

the fore-finger, and betwixt that and the middle one. She had a gentle fever on the eighth day, and the pustules broke out on the eleventