged as præternatural and uncommon.

Upon this subject, a question naturally presents itself; Are these extraordinary effusions of stagnated blood the cause of scorbutic pains, or only the consequence of pain and spasms in those parts? Various considerations induce us to adopt the former opinion, that the pains and lameness in the scurvy, proceed chiefly from extravasated blood in the bellies of the muscles, and from this congealed blood being seated on parts endued with an exquisite sensation, such as the joints, &c. In this case the pains are violent

and racking, whereas the superficial, red and livid streaks on the thighs, legs, &c. are not in the least painful, even on pressure; the blood being here contained in the cellular membrane, immediately under the skin. The lank calves of the legs also, without having any outward blemish, become often extremely painful from stagnant blood.

The stiffness of the knee may at first be occasioned by coagulated blood lying deep in the ham, between the *flexor* tendons, or upon the tendon of the *biceps tibiæ*, frequently extending themselves to the belly of the *gastrocnemius* muscle; neither is it improbable that the pain of the back, so usual in this disease, may sometimes proceed from a collection of blood in the cellular substance that surrounds the *kidneys*, as also from the same fluid covering or stuffing the *psoas* muscle: all which appearances occur upon dissection.

And in like manner we may account why the scorbutic symptoms are so various in different people, and seated in the place where an effusion or extravasation of the blood is lodged. Thus one person, according to his own account, shall be afflicted with the scurvy on the fore-part of his leg, another in the calf, sometimes in the ankle, commonly in one leg only. I have often seen the whole leg quite distorted, its natural shape having been altered by stagnant blood. The large hard white swellings, resembling *nodes*, and observable chiefly on the back of the hands, are also filled with nothing but concremented blood.

The bursting of the vessels, at least those extravasations, seem frequently to happen on a sudden, as is evident from the account of the patients



patients who complained of a stiffness and pain in some one part of the body; with which they were seized at once. It would also further seem, as if the stagnant blood often shifted its place, or was perhaps taken up again into its proper vessels. Thus by the relation of the sick, the scurvy is said to have appeared first on the thighs, then it fell into the hams; or at first in the ankle, which grew easier, while other parts afterwards suffered.

I never remarked any præternatural appearances in the brain of such as died of the scurvy, except in one person; four ounces of water lay under the *dura mater*, and a small quantity of it in the right *ventricle* of the brain. In the cavities of the breast there was commonly confined a quantity of *serum* or water, especially in the left side. A dropfy in that side, as likewise of the *pericardium*, being frequent occurrences.

This water was apt to whiten and shrivel the hands of the person who dissected the body; and in some instances where the skin of his hands was broke, it irritated and *festered* the wound. A dropfy in the substance of the lungs was remarked in a few, and in most strong adhesions of the lungs to the *pleura*: which last are usually met with in dead bodies.

In the belly, as well as in the breast, I found the bowels for the most part perfectly sound and uncorrupted. The most usual, though not constant, appearances were precisely the same, red or livid spots on the *omentum* and *mesentery*, but especially on the intestines, with those on the surface of the body. An inattentive anatomist might be apt, at first sight, to mistake those

spots for a mortification of the parts, but upon a strict examination, the spots are found firm and altogether free from any mortified taint. For when a part of the intestine is washed, dried, and viewed with a microscope, those spots are clearly perceived to be real extravasations of blood, confined between the membranes, and very different from a mortification. When there is a mortification, the fibres commonly at first become livid in their longitudinal direction, without any apparent intermixture or effusion of blood, and at last turn quite lax, rotten, and offensive.

I have more than once observed true scorbutic spots, as large as a hand-breadth on the surface of the stomach, which was otherwise in a natural and healthy state: and had an anatomical preparation of this sort, where the scorbutic blotch on the stomach was very large; and what is further remarkable, this patient, when alive, had no complaint either in his stomach or bowels, though several parts of them were stained with different coloured spots.

Water was sometimes lodged in the cavity of the belly, even when there was no apparent swelling of it; but not so frequently as in the breast. The water in both cavities was of a similar nature, as was also a liquor sometimes taken out from between the *tunica vaginalis* and *albuginea* of the *testicles*. In the *scrotum*, when distended without any perceptible fluctuations, I found a substance, very viscid and tough. I never remarked any hardness or obstruction in the *mesenteric glands*, although I have often seen the *mesentery* covered with black and red spots  
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of different sizes, from that of a crown piece to that of a six-pence, and perfectly sound.

In a word, the true scorbutic state; in an advanced stage of the disease, seems to consist in numerous effusions of blood into most parts of the body, superficial as well as internal, particularly into the gums and legs. This is frequently, though not always, accompanied with a dropical indisposition, which appear chiefly in the legs and breast.

When there is no disorder in the breast, swelling of the belly or legs, the patient may be supposed to labour under extravasations of the blood only; but when the legs are soft and swelled, the water which is there seated in the *cellular membrane*, is apt to be occasionally conveyed elsewhere, particularly into the breast. I have observed some patients to be tolerably free from complaints in their chests, while their legs continued swelled: and on the contrary to become afflicted with *asthmatic* complaints, attended with acute pains in the side, when by a horizontal posture, or by their lying in bed, the swelling of the limbs subsided. And a few, upon the disappearance of large watery swellings of their legs, were suffocated by the removal of the water into their breast.

But it must be remembered, as I said before, that a dropical disposition does not always accompany this disease. In some cases the legs do not swell at all, but continue, through the whole course of the disease, hard, painful, and discoloured; when there is no water, and but little blood effused in them, they are for the most part greatly emaciated.

The acute pain in the breast, so frequent in this disease, is most commonly felt on the left side, about an hand-breadth above the pit of the stomach, at the articulation of the ribs with the breast-bone. I have often observed, at that place, swellings of the *cartilages*.

Why the scurvy should so frequently, and in so singular a manner, affect the *cartilages* of the ribs, so as sometimes to separate them altogether from their connexion with the breast-bone; and why it seats itself so commonly in the joint of the knee, I own I am at a loss to account for; otherwise, than that most diseases have their peculiar seat in the human body. A blister applied to the seat of the pain *in the breast*, seldom fails to give immediate relief, by the watery discharges produced from it.

Sudden death is often occasioned by the rupture of a blood vessel, and a subsequent discharge of the blood into one of the large cavities of the body. I have remarked this to happen in the breast; and once observed coagulated blood swimming in the liquor of the *pericardium*, or membrane investing the heart, however it most frequently occurs in the belly. The blood in these cases, as well as when diffused through the bellies of the muscles in the limbs, always appears thick and coagulated. An accident of this nature I once knew to prove fatal to a patient, from a rupture of a vessel in the *spleen*. Masses of coagulated blood were found floating in a small quantity of *serum* in the *pelvis*, or lower part of the belly, and a large concretion, near three ounces in weight, adhered to the spleen itself. We were at first sight deceived in thinking the spleen to be quite putrid, as there was  
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an appearance exactly resembling it; but this was nothing more than coagulated blood, upon removing which, we discovered the spleen lying below, and distinctly perceived the large orifice through which the blood had issued.

In patients, whose deaths were unexpected and sudden, and where no effusion of blood could be perceived in any cavity of the body; the heart was commonly much distended with blood: the *auricles* and *ventricles* of both sides were filled, but those on the right to the greatest degree.

In one man, who suddenly dropped down dead, while walking in the fields; there was a large *polypus* which filled entirely the right ventricle of the heart, and sent forth two branches, one into the *pulmonary* artery, another through the right *auricle* into the *vena lava*. But I am apt to think those *polypous* appearances, so commonly found in the heart of those who die of the scurvy, are formed after death. And, indeed, it is impossible to conceive, that the branch of a *polypus* should run in a living person from the heart into the *vena cava*, it being contrary to the well known course of the circulation of the blood. In the same person, a few clots of blood were found in the cavity of the breast.

The doctrine of *polypous* concretions in the heart, during life, is upon the whole very exceptionable, and the fatal consequences said to arise from thence are often merely imaginary. That these concretions are most probably formed after death, appears from their being generally found in the right *ventricle*, seldom in the left *ventricle* of the heart, the former of which after death is generally distended with blood, the latter seldom contains any.

Let me add, That to reap any advantage from the inspection of morbid bodies, the operator should be thoroughly conversant with the usual appearances of dead bodies in general, and endeavour carefully to distinguish the effects of diseases from their causes, as also from the changes that may happen after death, or in *articulo mortis*, during the universal struggle of the dissolving frame.

In most bodies, on opening any of the large cavities, especially the *abdomen*, an offensive smell is perceived, but that generally goes off in a few hours; the state of the air and weather should afterwards be carefully attended to, before the putrid state of the body can be deemed the consequence of a supposed putrid disease.

## S E C T. II.

### *Effects of the scurvy on other diseases.*

**W**E proceed to other observations lately made on the scurvy; and first its complication with other diseases.

I have remarked among some thousand patients in *Haslar* hospital, that such as were scorbutic, were not liable to be seized with fevers; and that even an infection from a fever was long resisted by a scorbutic habit of body. To illustrate this remark, I must observe, that patients in an advanced state of the scurvy have often a quick and low pulse, and at times a considerable degree of heat on the skin. But this quickness of the pulse is to be ascribed to their low and weak condition, as in similar cases of great lowness, and irritation from pain; and if mistaken,

as it has too often been, for a true feverish state, proves fatal to the patient. Wine, well sharpened with lemon juice, and sweetened with sugar, soon removes all those symptoms; by repeating it in small quantities, at short intervals, the pulse in a few hours acquires more strength and calmness, and the patient, from the appearance of a dying man, seems quite recovered.

It sometimes happens, especially when the patient is upon recovery, and has walked about for ten or twelve days, that he is suddenly seized with a sickness at the stomach, and shiverings, succeeded by a fever of twenty-four, seldom of forty-eight hours continuance. In such persons the pulse is generally full and strong. And this is the only scorbutic fever I ever observed. May not this fever, which generally attacks the patient, as his legs become free from the scurvy, proceed from a sudden absorption of a quantity of stagnated blood into the vessels? It is not a dangerous fever, as in eighty cases of this kind I do not remember one person to have died. Much about this period of the disorder, it is usual for a few to be suddenly attacked with the scorbutic pain in the breast, a difficulty of breathing, and cough.

This I conjectured might be owing to the water being suddenly, and in too great a quantity removed from the *cellular membrane* of the legs, into the cavity of the chest (*b*). I have examined the

(*b*) To illustrate what I have said concerning the *scorbutical* fever, and the shifting of the pains in the scurvy, I shall subjoin the following case.

*Francis Week*, on the 28th of *June* 1760, was admitted a patient into *Hasslar* hospital. The fore-part of his gums was found, the other parts was much swelled, and entirely loosened

the cases of several thousand scorbutic patients, who had been sent from different ships, in order to find, whether any other fever was commonly attendant on the scurvy, than what has been already mentioned.

Among so great a number of men, whom the scurvy had reduced to a state of the most complicated distress; some few, who had a feverish pulse, complained of a head-ach, and thirst. But those complaints were not permanent. The

loosened from the teeth. But his chief affliction was centered in the left leg and knee, where the agony was so incessant and acute, that it deprived him entirely of his natural rest, and made him almost delirious, especially when he attempted to move the afflicted part. I ordered him to be put into a warm bath, prepared with a decoction of the most aromatic plants; but this could not be done, on account of the intolerable anguish he suffered from the least motion of his body; he was however, on the 6th of *July*, so well recovered, that he could turn himself in his bed without help, and with much less pain; and slept tolerably well. But that day the pain shifted from his knee, and seated itself in the thigh and hip; where all his misery was now accumulated, and to so excruciating a degree, that he could scarce support it. I directed the parts to be bathed for several hours with warm vinegar, and afterwards to be well anointed with the elder ointment. Next morning his pains were much more tolerable; and gradually abated, so that on the 13th of that month he got out of bed, and continued to sit up a little every day, until the 16th *July*, when he was suddenly attacked with a sickness at the stomach, and with alternate chills and heats, succeeded by a head-ach, thirst, &c.

When I visited him, I found him labouring under a fever, with a very quick pulse. He complained of an universal disorder of the body, but chiefly that the pains having entirely left the lower extremities, had fixed themselves in his breast and belly. A blister was applied to his breast, emollient clisters, fomentations, &c. were administered, together with some *saline* and *diuretic* draughts. In consequence of which the fever abated in thirty-six hours, and he afterwards recovered daily.

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head is commonly the least affected of any part of the body.

When some men were admitted into the hospital, labouring under the scurvy, and others from the same ship having a fixed and *continual fever*, in conjunction with the scurvy, I always found the fever to proceed from infection on board that ship.

If it be asked, whether an infectious fever be rendered more violent and dangerous, by its attack on a person of a scorbutic habit of body? I answer, my observations on that head, do not permit me freely to assent to the prevailing opinion, that the danger is greater from a fever, because it is complicated with the scurvy; for I have remarked, that during the continuance of the fever, the scurvy for the most part either leaves the patient or becomes milder; and I found the greatest danger to proceed from the almost certain return of the scurvy, with redoubled violence, after the recess of the fever. When the fever leaves the patient very low, especially if he has a flux, with which the scurvy associates itself more readily than with most other disorders, this return of the scurvy often proves fatal.

This leads me to remark the effects of other diseases on the scurvy, and how they are influenced by it.

First, a *tertian* or *quartan* ague, with perfect intermissions, sometimes accompany this disease, without either of them being rendered worse, or more difficult of cure, by thus jointly distressing the patient.

I have already said, that of all the disorders of the body, the scurvy seems most readily to associate itself with a flux; I now add, especially if

if the flux has been of long continuance, and the patient be not greatly emaciated; for persons very much emaciated, either with the *flux* or *consumption*, are seldom or never seized with the scurvy.

The rheumatism is generally said to be of two kinds, *viz.* the *acute* and *chronic*. But of the last it would appear there are more sorts than one, by the effects of the scurvy upon them. For it will often happen upon the attack of the scurvy, that some old rheumatic pains become much easier, nay, entirely leave the patient; whilst at other times, rheumatic complaints return at the approach of the scurvy, and with redoubled violence, so far at least as we can distinguish the one from the other. Scorbutic pains, however, are generally more violent in the limbs, than those of the *chronic* rheumatism.

As to the *venereal* disease, I do not remember a case to have fallen under my inspection, where the scurvy was combined with a recent *gonorrhoea*. Old *gleets* and *runnings* seemed rather to be lessened during an attack of the scurvy. But if the patient has a *bubo*, or an open *venereal* sore, the scurvy generally seats itself round the edges of it, which turn black, and hence it becomes very difficult of cure. One person died with an open *bubo* in this condition, where the blackness resembled a mortification, of which there was no other symptom.

Another patient, while recovering from the scurvy, was seized with the *small-pox*; a mild distinct sort appeared, but he died soon after the *turn*. But in neither of the preceding cases do I think the scurvy was the immediate cause of death.

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There is a disorder mentioned by *Van Swieten*, in his Commentaries on *Boerhaave's Aphorisms* (*d*), said to be frequent in *Holland*, and to proceed from the scurvy. It is called *cancerum aquaticum*, the *water cancer*. But I am of opinion this disease is in some respects different from the true scurvy; because a gangrene, unless in large and putrid ulcers, or brought on by a tight bandage, is an unusual symptom in the scurvy. And the only patient I ever saw afflicted with the *water cancer*, had few symptoms of the scurvy, and none of those commonly deemed mortal: his gums were indeed extremely spongy and putrid; besides which, there were ulcers on the inside of both his upper and lower lip: he lived a very short time under his affliction, dying on the tenth day after being taken ill, with his mouth in a most dreadful putrid condition, and with symptoms of an inflammation in his lungs. If this person's disease was altogether scorbutic, it must be allowed to have been a very uncommon and singular case. It were indeed to be wished, that authors would be more careful not to obtrude upon the public, as the offspring of the scurvy, such uncommon and singular cases, as are very different from the true nature of this disease, or at most, are only complicated with it, and proceed from causes entirely different from those of the scurvy.

Among many extraordinary cases, which have occurred to me, the following surprized me not a little, until the true cause of the symptoms was discovered.

On the 8th of *June*, one *Tibbet* was sent from his Majesty's ship the *Chichester*, to *Hasslar* hospital,

tal, ill of the scurvy. A severe pain in the small of the back afflicted him much, his legs and thighs were strewed with black spots, overspread with dry *eschars*, or thin films; from under which there issued a thin purulent matter. He had also a very large hard white swelling on the fore-part of the wrist, which rendered the *flexor* tendons of that joint quite rigid. Some days after he came to the hospital, he was seized every four or six hours with a surprisingly quick and involuntary contraction of both knees, by which his heels were made to strike upon his buttocks, with a shock that might be heard at some distance. Those contractions seized him without any previous pain, or other symptom of their approach. And he often remained in this miserable condition, with both heels bent back to his hips, for some hours, notwithstanding the efforts of four men to extend his legs; until by a motion, as sudden and involuntary as before, they became of themselves violently extended; and so rigid, that they could not be bent backwards. As he did not seem to suffer much pain in either state of those contractions, I suspected him to be an impostor, and therefore ordered both knees to be tightly bound with a linen roller, to some *splints* or thin pieces of wood, used to secure fractured bones, which were placed under his hams.

Notwithstanding which, such violent and astonishing contractions ensued, as quickly broke the wooden *splints*, and brought both heels again in contact with his buttocks. I afterwards very strictly examined into all the circumstances attending this poor man's case, and found by his own account, that he had received, about twenty months before, a considerable hurt in his back,  
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by falling into the *hold* of a ship; and had ever since, laboured under a benumbing weakness in both legs. Upon inspecting the seat of this hurt, there appeared to be a partial dislocation of the third bone or *vertebra* of the back, with a considerable distortion of the back bone, and projection of it towards the right side.

He continued for some weeks to suffer great distress from these contractions. Notwithstanding he daily recovered from the scurvy, in two months the lower extremities of his body, though still retaining their natural warmth, became quite paralytic: and the swelling of his back bone being much encreased, he soon after expired in a *paralytic* and *consumptive* state.

I have mentioned this case, with a view to enforce a careful enquiry into all the circumstances attending the sick, before the cause of such extraordinary and uncommon symptoms be ascribed to the scurvy, or to any other disease, which may at the same time afflict the patient.

### S E C T. III.

#### *State of the blood and secretions in the scurvy.*

HAVING before taken notice, that the blood found stagnating or extravasated in the bodies of such as had died of the scurvy, was commonly thick and congealed, a question naturally presents itself, *viz.* Whether that blood be really in a state which tends to corruption?

This is the opinion of most authors, and what I had formerly adopted from them, as the foundation of my reasoning on the theory of this disease. But I am now doubtful of the blood being

being in so *putrid* a state as those authors have represented it.

I have bled at different times above a hundred patients, in all the different stages of the disease, having even ventured in the last stage to take away an ounce or two of blood, in order to inspect the condition of that fluid in dying persons. And upon the whole, I have observed, that the blood of those who were seized with the scurvy, after a fit of sickness, or a fever of long continuance, was generally of a soft and loose texture. But the blood of most other scorbutic patients was in a natural state; there was generally, after it had stood some time, a perfect separation of the water, or *serum*, from the red concreted mass; the latter even in the last stage of the disorder was firm and compact, and often covered with some white streaks, of what is commonly called the *gluten* (*d*) or *size* of the blood.

One day, having bled eight men in the scurvy, I remarked the blood of some of them to be more glutinous than that of others; the red concreted mass of all their different blood, adhered to the sides of the containing vessels, and was not easily incorporated with the *serum*, which swam on the top.

Another day I bled two patients, one of whom was confined to his bed, his legs being very painful, hard, red, and replete with coagulated blood from the hams to the ancles. His blood, after standing a few hours, became covered with a glutinous pellicle, of a whitish, purulent appearance; the whole mass was very tough, and there was no separation of the *serum* from it.

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(*d*) See my papers on fevers and infection, page 22.

The other patient was feverish, as well as scorbutic; his blood was of the natural ruddy colour, but of a thicker and more viscid consistence than common, and there was also no separation of the *serum* from the red mass. Hence it appears, that this disease does not depend on any particular and obvious state of the blood; for its appearances out of the body are various; and the opinions of such, as have inspected the blood only of one or two persons in this disease; are, on that account, not to be admitted without great caution.

In a course of several experiments; made on the blood taken from scorbutic patients, and upon comparing it with the blood drawn from people in health; I found in the scurvy the *serum* to be as tasteless as the *white* of an egg; and that blood fresh drawn from persons in health, affects the organs both of smell and taste, with sensations not easily to be described; whereas the blood taken from persons in the scurvy, gives the least perceptible sensations by tasting or smelling, of any blood I have examined.

Upon the whole; it seems to be more insipid than when the person is in health, and its red *grumous* mass is somewhat more dense; when kept in the same state of air, it corrupts no sooner than the blood of healthy persons. Thin slices of mutton steeped in its *serum*, continued sweet and free from taint, as long as in the *serum* of persons in health.

The offensive smell from the mouth of scorbutic persons, when alive, seems to me to proceed solely from the corrupt state of the gums. For in their dead bodies, I never perceived any unusual marks of putrefaction; they were nei-

ther more offensive, nor liable to corrupt sooner than any other corpse.

It was remarkable, that the dreadful mortality from the scurvy at *Quebec*, in the year 1759 (e), happened during so severe a frost, that the dead bodies could not be buried for a considerable time, until the thaw came on; there being no possibility till then of digging their graves; and at that time all animal substances were kept perfectly free from corruption, by being exposed to the air. It is certain that diseases commonly deemed putrid, seldom occur in winter, or during so severe a frost.

On the other hand, it may be urged, that the scurvy is still properly termed in the *physical* phrase, a putrid disease; as it is not to be expected, that blood taken from a living person, is either by taste or smell to discover itself putrid; that being a state incompatible with animal life.

*Monsieur Poupart* discovered a great putrefaction in the bowels of those who died of the scurvy at *Paris*; and the muscular fibres of the legs and arms, when such parts are afflicted with the malady, are found upon dissection to be quite lax, tender, and seemingly inclined to corruption. The gums are often putrid, and the ulcers are sometimes *fungous*, as also putrid.

This, I believe, is the sum of all the arguments that can be brought, both for and against the theoretical opinion of this disease being of a putrid nature.

The term *putrid*, respecting animal and vegetable substances, is not indeed, in my opinion, sufficiently defined and restricted, so as to serve

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(e) See the Supplement, page 269.



as a solid basis or foundation of any theory for explaining the symptoms of the scurvy. The idea of the scurvy proceeding from animal putrefaction, may, and hath misled physicians to propose and administer medicines for it, altogether ineffectual.

As to the secretions from the blood in the scurvy; the urine in this disease was not found to be more offensive to the smell, nor to corrupt sooner than that of a person in health; and their sweat is not foetid, or more disagreeable than when they are in health; the same may be said of their stools.

With regard to what I have advanced, relative to a stoppage of the perspiration in the scurvy (*f*), I still continue to think it probable; for although the skin of the body, in parts unattacked by the disease, feels soft and natural, yet, in whatever part the scurvy is seated, there can be little or no perspiration, the skin being there generally dry, rough and spotted;—and, when there is a tendency in the constitution to watry or dropical swellings, sweat commonly stops, and *insensible perspiration* is diminished (*g*).

Now, in several scorbutic habits, there is a manifest redundancy of *water*, stagnating in the body; by reason not only of the weakness of the solids, or of the constitution, but also from a diminution of the watery secretions.

This much has occurred to me, after the most cool and deliberate review of what I formerly said of the theory of this disease, compared with the true state of the patients.

(*f*) Part ii. chap. 6.

(*g*) Most persons, however, in the scurvy, may be easily brought to sweat by the warmth of a good bed, and warm drinks.

## S E C T. IV.

*Observations on the causes productive of the scurvy.*

**T**HOUGH my inspection of dead bodies, and later observations, do not evince such a constant and universal state of *putrefaction* in the bowels, as some authors induced me formerly to believe was always attendant on the scurvy, yet I am fully confirmed in my opinion, that whatever weakens the constitution, and especially the organs of digestion, may serve without any other cause, to introduce this disease, in a slighter or higher degree, even among such as live upon fresh greens, vegetables, or the most wholesome diet, and in the purest air.

This is an exception, but by no means sufficient to infringe the general truth of the observations, on which the causes of this disease are founded, and assigned in chapter i. part ii. For it will admit of no doubt, that diseases in general, and the scurvy in particular, may proceed from very different causes, all tending to produce similar effects in the human body. And the utmost degree of certainty to which we can attain, from an investigation of external causes, is to know what are the circumstances and situations, which render a disease more or less universal: or such as operating strongly on the constitution, seldom fail to produce it. These, with respect to the scurvy, I have fully proved to be a moist or cold air, damp lodgings, together with the want of fresh green vegetables, and too long and strict confinement. The most then that can be inferred from such an exception as has been mentioned, is, that though cold, moisture,

moisture, and an abstinence from green vegetables, are the general causes which produce an universal and heavy calamity; yet a slighter degree of the disease, or its attack upon a few individuals, will often take place where those general causes do not subsist. In like manner, the *ague* or *intermitting* fever, sometimes makes its appearance in the driest and most healthy spots of ground in *England*, without affording any reason for supposing that disease not to be generally owing to the marshes in *aguisb* countries and seasons (*b*).

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(*b*) It may be argued, that the scurvy attacked persons at *Haslar hospital*, as related in the Supplement, page 271, where cold, moisture, and especially the want of green vegetables, could not be supposed to occasion the malady. Therefore, cold, moisture, and abstinence from vegetables, are not the causes which produce the disease.

Again, salt provisions and cold, are also mentioned in the Supplement, page 269, as having contributed greatly to the production and inveteracy of that calamity, which fell so heavy on the *English* troops, in the winter 1759, at *Quebec*. But on the other hand, during the height of a fine warm summer, *ann.* 1761, several of the *English* troops in the hospital at *Belleisle*, were seized with the scurvy, who had as much boiled fresh beef or mutton, with wheat flour and rice, as they chose; therefore, according to the same manner of reasoning, the cold of the air, and salt meat, were not the causes of the scurvy at *Quebec*.

I have now, in the month of *July* 1771, under my care at *Haslar hospital*, several men very ill of the scurvy, sent from the guard-ships lying at *Spithead*, which ships have not been at sea. Those men being prest into the service about six or seven months since, and not permitted to come on shore, have, solely from confinement on board ship, become highly scorbutic.

Lastly, troops that have undergone much fatigue, as also sailors who have worked very hard, may become afflicted with this disease; whence it may be also inferred, that confinement, sloth, or indolence, though frequently, are yet improperly assigned, as causes of the scurvy.

The scurvy is what many persons long confined to their bed by sickness, are apt to be afflicted with;—the first symptoms of it are commonly the same with those of a very low and feeble state of the body, *viz.* a weakness of the knees and back; which together with some slight pains in those parts, are most sensibly felt upon an attempt, by some motion of the body, to exert the remains of their exhausted strength. There is also, sometimes, a swelling of the legs, and an eruption of livid spots. I have known persons to die in this condition, who were supposed to have died of a low spotted or *petechial* fever; whereas their cases were altogether scorbutic.

But the same objections lie against the causes usually assigned for the most prevailing diseases; as for example, the *flux*, which, like the scurvy, attacks mankind in all climates, and in all seasons, both at sea and on shore.

The *dysentery* often is peculiarly *epidemic* at particular seasons, in unhealthy places in the torrid zone; it is also frequently the effect of an infection from patients labouring under the same disease.

But if persons, in a very different climate and situation, and where there was no infection, should by wearing of damp linen, or by eating unwholesome food, or by any other means, be attacked with the same disease, it is certainly no just conclusion, that an infection, or that the unwholesome situations in hot climates, were blameless, or improperly assigned as the true causes of it, in other persons, places, and seasons.

An observation is made on most diseases, that they sometimes prevail where their usual causes do not subsist, and at other times are not to be met with where these causes are real and apparent, which it must be owned renders this *investigating* branch of medical science often difficult and abstruse. Thus *agues* have not only been frequent in a very dry season and situation, but in several places, particularly in the northern parts of this island, and in *Ireland*, many live near bogs and marshes pretty free from the *ague*, and altogether so from the scurvy.



All persons who have been long pent up in ships and prisons are subject to this disease. Even such as have lived on the most wholesome vegetable food, during a confinement of six or seven months, in a ship, are, after their enlargement, often sensible of a degree of weakness, which, upon an exertion of the body, particularly on walking abroad in the fields, affects them with a stoppage in the breast, or a difficulty in breathing; this is the true scorbutic *lassitude* and *dyspnœa*. Many officers of the ships of war, after long cruises at sea, came on shore in this condition, having also their legs and thighs discoloured, and spotted; to whom the disease would perhaps have proved fatal, if the free use of wine and fermented liquors, together with a vegetable and wholesome diet, had not checked its progress.

But, when the several causes productive of the scurvy, act with combined and uninterrupted force, it then becomes a most dreadful distemper. It reduces the most stout and vigorous constitution to the weakness of a child; and the bloom and strength of youth, to the imbecillity of age. The feeble knees tremble, and cannot support the weight of the body; nor the back, the weight of the trunk. By walking a few steps, the sick are out of breath, and often faint away; the countenance, the whole appearance, the groans, and complaints of the patients, denote the most piteous and abject state of weakness and of misery.

## S E C T. V.

*The cure.*

**I**N delivering the cure, three distinctions may with great propriety be made of this disease, viz. The *habitual* or *constitutional* scurvy, the *adventitious* scurvy, and the *symptomatic* scurvy.

1st, The *habitual* or *constitutional* scurvy returns at intervals, affecting the patients for several months at a time, with weakness of body, loose teeth, spots, and pains in the limbs. For the benefit of such, I have already given full directions in part ii. chap. 5.

2dly, What I have in the preceding Treatise termed the *adventitious* scurvy, is that universal weakness of the body, and relaxation of the whole system, which has been described in the preceding section; to this at present we shall chiefly confine the cure.

3dly, The *symptomatic* scurvy, is that which attacks patients in a very low state, when exhausted by some former disease, and is generally incurable.

To what has been already said of the virtues of oranges and lemons in this disease, I have now to add, that in seemingly the most desperate cases, the most quick and sensible relief was obtained from lemon juice; by which I have relieved many hundred patients, labouring under almost intolerable pain and affliction from this disease, when no other remedy seemed to avail, as was the case of *Macgottin*, described, part ii. chap. 3. page 136. And particularly at *Hasslar* hospital, where the scurvy raged in the year 1759, many, with whom the distemper encreased during

during a course of other medicines, and a plentiful diet on green vegetables, owed their recovery entirely to the lemon juice.

This acid, however, when given by itself, undiluted, was apt, especially if over dosed, to have too violent an operation, by occasioning sickness and pain in the stomach, and sometimes a vomiting.

To such persons, therefore, as are much weakened by this disease, those acids are to be prescribed in a small quantity at first, and always well diluted with warm water, gruels, and the like.

But what I have found highly to improve the antiscorbutic virtues of the juice, was an addition of wine and sugar. Wine of itself is undoubtedly not only an excellent antiscorbutic, but the best vehicle for administering the rob or juice of limes or lemons in the scurvy.

I have often visited patients, so very low and weak, that with difficulty they could swallow a spoonful at a time of a rich *Malaga* wine, mixed with one third lemon juice, and a little sugar. But our common practice was to order about four ounces and a half of juice, and two ounces of sugar, to be put to a pint of wine, which was sufficient for any weak patient to use in twenty-four hours. Such as were very weak sipped a little of this frequently, according as their strength would permit, others who were stronger, took about two ounces of it every four hours. The sugar served not only to render it more palatable, but also to occasion a fermentation on shaking the bottle, in which effervescent state, such draughts ought always to be administered: they frequently prove greatly *diuretic*, and will sometimes

times occasion profuse sweats (*i*). The patients, as they grew stronger, were allowed eight ounces of lemon juice in twenty-four hours.

This composition of the lime or lemon acid, with wine and sugar, so administered, I esteem the most efficacious remedy for this disease, and greatly to exceed the simple lemon juice, or any other method in which it may be given.

Upon repeated trials, I found that the virtues of lemon juice in this disease, exceeded those of green vegetables, and were much superior to that of wine by itself (*k*).

I have

(*i*) I have observed much relief to proceed from these draughts, when taken in bed; drinking after them some warm balm tea, so as immediately to produce a profuse sweat.

(*k*) *John Thompson*, on the 18th of *June* 1759, was prest into his Majesty's service. He was servant to a farmer, and had never been at sea. On the 23d of *October* he was admitted for a fever into *Haslar* hospital, which had reduced his strength so much, that he was confined to bed for a fortnight after it. He then complained of a pain in the fore-part of one of his legs, where, in eight days afterwards, a large red blotch, resembling an *erysipelas* appeared. His gums grew spongy, and bled frequently. A bruise formerly received on his breast became troublesome, and very painful when touched; his other complaints were pains in the *small* of the back, and an universal weakness, more especially of the knees, accompanied with a pain in the ham, when he attempted to walk; but when lying in the bed, he was always chearful and in good spirits. His diet when in the hospital, was *milk pottage*, bread and butter, mutton broth with greens. His medicines were *elixir of vitriol*, *conserve of worm-wood*, and *tincture of bark*. A fomentation of warm vinegar gave ease to the pain of his leg; but finding he gained otherwise no relief, on the 16th of *November* I discontinued all his former medicines, and altered his diet, ordering he should taste no greens, small-beer, or any fermented liquor, but live entirely on water-gruel, cheese, butter, bread, and mint-tea. This was done in order to try the effects of lemon juice.

On



I have found this composition equally successful in curing the scurvy, in such as were afflicted with it at land, where it is a disease but little known, and too often mistaken for a different indisposition, as will appear from the two following cases.

I was

On the 16th of *November*, he took, in twenty-four hours, by a spoonful at a time, two ounces of fresh lemon juice, in a quart of barley-water, sweetened with sugar. On the 17th he had eight ounces of the juice. The 18th, being costive, had a purge, but no juice. From the 19th to the 24th, he took every twenty-four hours, eight ounces of the juice, mixed as before; and next day his condition was as follows. His mouth quite well, the *ecchymoses* entirely gone, no other symptom of the scurvy remaining but weakness.

*George Young*, ten days after a fever, was seized with the scurvy in his legs. They became extremely painful and swelled towards the evening, were at first of a lemon colour, and afterwards covered with red and black spots, resembling *petechiæ*. He was extremely weak, had a cough, his gums not spongy, but often bleeding; he eat two apples every day, and had broth with greens for three weeks, mending but slowly till ordered fresh lemons, then he recovered apace.

— *Reeves* was long ill of a fever and flux, by which he was greatly reduced. He complained of intolerable pains in his legs, accompanied with spots and a large swelling. After taking lemon juice in wine, for some days, he was seized with a severe fit of shivering, upon which he fell into a violent and profuse sweat, which removed the *anasarca* and scurvy entirely. But in a few days he relapsed into the flux, upon which his *anasarcous* swellings returned, these continuing after the scurvy had entirely left him.

*John Ogle*, in a few days after, having had a fever, was attacked with the scurvy over his whole body. His arms were covered with rough, red, and purple, miliary eruptions, intermixed with red and black flat spots; those last were also on the trunk of his body; his legs were swelled, rough, and spotted. He was perfectly cured in seven days, by lemon juice given in wine.

At this time I was determined to try what effect wine and greens would have on another patient, who was very weak

I was desired to visit a lady, who being in an insane state of mind, had been confined to her house for some years; she was supposed to be dying, and I found all her friends met to pay their last respects to a person once much esteemed. I was told that a mortification was begun in her limbs, scarifications were talked of, and the application of

weak after a fever, but got up every day, and walked about on crutches. On the 15th of *February* he complained of intolerable pains in the ancles, and calves of his legs, and was supposed to have got the *rheumatism*. On the 23d, notwithstanding his taking a decoction of *bark* with *snake-root*, and his being allowed wine and broth, with greens, I found him daily growing weaker, and when he attempted to get out of bed he became faint, and could not sit up. When in bed his limbs gave him great pain, but he was otherwise chearful and hearty. Upon examining his skin, some very small purple spots of blood were perceived on the inside of both legs.

The proofs of the scurvy being now evident, I determined he should persist in the use of the hospital broth, with greens, drink half a pint of port-wine in the day, and take by way of medicine, an infusion of *wormwood* and *gentian*, and afterwards made the following remarks.

25th of *February*, the inside of both legs are now covered with red miliary spots, and are rough; the calf of one leg, where he complains of incessant and violent pain, is somewhat more enlarged than the other.

26th. Much the same, and in great pain.

27th. Attempted to get out of bed, but could not, by reason of his proneness to faint.

28th. Sat up a little to day, but his scurvy seems to encrease.

1st of *March*. Both legs are now greatly swelled and much spotted; he grows daily weaker and worse.

2d of *March*. He suffers intolerable pain from his legs, which are much swelled, and stained with red and dark coloured blotches, which daily spread. He cannot now be taken out of bed. Thus suffering intolerable agony, and being in imminent danger, I could no longer withhold what I judged would prove the means of his relief, therefore ordered him the same medicine with *Ogle*, to wit, the juice

of the warmest poultices. On examination, I found both her legs hard, painful, and covered with livid spots. Above the ancle of the right leg there appeared a large black *blotch*, and on the inside of both thighs several red and livid streaks and stains. She complained of great weakness, and of a troublesome pain in her loins.

I acquainted her friends with the nature of her disorder, and soon removed their apprehensions of her sudden death. I ordered her legs to be frequently bathed with warm vinegar, and prescribed an ounce of the juice of lemons, in two ounces of wine, sweetened with sugar and coloured with *coccineal*, to be taken three times a-day. By this she was restored to her former state of health in less than ten days, no other symptom of the disease at that time remaining, but weakness.

Another lady, during a tedious recovery after her delivery in child-bed, was seized with universal and severe pains, particularly in the back, legs, and thighs; she had frequent bleedings at the nose, and her gums were so painful, that  
she

juice of four lemons in a day, taken in half a pint of wine, desiring him also to eat the pulp, and to this alone I trusted his cure, forbidding him to taste greens.

*March* the 3d. He took six draughts of the lemon juice and wine, at an interval of two hours betwixt each, which consumed the quantity prescribed. The draughts proved greatly diuretic, and he thought himself better. There was a considerable swelling on the fore-part of his foot, and his legs were rough, scaly, and spotted. But he afterwards recovered daily, without assistance from vegetables or any medicine whatever, except lemon juice and wine; these he left off taking on the 13th of the month, having no complaint remaining but weakness.



she could not chew any solid food ; she became at length so low and feeble, as to be seized with a great difficulty of breathing, and a disposition to faint away upon the least exertion of her strength.

Her apothecary, judging the symptoms to be of the low *hysterical* kind, administered salt of *hartshorn*, *castor*, and several other *nervous* cordial medicines. But she grew daily worse, and was thought to be dying. I found her legs covered with the true scorbutic spots, and discolourations, and her gums destroyed by the scurvy. The nature of her disorder being quite obvious, I discontinued all her former medicines, and by the same acid and vinous draughts, as in the former case, this lady, from a dangerous condition, was restored to a perfect state of health.

I do not mean to say that lemon juice and wine are the only remedies for the scurvy ; this disease, like many others, may be cured by medicines of very different and opposite qualities to each other, and to that of lemons.

It is to be presumed, that in very cold countries, *scurvy-grass*, and herbs of the like quality, would still be more beneficial. What has been found equal to any other remedy in the scurvy, is the water or juice of the *coco-nut* tree, which distils from incisions made in the branches and tops of the tree, and is commonly called *toddy*.

The *Peruvian* bark, and all bitters, such as *gentian* root, *chamomile* flowers, *orange peel*, tops of *centaury*, and the like, are beneficial. Those bitters are administered to the greatest advantage, when infused in wine. The bark, however, must be given in substance, and in large quantities,



tities, especially in cases of putrid, obstinate, or spreading scorbutic ulcers.

When a symptomatic fever was occasioned by great pain from large ulcerations, an addition of nitre to the bark proved serviceable, and the best dressing for the ulcer was found to be a very strong tincture of *myrrh* in brandy.

Bitters are undoubtedly sometimes of great efficacy in this disease. Among many scorbutic cases which have been communicated to me, Mr. Kerr gives an account of a seaman in one of the *East India* ships, who was perfectly recovered, when at sea, from a very violent and dangerous scurvy, by drinking plentifully of a strong infusion of *chamomile* flowers in warm water. By the constant use of which, he also continued to enjoy a perfect state of health during the remainder of the voyage, for three months at sea.

Most patients in this disease find manifest relief from gentle doses of *physic*, repeated twice or thrice a week. For those who were very weak, I found a *scruple* of *rhubarb* quite sufficient, but for such as were able to walk about, pretty smart purges of *senæ* were absolutely requisite.

There are few cases, in which external applications give more relief, than in the scurvy. When the gums are affected, the patient can neither eat nor drink, without first washing and cleansing his mouth with a *gargle* (1), and the relief obtained by bathing the legs frequently in a day, with warm vinegar, is quick and surprising.

In

(1) The following is the gargle I always used at *Hastur* hospital. R. *Aquæ bordeatæ semilibram, mellis ancias duas, spiritus vitrioli fortis q. s. ad gratam aciditatem. Adde pro re nata tincturæ myrrhæ drachmas duas.*

In the winter of the year 1769, when the *Russian* fleet was at *Spithead*, many of their men were brought into *Hoslar* hospital upon men's shoulders, quite disabled by the scurvy, who being put to bed, and having their limbs well bathed with warm vinegar, and their joints anointed with *ung. sambucinum*, were able afterwards to get out of bed, and walk through the wards.

But as there is not in nature to be found, an universal remedy for any one distemper, in all its complicated stages, and for the various symptoms that may attend it, so in the scurvy, deviations from the general method of cure become often necessary, according as particular symptoms of distress present themselves.

Thus in the scorbutic flux, the bark must be given in *decoction*, adding to each dose of it, as much of the tincture of opium, as may palliate or relieve that dangerous symptom. Here, wine, spices, and opiates, are the principal remedies; together with glysters of mutton broth, administered in small quantities; with the addition of red wine; and the *tinctura thebaica philonium Londinense*, together with *ipecacuanha*, in small doses, are serviceable. But the most frequent concomitants of the scurvy, and which require our particular attention, are, dropical swellings in almost every part of the body; these are often very difficult to remove, and sometimes prove fatal.

The case of scorbutic patients, even in the commencement of the disease, seems in this respect to be similar to that of most weak persons, or of all those in whom the principles of life, or of the constitution, are enfeebled by age, sickness, or the like.

Weak, aged, and scorbutic persons, are subject to a cough, swellings of their legs, and sometimes even of the face, all which I judge to proceed from *serum* extravasated in those parts.

It will be found, I believe, that many persons in perfect health, especially if corpulent, have water both in the breast and belly. A small quantity of water in either of those cavities, is, as I conjecture, attended with little or no pain and inconvenience. But when a considerable quantity of water is accumulated in the breast, it will sometimes, without any other cause, give rise to a violent and incessant cough, attended with a constant spitting of gross phlegm, of which I have seen several instances, and sometimes it produces so great a difficulty of breathing, that the patient cannot lie on bed, but must sleep in an erect posture. The *peripneumonia notba*, which so often puts an end to the life of old men, sometimes proceeds from this cause. In several young persons, who have died consumptive, the lungs seem to have been chiefly injured by being steeped or macerated in the water contained in the breast; and in others, the waste of substance in the lungs, it is not improbable, may be owing to their peculiar structure; for as in a general decay of the body, some parts seem to suffer more than others, so, next to the *omentum*, the lungs are often found to be the organ which corrupts, and is consumed soonest.

*Œdematous* swellings of the legs, accompanying these disorders of the breast, are the surest signs of water being in that cavity. This water may sometimes have no communication with that of the legs, or any part of the body, but

it is certainly more frequently the case, in weak scorbutic persons, that water in the legs is received from, and returned again into the cavities of the breast and belly, as I have formerly observed (l).

It must be owned, that the passages for such water, from those cavities into the legs, are unknown to us; but they are no more so, than the passages for it into the intestines or kidneys, from which sometimes, by slight irritations of those parts, or from other causes, it is plentifully discharged.

There is no doubt, but in some scorbutic patients, there is also water even in the joints of the knees. For those scorbutic patients, whose legs were much swelled and *œdematous*, we prescribed daily a pint of strong beer, medicated with the most powerful *antiscorbutic* herbs (m). During the last war, many hogshheads annually of this *antiscorbutic* beer were used at *Hastlar* hospital, for such patients, with great success.

When the face was swelled and bloated, we prescribed more powerful *diuretics*, such as the *lixivial* salts in wine, and the acrid *antiscorbutics* (n).

When the difficulty of breathing was great, and attended with violent fits of coughing at night,

(l) Pages 91 and 92, of my papers on fevers and infection.

(m) R. Foliorum cochleariæ hortensis, nasturtii aquatilis, becabungæ, ana manipulos sex; radicis raphani rustici unciæ tres; absinthii romani semi-manipulum; infundantur in cerevisiæ veteris ℥ fortis congiis duobus per quatrimum.

(n) R. Vini alb. ℞. fl. salis absinthii 3 ss. cinerum genistiæ unciæ decem; radicis calami aromatici, seminum dauci sylvestris, ana semunciam; baccarum juniperi unciam unam; seminum sinapis unciam unam cum dimidia. Infunduntur in vini albi (rhenani) libris quatuor per aliquot dies ℥ cola.



night, we gave at bed-time the salt of tartar, joined with an opiate, in sufficient quantity to procure rest, and to promote a plentiful flow of urine.

When the swellings remained obstinate, the greatest benefit was received from sweating the patient, by a *scruple* or half a *drachm* of *Dover's* powders properly prepared, and taken at bed-time (o). I have often used this medicine in *œdematous* swellings, with remarkable success. The chief inconvenience I perceived from it, was weakening of the patient, by sweating too profusely; this may be prevented by giving it only three or four times a week, and by the patient using through the day a strong infusion of orange peel, acidulated with *elixir* of *vitriol*. In most dropical cases we found the *cream* of *tartar* an excellent *diuretic*.

But, if notwithstanding those remedies, the water encreases so much as to impede respiration, and both legs are affected with a soft swelling, which retains the impression of the finger for a considerable time, nothing will prove more effectual than the application of blisters to the inside of both legs, a little above the ancles. When by this means the water is evacuated, the patient may be put under a course of the *bark* and *elixir* of *vitriol*, and the legs be afterwards fomented with a decoction of *oak bark*.

The apprehension of a mortification in persons afflicted with the scurvy, from the application of blisters, is altogether imaginary.—In some

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hundred

(o) R. Nitri tartari vitriolati, ana semunciam; funde in crucibulo ignito, et, deflagratione cessatâ, eximatur massa, cui adde, opii crudi pulv. ipecacoanhæ pulv. glycyrrhizæ pulver. ana singulorum drachmam unam. Fiat pulvis subtil.

hundred cases, where blisters were applied to the legs to remove the swellings, and in many more, when blisters were applied to the back to remove contagious fevers, I never once remember to have seen a mortification ensue, except when the patient was in a dying state; the appearance of a mortification not being the cause, but only the sign of approaching death.

I have lately, by the use of *Dover's* powders, and blisters to the legs, when *oedematous*, in many scorbutic patients made a compleat and perfect cure in a few days, while others, not treated in the like manner, have not been relieved from the scurvy in as many weeks.

In some habits of body, the blisters to the legs are apt to be very painful and troublesome; and sometimes do not discharge the water in sufficient quantity, especially if the scarf skin be injudiciously removed; in this case, though unwillingly, I have recourse to scarification of the legs: but I greatly prefer the application of blisters; having, from extensive experience, learnt, that in a dropsy of the breast, a case which occurs more frequently in practice than is commonly imagined; the irritation occasioned by blisters applied to the legs, and the consequent discharge of *serum*, proves a certain cure; unless, as may be sometimes the case, the water in the thorax has no communication with that in the legs; or the *vis vitæ*, the principles of the constitution are so irreparably decayed, that, though the blisters give immediate ease, yet the water will be again accumulated.

When the water, in a true *ascites*, is altogether confined to the *abdomen*, the case sometimes of scorbutic patients, I found the best remedies to be

be that of rubbing the belly, for half an hour every night, with warm olive-oil, to promote a large flow of urine, and giving twice a week *jalap*, or such purges as evacuate water by stool, with *Dover's* powders on the intermediate nights.

If, as is sometimes the case, after the scurvy, one leg only continues long hard, distorted, or constantly swelled; an issue put in it has often been of service. As also, pills made of the extract of *hemlock*, and fumigations with the steams of *benzoin* and *frankincense*, avoiding all moist or relaxing applications.

## S E C T. VI.

*Further observations on the cure. Conclusion.*

**T**HE scurvy admits not only of various and very opposite methods of cure, but is also often relieved by the most simple means. There are few *chronic* diseases so painful, and attended with such a variety of alarming symptoms, in which the transitions from life to death, or from sickness to health are so unexpected and sudden; a removal of the cause often produces an almost immediate effect on the disease.

I have read, and heard, many relations of men supposed to be dying of this malady, who were said to have been perfectly recovered by being carried on shore to feed on the grass, to smell the earth, and by such like means.

These relations are not altogether destitute of truth; the following may be depended upon.

In the year 1761, when the *English* fleet lay at *Belleisle* on the coast of *France*, the men in his Majesty's ships were preserved from the scurvy

by the seasonable supplies of greens, sent from *England*. But the seamen in the transports had not this benefit. The owners of those ships furnished their crews with no greens or fruits whatever. Hence they became in general very much afflicted with the scurvy. Many of those unfortunate persons, labouring under this severe evil, and utterly destitute of proper remedies, were carried on shore, and after being stript of their cloaths, were buried in a pit dug in the earth (the head being left above the ground) their bodies were covered over with the earth, and permitted to remain thus interred for several hours, until a large and profuse sweat ensued. After undergoing this operation, many who had been carried on men's shoulders to those pits, were of themselves able to walk to their boats; and what was very extraordinary, two of them who had been quite disabled by this disease recovered so perfect a state of health, that they soon after embarked for the *West Indies*, quite recovered and in good spirits, without once tasting any green vegetables (q).

I have myself seen many instances of patients brought into *Hasslar* hospital, who by being only  
on

(q) This is said to have been a common practice among the *Buccaneers* in the *West Indies*, when their men were afflicted with the scurvy; which brings to my remembrance the following relation, given me by a friend.

One day hunting in *Newfoundland*, he discovered, what appeared to him at a distance, to be a number of graves, with a man's head fixed to each. Struck with the novelty of the sight, he went to the place; where he was further surprized to find the men alive; they informed him they belonged to a ship which lay in the road, and, that having been reduced to unspeakable misery by the scurvy, they were thus interred in order to obtain a cure. Was not the climate of *Newfoundland* too cold for this operation?



on shore for a few days, seemed surprisingly relieved, and have frequently observed, that this disease, when proceeding solely from a long continuance at sea, is strongly and suddenly influenced by the passions of the mind, and other circumstances attending the sick. The joy of being landed after a long cruise or voyage; the pleasing prospect of a speedy relief from distress, a change of air and weather, even the warmth of a comfortable dry bed, added to the efficacy of outward applications, seemed to operate powerfully and surprisingly upon the disease.

In the course of my experiments on patients in the scurvy, I have relieved some in such circumstances, by the most trifling prescriptions; and am persuaded, that entire credit may be given to the relation of cures similar to this published by *Vander Mye (r)*, and other authors of unquestionable veracity.

Whether such relief was owing to the faith of the patients in the extolled efficacy of the prescription, to exercise, or an enlargement after being confined in a ship, prison, or bed of sickness, or to a removal from a cold damp place to a dry and warm habitation, and in some instances to a respite from hard labour and fatigue; or lastly, to circumstances unknown or unobserved, I cannot say. It is not improbable, that many of these operated jointly towards that effect.

But though changes in the symptoms of this disease happen very unaccountably, and in a short time; from whence many medicines have derived the character of their efficacy; yet, it is not to be supposed, that the disease itself leaves the

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patient

(r) See part iii. of this Treatise.

patient so quickly, the extravasations still continue, as also the *anferine* or *miliary* spots, dry *eschars*, hardness, and blackness of the flesh, livid and red streaks, and especially swellings and pains of the legs.

The gums, if proper care be taken, soon become sound; but it is seldom less than three weeks, a month, or even six weeks, before a person labouring under a very inveterate scurvy, can with the aid of the most excellent regimen, be said to be altogether free from it, and some are a much longer time before they are perfectly re-established in health.

I have frequently observed, that, out of the number of 100 scorbutic patients sent to *Haslar* hospital, in ten or twelve of them at least, the disease proved very tedious and obstinate, requiring not only a vegetable diet, but a continued course of medicine for several weeks; at the expiration of which, the injury done the constitution was in many far from being removed.

In such however, as the disease has in a few days taken a favourable turn, from a change of diet, air, weather, or other circumstances, which might have occasioned it, although the spots, and the other symptoms before-mentioned, continue; nay, should the eruptions on the skin encrease, as they often do, yet the patient will daily acquire strength, and, if the scurvy be not deeply rooted, he will recover from it by the encreasing vigour of his own constitution. Notwithstanding this, these convalescents are very importunate for relief, and desirous to procure it from medicine: they are alarmed with every transiion of the seat of pain, which frequently happens, they are every day pointing out new spots

spots and eruptions on their skin, they walk very lame, the pain of the back harasses them much, and the idea of their past sufferings and distress seems always to shock them.

I have relieved above two thousand such patients in *Haslar* hospital, by giving them twice a week gentle purges of *rhubarb* and *sena*, and by the usual outward applications to mitigate the pains of their legs, gums, &c. They took twice a day, the bigness of a nutmeg of an *electary* composed of equal parts of the *conserve* of *Roman wormwood* and of *lenitive electary*, sharpened with *elixir vitriol*, and used at the same time a plentiful diet of greens.

But, as when the scurvy is occasioned by an intense degree of cold, during a severe winter, nothing so effectually relieves the patient as the return of warm weather; so, in like manner, when it is produced chiefly by a long abstinence from green vegetables, it is often soon removed by a plentiful use of them; hence it follows, that if a patient, who has not been reduced to the last extremity, be well supplied with green vegetables after a long abstinence from them, his cure, though it may be greatly forwarded by the use of medicines, is never to be ascribed solely to their efficacy.

I have made it my study for some years, with unwearied diligence, to observe the effects of all the medicines and methods of cure that have been recommended for this disease, by putting them to the fairest trials. For this purpose, I not only sent abroad various medicines to be administered to patients, by way of experiment at sea; but have, at different times, selected a number of patients in *Haslar* hospital, and administered



ministered to them, in various forms, all the different *antiscorbutic* remedies. The principal of which were, the *scorbutic juices* of the London Dispensatory, the juice of *scurvy-grass* by itself, the *Peruvian bark* in large quantities, decoctions of *guajac* and *sassafras*, infusions of *juniper* berries and stomachic bitters of various kinds, both the decoction and infusion of *fir tops*, the *pinces*, &c.

In order to judge of the effects of each of these medicines, such patients as were selected for the trial were confined in wards by themselves; they were strictly watched, and debarred from eating any green vegetables, fruits, or roots whatever, though many of them had not tasted any thing of that sort for several months; they were not even permitted to taste the hospital broth. Their breakfast was *balm* tea with bread and butter, for dinner they had light pudding, and for supper, *water gruel* with bread and butter.

Upon a daily comparison of the state of those patients, I was surprized to find them all recovering pretty much alike, and though they abstained altogether from vegetables, yet they in general grew better.

This strict abstinence from the fruits of the earth was continued long enough to convince me, that the disease would often, from various circumstances, take a favourable turn, which cannot be ascribed to any diet, medicine, or regimen whatever.

I have also endeavoured to discover the comparative effects of different fruits and vegetables in this disease.

For this purpose, after restraining the patients from all other vegetables or medicines, I gave to  
some



some *salads* of *water cresses* and *scurvy-grass*, to others *garden cresses*, *endive*, *dandelion*, and *lettuce*; and to others ripe fruits, as *plums*, *apples*, *currants*, &c. But could not observe a superior *antiscorbutic* virtue in any of those, as the patients who eat them did not recover sooner than those who had daily given them the hospital broth, with boiled beef and greens (*s*).

It is proper to observe, that those patients were almost constantly employed in washing their mouths with *acid* gargles, in bathing their limbs with warm vinegar, and afterwards anointing them with *palm oil*, *elder ointment*, or the like applications, from all which they seemed to receive great pleasure and benefit.

On the other hand, this disease sometimes proves very obstinate. I have met with numerous instances, not only among the common seamen, but of officers, with whom it had taken such deep root in the constitution, as to prove a lasting affliction to them during a great part of their lives.

These persons we must again refer for proper means of relief, to chap. v. part 2. of this Treatise, with a caution to beware of the many boasted specifics for this disease; some of which owe their reputation to a partial trial on patients, whose recovery was probably owing to very different

(*s*) In order to judge of the operation and effects of the infusion of *malt*, recommended by Dr. *Macbride*, I put 130 scorbutic patients under a course of it for fourteen days, they drank a quart of it daily; it has the advantage, when new made, to be extremely palatable, the patients were very fond of it, and there was not one instance of its occasioning sickness, gripes, or purging. On the whole, it is a very nourishing liquor, well adapted for scorbutic patients,

different causes; while others, of a *mercurial* nature, dignified with the title of infallible *anti-scorbutic* medicines, may perhaps be given for some particular intentions, but cannot be administered with safety to a person afflicted with the true scurvy.

There are frequent occurrences in this disease, which I think very difficult to account for; thus it may afford matter of speculation,—That some people are afflicted with the scurvy, while their constant food consists of vegetables, well baked bread, flesh soops, and other articles of light and easy digestion, as was the case of many in *Haslar* hospital, in the year 1759; while the same diet proves a certain means of relief to others from this disease.

Another remarkable, and not an unfrequent occurrence, is,—That five or six hundred men, in a long voyage, while living the whole time on salted and hard meats, often continue in perfect health, but soon after they come into a harbour and begin to eat ripe fruits and green vegetables, many of them will be seized with an obstinate scurvy. Thus several hundred seamen have been admitted into *Haslar* hospital, who while living at sea on their ship's provisions, enjoyed good health; but began to feel the first symptoms of this disease, after they had eat greens and fresh meat for some time at *Portsmouth*; and notwithstanding the continuance of this wholesome diet, an enlargement from their confinement in a ship, and the most proper remedies, joined with the utmost care that could be taken of them, the scurvy continued in several of them for five or six weeks.

Others again have been attacked with it a long time after they had left off going to sea.

But, notwithstanding all this, we may be well assured, that the scurvy will never rise to that height, as to become a general, fatal, and destructive calamity, in the nature of a plague, where green vegetables abound, and the proper method of treatment is known and practised.

On the other hand, it must be freely acknowledged, that where a wholesome diet cannot be procured, and the causes of the disease cannot be removed, though its symptoms may be greatly relieved or palliated, its violence checked, nay much abated, and a multitude of lives preserved, by proper attention, and a knowledge of the disease, and the remedies for it; yet in certain circumstances, its inveteracy will sometimes elude the efficacy of the best and most sovereign remedies. This is further confirmed by the account given of the scurvy in *India*, by an ingenious friend of mine (*t*); who had formerly the direction of the naval hospital in that part of the world, and had acquired an extensive knowledge in this disease.

At *Madagascar* he filled a half hoghead with orange and lemon juice, preserved with about a sixth part of rum, and likewise provided himself with a quantity of the *rob* of those fruits. The juices kept good for two years, until he had occasion to use them, in a long passage from the coast of *Coromandel* to *Bengal*. The whole squadron under *Admiral Watson*, became at this time greatly distressed by the scurvy. Mr. *Ives* allowed

(*t*) *Edward Ives*, Esq; of *Titchfield*, whose curious physical sea-journal is published in chap. i. part ii.

allowed his patients in the *Kent*, as much of the juices as they chose, mixed with water and spirits, by which means several recovered and returned to their duty while at sea, and the *Kent*, a ship of 64 guns, did not lose a man, though all the other ships lost a great many. He sent a dozen bottles of lemon and orange juice on board the *Tyger*, whose men were daily dying, and in a letter of thanks was informed, that the juices had been of great benefit.

He adds, “ The people of the *Kent* were indisputably preserved from dying of the scurvy, by the juice of oranges and lemons, but I verily believe, had our passage been a month longer, the disease would have cut off many. For, though the juices most certainly checked the fury of the distemper, and at first cured several, yet, at length they relapsed, and the disorder gained, though slowly, on most patients. It is to be observed, the sick had little or no assistance from fresh meats, or a proper diet of any kind.

“ When the squadron arrived at the river *Hugley*, after a passage of three months, many of our men were afflicted with dropsical swellings of the legs; the *scrotum* in some contained a gallon of water; and notwithstanding an immediate and plentiful supply of fresh meat and vegetables, their recovery from the scurvy was very slow, and while they had been feasted for a fortnight or three weeks with the most excellent land productions, several were suddenly seized with severe pains in their bowels, accompanied with a vomiting and purging, and with violent contractions of the legs, thighs,



“ thighs, and arms, of which they died in a few hours.

Mr. *Ives* concludes his observations thus, “ Some voyages at sea may be so long, that nothing will prevent this calamity from spreading : the most powerful of all the remedies I know, is juice of oranges and lemons, by the plentiful use of which, many thousand lives, in a large fleet, may be preserved in a voyage of moderate length, which without this aid would be lost. The fresh fruits are best, next to those is their juice preserved with spirits, and lastly their *rob* or extract. I have never been able to discover that any of the *mineral acids*, such as *spirit of salt*, *elixir of vitriol*, &c. in the least restrained the progress of this malady at sea.”

Here I cannot help observing, that the most dreadful cases of the scurvy seem most frequently to occur on board ships in the *East Indies*, where it is often attended with putrid and spreading ulcers of the most malignant kind, and with the most universal and fatal dropsies (*u*).

But for what disease can mankind boast a never failing or infallible remedy, in every situation of the patient and circumstance of his distress? Thus, when the scurvy seizes a person much weakened by a tedious confinement, or long fit of sickness, which it often does both at sea and land, and is accompanied with a frequent purging, proceeding altogether from weakness of body, a most affecting state of distress presents itself.

In this appearance of the scurvy, on patients in a very weak or dying state, after a fever or long

(*u*) See Mr. *Ruggit's* account, part ii. chap. 5. p. 256 ; also the supplement, page 278.

long fit of sickness, as also in such as had been long confined to bed by ulcers, the lemon colour of the legs, the black and purple small spots, evince the attack of the disease; but the low, emaciated, and sinking state of the patient, will admit of no cure; and this is what I have called in one of the preceding pages an incurable scurvy, as I always found it such.

Many diseases have been well known, and accurately described for above a thousand years; yet, for which of them have we an infallible remedy? What medicine can counteract the continued influences of improper diet, air, and confinement: the last of which in particular, I now judge to be a principal cause, of the great obstinacy and frequent mortality of the scurvy in long voyages at sea.

It is perhaps the vain and chimerical belief of the existence of a never failing remedy for most diseases, which occasions the quick disgust conceived to a medicine at every disappointment, and the daily attempts after new methods of cure, which has rendered the art of healing as variable and unconstant, as our dresses; which through all ages, and in most countries, are, and have been different.

It would indeed be happy for mankind, if in all the various calamities and distresses, to which they are subject, the means of relief were so well ascertained, as they are in this painful disease, an ignorance of the nature of which, has long been productive of fatal consequences.

## A P P E N D I X.

**I**T has been no easy matter to obtain a knowledge of the many writings on this distemper. There have been collections made from time to time, of the several authors on the plague, venereal disease, &c. ; but no such have been compiled of writers on the scurvy. *Sennertus*, ann. 1624, when he wrote his own treatise, reprinted the writings of *Solomon Albertus* and *Martinus*, together with *Ronsseus*, and the authors which he had published ann. 1583, viz. *Echthius*, *Wierus*, and *Langius*; and this book, containing those seven authors, is the only collection ever published of writers on the scurvy. There was here as little assistance to be obtained from medical *bibliothecæ*. *Lipenius* in his *Bibliotheca realis medica*, published ann. 1679, reckons up twenty-nine writings on this subject, of which eight are academical discourses or disputations. *Mercklin*, in his *Cynofura medica*, published in the year 1686, enumerates twenty-four authors on the scurvy. Of these, one, viz. *Henricus a Bra*, is classed among them (though improperly) upon account of a letter written to *Forestus* upon a very different subject (*a*). Another, viz. *Albertus*, he has by mistake inserted twice in his list; and has given a place in it to *Jos. Stubendorfsius* an editor of *Eugalenus*, *Simon Paulli*, *Joh. Langius*, *Arnold. Weickardus*, and *Ludov. Schmid*; which three last I have taken notice of in the *Bibliotheca*, though perhaps they are not deserving of it. He has besides included in it three academical disputations.

N n

The

(a) *Vid. Foresti observ. medicinal. lib. 20. obs. 12.*

The indefatigable Dr. *Haller* published *ann.* 1751. in his notes illustrating *Boerhaave's Methodus studii medici*, the titles of almost all medical writings now extant, no less than 30,000 volumes. But it were to be wished, that so good a judge had distinguished such books as, not being able to maintain their character, are now out of print, or occasional pamphlets, and some trifling academical orations and disputations, from writings of greater value.

The following list contains the titles of such writings on the scurvy, as have been omitted in the foregoing sheets, but are mentioned in those collections; and comprehends all that, after the most diligent inquiry, have come to my knowledge; except a few academical disputations.

*J. Roetenbeck und Casp. Horns beschreibung des scharboks.* Nuremberg. 1633.

*Christoph. Tinctorius de scorbuto Prussiae jam frequenti.* Rigiom. 1639.

*J. van Beverwyck van de Blaauw schuyt.* Dordrac 1642.

*Henrici Botteri (b) tractatus de scorbuto.* Lubec 1646.

*J. Schmidts von der pest Frantzosen und scharbock (c).* Augspurg. 1667.

*Phil. Hæchstetteri (d) observationes medicinales raræ.* Lip. 1674.

*Hen.*

(b) Professor at *Cologne*. I have not seen this treatise; nor did *Haller*. I never found it so much as quoted by any author, though it underwent two editions.

(c) I have seen the book; it contains nothing remarkable.

(d) A physician at *Augsburg*. *Decad.* 7. *cas.* 10. contains some good observations on the scurvy.



*Hen. Cellarius bericht von scharbock.* Halberstatt  
1675.

*Jon. Zipfel vom scharbock griesstein und podagra.*  
Dresd. 1678.

*Maitland on the scurvy.*

*Melchioris Friccii dissertatio de colica scorbutica.*  
Ulm 1696.

*J. Hummel de arthritide tam tartarea quàm scorbutica (e).* Buding 1738.

*Pierre Briscow traité du scorbut (f).* Paris 1743.

*Cadet dissertation sur le scorbut, avec des observations (f).* Paris 1749.

*Travis on the sea-scurvy (g).*

As to these or other books which I have not seen, or any curious and useful observations made or published on the scurvy, or also such of the following academical performances as are distinguished by an asteric, I desire and earnestly entreat all men of study and learning who are possessed of them not to conceal them from me, or what is of more consequence, from the republic of physic and letters, but that they would be pleased to favour me with an abstract of such books or observations, which will be thankfully acknowledged. If the intended letter exceeds too much the usual size of an epistle by post, in this case, upon giving me notice, I shall direct a less expensive method of having it transmitted.

N n 2

Acade-

(e) An indifferent character of it is given by *Haller*.

(f) Both quackish pamphlets.

(g) He endeavours to shew that the use of copper boilers for dressing victuals, is one principal cause of the scurvy in the navy of *Great Britain*. Art. i. vol. 2. of *Medical Observations and Enquiries*, by a Society of physicians in *London*, 1762.

## Academical performances.

*Jacob. Albini disputatio de scorbuto* (g). Basil 1620.

*Abrahami Dreyeri disputatio de scorbuto* (g). Basil. 1622.

*Amb. Rhodi disputatio de scorbuto*. Haffn. 1635.

*Jac. Habersstro disp. inaug. de scorbuto*. Jen. 1644.

*Herm. Conringii disp. Resp. Bebreus*. Helmsf. 1659.

*Geo. Franci disp. Resp. Wyck*. Heidelb. 1670.

*And. Birch Angli disp. inaug. de scorbuto*. Lugd. Bat. 1674.

*Olai Borrichii disp. Resp. Job. Melch. Sulzero*. Haffn. 1675.

*Caroli Patini (b) oratio de scorbuto*. Patav. 1679.

\* *Sam. Koelefer de Kereseer de scorbuto Mediterraneo*. Cibirii. 1707.

*Jacob Crauford disp. inaug. de scorbuto*. Lugd. Bat. 1707.

\* *G. Thiesen de morbo marino*. Lugd. Bat. 1727.

\* *Michaelis Alberti (i) disp. de scorbuto Daniæ non endemio*. Hall. 1731.

\* *Gbristoph. Mart. Burchard disp. de scorbuto maris Baltici accolis non endemio*. Rostoch. 1735.

\* *Sim. Pauli Hilscher (k) programma de scelotyrbe memorabili casu illustrata*. Jen. 1747.

*Mich. Law dissert. medic. inaug. de scorbuto*. Edin. 1748.

*Quæstio medica. An à diversâ virûs scorbutici indole et sede morbi diversi? auctore Henric. Michael. Missa medicinæ Baccalaureo*. Paris 1754.

*Roberti Robertson dissert. medic. de scorbuto*. Edin. 1765.

(g) Both are preserved in a collection of academical disputations, published by the bookseller Genathius.

(b) Professor at Padua; more celebrated for his other writings than this.

(i) Present professor of medicine at Hall in Saxony.

(k) Present professor at Genâ.

## A CHRONOLOGICAL INDEX

of medical authors who have written particular books on the scurvy; as also the principal systematic, and other medical writers, whose sentiments are delivered in this treatise.

1534. *Euritius Cordus*, a celebrated Botanist, He died ann. 1538.
1539. *Jo. Agricola (Ammon)* Professor of Medicine, &c. at Ingolstadt.
1541. *Jo. Echthius*, a physician at Cologne, by birth a Dutchman. He died ann. 1554.
1560. *Jo. Langius*, chief physician to the Elector Palatine.
- Jod. Lomius*, a physician in Flanders,
1564. *Balduin. Ronssseus*, ordinary physician to the city of Goude in Holland.
1567. *Jo. Wierus*, chief physician to the Duke of Cleves and Juliers.
- Adrian. Junius*, an eminent physician and historian. He died ann. 1575.
1581. *Rembert. Dodonæus*, chief physician to the emperor of Germany.
1589. *Hen. Brucæus*, Professor at Rostock.
- Balibaf. Brunerus*, chief physician to the Prince of Anhalt.
1593. *Solomon Albertus*, Professor of Medicine at Wittenburg.
1595. *Petrus Forestus*, physician at Alcmaer, Professor at Leyden, &c. (a).

(a) Besides the above authors, it is taken notice of by several other medical writers in the sixteenth century, viz. *Cornelius Gemma*, (*Cosmocritic. lib. 2. cap. 2.*) *Petrus Pena*, (*ad-versar. stirpium*, p. 121 & 122.) *Schenckius* (*observat. medicinal.*) *Carrichter*, (*prax. Germanic. lib. 1. cap. 41.*) *Mithobius de peste*, *Tabarnæmon de thermis*, *Peucerus de morbis contagiosis*, &c. There were likewise two theses, or disputa-

1600. *Hieronimus Reusnerus*, physician to the city of Norlingen.
1604. *Severinus Eugalenus*, a physician of Dockum in Friesland.
1608. *Felix Platerus*, Professor of Medicine at Basil in Switzerland.
1609. *Gregorius Horstius*, chief physician to the Landgrave of Hesse, Professor at Gießen. *Mat. Martini*, physician at Eisleben.
1624. *Daniel Sennertus*, Professor of Medicine at Wittenburg, and chief physician to the Elector of Saxony.
1626. *Arnold. Wickardus*, a physician at Francfort.
1627. *Frederic Vander Mye*, physician to the garrison in Breda.
1627. *Ludov. Schmid*, chief physician to the Marquis of Baden, &c.
1627. *Gul. Fabric. Hildanus*, physician and surgeon to the Marquis of Baden, &c.
1633. *Jo. Hartmannus*, Professor at Marpurg.
1640. *Lazar. Riverus*, the celebrated Montpelier Professor.
1645. The faculty of physic at Copenhagen (*b*).

tions, published upon it; one by *Twestrengk*, at *Basil*, in the year 1581, and another by *Hambergerus*, at *Tubingen*, in the year 1586. One *Gul. Lemnius*, a *Zealander*, is said to have wrote upon the scurvy. He seems to have been a very trifling author, believing it to be the same disease in man that the measly distemper is in hogs. It would appear from *Solomon Albertus*, that his performance was out of print in the year 1593.

(*b*) It was one of the most celebrated faculties of medicine at that time in *Europe*; of which *Olaus Wormius*, two of the *Bartholines*, and *Simon Paulli* were then members. The latter, who was physician to the King of *Denmark*, has usually been ranked among the writers on the scurvy, upon account of an appendix which he added, ann. 1660, to his *Digressio de vera causa februm*, &c.



1647. *Job. Drawitzs*, physician at Leipzig, a celebrated chemist.
1657. *Job. Rudolph. Glauberus*, a celebrated chemist of Amsterdam.
1662. *Balth. Timæus*, chief physician to the Elector of Brandenburg.
1663. *Valent. Andreas Moellenbroekius*, a physician of Erfurt.
1667. *Thomas Willis*, an English physician, Professor of natural philosophy at Oxford.
1668. *Everard Maynwaringe*, a physician at London.
1669. *Paul. Barbette*, a Dutch physician.
1669. *Frederic. Deckers*, Professor at Leyden.
1672. *Gualterus Charleton*, physician in ordinary to his Majesty King Charles II.
1672. *Herman. Nicolai*, a Dane.
1674. *Franciscus Deleboe Sylvius*, Professor at Leyden.
1675. *Gideon Harvey*, physician in ordinary to his Majesty King Charles II.
1676. *Bernard Below*, physician to the King of Sweden.
1681. *Abraham. Muntingius*, Professor of Botany in Groningen.
- Dellon*, a French physician.
1683. *L. Chameau*, a French physician.
1684. *Stephanus Blancardus*, a Dutch physician.
1684. *Jo. Dolæus*, chief physician, &c. to the Landgrave of Hesse-Cassel.
1685. *Michael Ettmullerus*, public Professor in the university of Leipzig.
- Thomas Sydenham*, the English Hippocrates.
1694. *Martin Lister*, an English physician.

1696. *William Cockburn*, physician to the Royal navy of G. Britain.
1699. *Franc. Poupart*, physician at Paris.  
*Arch. Pitcairn*, an eminent Scots physician.
1705. *Yvo Gawkes*, a Dutch physician.
1708. *Herman Boerhaave*, the celebrated Leyden Professor.
1712. *Jo. Hen. de Heucker*, Professor at Wittenburg.
1720. College of physicians at Vienna.
1734. *Jo. Freder. Bachstrom*, a Dutch physician.
1734. *Damianus Sinopeus*, chief physician to the marine hospital at Cronstadt.
1737. *J. G. H. Kramer*, physician to the Imperial army in Hungary.
1739. *Frederic. Hoffmannus*, a celebrated author, First Professor of Medicine at Hall in Saxony, &c.
1747. *Abraham Nitzsch*, physician to the Russian army.
1747. Dr. *Jo. Geo. Gmelin*, Professor of chemistry and natural history, supposed at Tubingen.
1749. The learned Dr. *Richard Mead*, physician to his late Britannic Majesty, &c.
1750. Dr. *Richard Russel*, physician at Lewes in Suffex.
1750. Dr. *John Huxham*, a celebrated physician at Plymouth.
1752. Dr. *Charles Alston*, a learned Professor of Botany and Medicine at Edinburgh.
1752. Dr. *Anthony Addington*, physician in London.

1753. *Baron Van Swieten*, First physician to the Emperor and Empress of Germany, &c.
1755. *Charles Bisset*, surgeon at Cleveland in Yorkshire.
1761. *John A Bona*, an Italian physician at Verona.  
*Solomon de Monchy*, City physician at Rotterdam.
1764. Dr. *Richard Brocklesby*, Physician to the British army.  
 Dr. *David Macbride*, physician in Dublin.  
 Dr. *Donald Monro*, physician to the British army.  
*Lewis Rouppe*, a Dutch physician.
1767. *Poissonnier Desperrieres*, a French physician.
1768. *John Christian Lange*, physician at Copenhagen.  
 Dr. *Nathaniel Hulme*, physician in London.
1769. Dr. *William Farvey*, an English physician.

## *An Alphabetical Index of* AUTHORS, &c.

*Those who do not treat of the scurvy, are marked in Italic characters.*

*Authors are sometimes quoted in this treatise, without inserting the title of the book. In such cases, the pages in which the titles are mentioned, are here distinguished by being put within crotchets.*

### A

- |  |  |
|--|--|
| <p>A Bona (John) 465.<br/> <i>Acta Hafniensia</i> 31. 218.<br/> <i>Adam</i> (Melchior) 4. 299.<br/> <i>Addington</i> (Ant.) 456.<br/> <i>Ægineta</i> (Paulus) 289.<br/> <i>Ætius</i> 289.<br/> <i>Agricola</i> (Joh.) 300.<br/> <i>Albertus</i> (Mich.) 548.<br/> <i>Albertus</i> (Solom.)<br/>             [317.] 3. 4. 5. 20.<br/>             200.<br/> <i>Albinus</i> (Jaco.) 548.<br/> <i>Alston</i> (Charles) [457.]<br/>             188.<br/> <i>Anson's</i> (Ld.) voyage.<br/>             <i>See</i> Walter.<br/> <i>Aretæus Cappadox</i> 289.<br/> <i>Astruc</i> (Joh.) 302.<br/> <i>Avicenna</i> 289.<br/> <i>Aurelianus (Cælius)</i> 289.</p> | <p><i>Bartholinus</i> (Thomas)<br/>             219.<br/> <i>Behrens</i> 548.<br/> <i>Below</i> (Bernard.) 215.<br/> <i>Berkeley</i> (Geo.) 421.<br/> <i>van Beverwyck</i> (Joh.)<br/>             546.<br/> <i>Birch</i> (Andreas) 548.<br/> <i>Bisset</i> (Charles) 37.<br/>             [460.]<br/> <i>Blancardus</i> (Stephanus)<br/>             380.<br/> <i>Boerhaave</i> (Herman-<br/>             nus) [390.] 6. 17.<br/>             24. 33. 34. 41. 142.<br/>             217.<br/> <i>Borrichius</i> (Olaus) 548.<br/> <i>Botterus</i> (Henric.) 546.<br/> <i>à Bra</i> (Henric.) 545.<br/> <i>Brendel</i> (Zachar.) 324.<br/> <i>Briscow</i> (Pierre) 547.<br/> <i>Brocklesby</i> (Rich.) 470.<br/> <i>Brucæus</i> (Hen.) [313.]<br/>             20. 45.<br/> <i>Brunerus</i> (Bal.) [315.]<br/>             4. 20. 85. 177.<br/> <i>Burchard</i> (Chr. Mart.)<br/>             548.</p> |
|--|--|

### B

- |  |   |
|--|---|
| <p><i>Bachstrom</i> (Joh. Fred.)<br/>             [399.] 28. 33. 50.<br/>             81. 140. 160.<br/> <i>Barbette</i> (Paul.) [371.]<br/>             22.</p> | <p><i>Burchard</i> (Chr. Mart.)<br/>             548.</p> |
|--|---|



## C.

Cadet 547.  
 Careri (Fran. Gemelli)  
   31.  
 Carrichterus 549.  
 Cartiers's (Ja.) voyage  
   [294.] 179. 239.  
 Castanneda (Herman  
   Lopez) 294.  
 Cellarius (Hen.) 547.  
 Celsus (*Aur. Corn.*) 77.  
   288.  
 Chameau [378.] 18.  
 Charleton (Gu.) [371.]  
   17. 18. 19. 20. 22.  
   24. 41.  
*Chevreau* (*Urban.*) 299.  
 Churchill (John) 175.  
   176.  
*Cleghorn* (*Geo.*) 287.  
 Cockburn (William)  
   [386.] 22.  
 College of physicians  
   at Copenhag. [357.]  
   45.  
 College of physicians  
   at Vienna [414.] 40.  
   143.  
 Commenc. literar. No-  
   rimb. 45. 284. 395.  
 Conringius (Herman.)  
   363. 548.  
 Cordus (Euritius) 299.  
 Crawford (Jacob) 548.

## D.

Deckers (Fred.) [371.]  
   22.  
 Delaware (Lord) 160.  
 Dellon [378.] 31.  
 Dodonæus (Rember-  
   tus) [311.] 30. 45.  
   124. 284.  
 Dolæus (Joh.) [381.]  
   18. 20. 22.  
 Doringius (Michael)  
   341.  
 Drawitzs (Joh.) 362.  
 Dreyerus (Abraham)  
   548.

## E.

Echthius (Joh.) [302]  
   1. 2. 20. 24. 30.  
   301.  
 Ellis (Hen.) [448.]  
   175.  
 Etmüller (Michael)  
   [381.] 22. 177. 216.  
 Eugalenus (Severinus)  
   [323.] 3. 5. & seq.  
   15. 18. 21. 22. 30.  
   32. 33. 219.

## F.

Fabricius (Geo.) 299.  
 Fabricius Hildanus  
   (Gul.) 356.  
*Foesius* (*Annutius*) 284.  
 Forestus

- Forestus (Petrus) [319.] de Heucher (Jo. Hen.)  
 8. 30. 45. 301. [393.] 25.  
 Francus (Geo.) 548. Hilscher (Simon Paul.)  
 Freind (Joh.) 292. 548.  
 Frentagius (Joh. Hen.) *Hippocrates* 20, 284.  
 14. *Ec.*  
 Friccius (Melch.) 547. Historianatural. Ruffiæ

## G.

- Galenus (Claud.)* 291.  
 Gama (Vasco de) *See*  
 Castanneda.  
 Gawkes (Yvo) 388.  
 Gemma (Cornel.) 549.  
 Glauberus (Joh. Rud.)  
 142.  
 Gmelin (Joan Geor.)  
 [453.] 179. 218.

## H.

- Habestro (Jac.) 548.  
 Hackluit (Rich.) 179.  
 294.  
*Hales (Stephen)* 188.  
 189.  
 Haller (Albert.) 546.  
 Hambergerus (Geo.)  
 550.  
 Harris (Jo.) 155. 176.  
 Hartmannus (Jo.) 356.  
 Harvey (Gid.) [376.]  
 19.  
*Harvey (Gul.)* 250.  
 Hechstetterus (Philip.)  
 546.

284.  
 Hoffmannus (Freder.)  
 [419.] 6. 17. 23. 24.  
 27. 35. 38. 41. 49.  
*Home (Francis)* 190.  
 191.  
 Hornius (Caspar) 546.  
 Horstius (Gregor.) sen,  
 [338.] 13. 18. 41.  
 Hulme (Nath.) 487.  
 Hummel (Joh.) 547.  
 Huxham (Joh.) [453.]  
 52. 128.

## J.

- James's (Capt. Tho.)  
 voyage 176.  
 Jervy (Will.) 491.  
 Joinville (Le Sieur)  
 292.  
 Junckerus (Joh.) 26.  
 Junius (Adrian.) 31.

## K.

- Kaau (Abraham)* 255.  
 Koeleser de Keresseep  
 (Sam.) 548.  
 Kolben (Peter) 200.  
 Kramerus

Kramerus (Joh. Geo. Hen.) [159.] [409.]  
 17. 25. 26. 40. 42.  
 45. 78. 159. 172.  
 237.  
 Krantz (Albert.) 299.

## L.

Lancaster's (Capt. Ja.)  
 voyage 156.  
*Lancifius* (Joh. Maria)  
 250.  
 Lange (Joh. Christ.)  
 486.  
 Langius (Joh.) [305.]  
 284. 301.  
 Law (Michael) 548.  
 Lemnius (Gul.) 550.  
 Lescabot (Mark) 397.  
 Linder 265.  
 Lipenius (Martinus)  
 302. 545.  
 Lister (Martin.) [285.]  
 46. 251.  
 Lomius (Jod) 300.  
*Lucretius Carus* (T.)  
 289.

## M.

Macbride (Dav.) 471.  
 485. 539.  
 Magnus (Olaus) [300.]  
 31. 69. 177. 293.  
 298.  
 Maitland 547.  
*Marcellus* 289.

Martini (Matthæus)  
 [339.] 13. 14.  
 Maynwaringe (Ever.)  
 [370.]  
 Mead (Ric.) [450.]  
 34. 49. 153. 254.  
 287.

*Medical Dissertations on  
 the passions* 231.

*Medical essays* (Edin.)  
 215.

Memoires d' acad. des  
 sciences 43. 239.

Merklinus (Geo. Abr.)  
 302. 545.

Miscell. curios. German.  
 215.

Missa (Hen. Mich.)  
 548.

Mithobius 549.

Moellenbroeck (Valent.  
 Andreas) [364.] 14.

22. 177. 217. 280.  
 Monchy (Solomon de)  
 469.

Monk's (Capt.) voyage  
 175.

Monro (Donald) 473.

Muntingius (Abrah.)  
 377.

Musgrave (Gul.) 35.

*Musschenbroeck* (Petrus)  
 83.

Mye (Frederic Vander)  
 [343.] 45. 81. 535.  
 551.

## N.

Nicolai (Herm.) [218.]

45.

Nitzsch (Abra.) [395.]

[421.] 19. 31. 37.

45. 49. 260.

## O.

Œslerus (Otto) 363.

Oxford's (Lord) collection of voyages  
297.

## P.

Patinus (Carolus) 548.

Paulli (Simon) 218.

550.

Pena (Petrus) 466.

Petræus (Henric.) 215.

Peucerus (Caspar) 549.

Pitcarnius (Archibald)

[389.] 22. 35.

Platerus (Felix, sen.)

331.

Plinius (Caius) [290.]

*Plummer* (And.) 215.

Poissonnier (Desperri-  
eres) 484.

Poupart (Fran.) [239.]

289.

Pringle (Joh.) [41.]

27. 31. 34.

Promotus (Ælius) 469.

Purchas's collection of  
voyages, &c. 155.  
160.

## R.

Reufnerus (Hieron.)

[323.] 8. 10.

Rhodius (Amb.) 548.

Riverius (Laz.) [356.]

22.

*Robinson* (Bryan) 231.

Roetenbeck (I.) 546.

Ronffeus (Bald.) [305.]

1. 20. 30. 83. 158.

301.

Roupe (Lewis) 474.

*Ruyfch* (Frederic.) 230.

Ruffel (Rich.) 451.

## S.

*Sanctorius* (*Sanctorius*)

228, &c.

Schenckius (Joh.) 549.

Schmid (Ludov.) 356.

Schmids (Jof.) 546.

Sennertus (Dan.) [340.]

13. 14. 15. 18. 22.

41. 219.

Sinopeus (Dam.) [405.]

31. 33. 45. 79. 234.

430.

Strabo 291.

Stubendorfius (Joseph.)

324.

Sulzerus



- Sulzerus (Joh. Melch.) 548.  
*van Swieten* (*Gerard.*) 46. 84. 201. 252. 254. 509.  
 Sydenham (Thomas) [382.] 17. 23.  
 Sylvius (Francisc. De-leboe) 375.
- T.
- Tabernæmon 549.  
 Thiesen (Geo.) 548.  
 Timæus (Balth.) 362.  
 Tinctorius (Christoph.) 546.  
 Travis 547.  
*Tschirnbauf.* (*Ernfroy Walter de*) 251.  
 Twestrengk (Albert.) 550.
- U.
- Vizcaino (Sebast.) 332.
- Ulricus (Tim.) 341.  
 W.  
 Waldschmidt (Jo. Jac.) 39.  
 Walter (Rich.) [440.] 30. 58. 230. 253.  
 Wickardus (Arnold.) 343.  
 Wierus (Joh.) [308.] 1. 3. 4. &c. 20. 200. 301. 302.  
 Willis (Tho.) [364.] 15. &c. 18. 20. 22. 24. 32.  
 Woodall (Joh.) 472.  
 Wormius (Olaus) 219.  
 Wyck 548.
- Z.
- Zipfel (Jon.) 547.

# E R R A T A.

| Page  | Line        |  |
|-------|-------------|--|
| 2     | 1           | of the note, <i>Amsterodanum</i> read <i>Amstelodanum</i> .                  |
| 4     | 12          | after it add <i>had</i> .  |
| 14    | 17          | of the note, <i>Hic</i> read <i>Hinc</i> .                                   |
| 26    | 12          | of the note, <i>Cocochymia</i> read <i>Cacochymia</i> .                      |
| ibid. | penult.     | of the note, <i>half rotten in</i> read <i>in the most putrid state of</i> . |
| 59    | 19          | <i>effected</i> read <i>affected</i> .                                       |
| 89    | 9           | <i>Disease</i> read <i>Diseases</i> .  |
| 107   | 8           | of the note, after <i>possibly</i> dele <i>to</i> .                          |
| 117   | 3           | <i>black ash</i> read <i>blackish</i> .                                      |
| 146   | 17          | of the note, add <i>R.</i> before <i>Cremoris Tartari scrup.</i>             |
| 165   | 3           | <i>Ilair</i> read <i>Hair</i> .  |
| 181   | antepenult. | dele <i>and</i> read <i>apples if they can be got</i> .                      |
| 203   | 9           | of read <i>or</i> .  |
| 211   | 19          | of the note, <i>ad stomachios</i> read <i>ad stomachicos</i> .               |
| 265   | 19          | <i>mediciis</i> read <i>medicis</i> .  |
| 272   | 19          | <i>Colchester</i> read <i>Polchester</i> .                                   |
| 300   | antepenult. | of the note, <i>fulividæque</i> read <i>sublividæque</i> .                   |
| 305   | 14          | <i>liniquæ</i> read <i>Pliniique</i> .                                       |
| 324   | 15          | <i>generally</i> read <i>general</i> .                                       |
| 350   | ult.        | of the note, <i>ff</i> read <i>misce</i> .                                   |
| 388   | ult.        | of the note, dele <i>z</i> .   |
| 475   | 7           | after <i>ounce</i> add <i>of</i> .   |
| 476   | 26          | <i>callus</i> read <i>callous</i> .  |
| 479   | 18          | after <i>sunk</i> add <i>when immersed</i> .                                 |
| 487   | 6           | <i>Nyclalopia</i> read <i>Nyctalopia</i> .                                   |
| 488   | 1           | of the note, add <i>R.</i> before <i>Gummi</i> .                             |
| 498   | 13          | dele <i>themselves</i> .   |
| 503   | 17          | <i>vena lava</i> read <i>vena cava</i> .                                     |







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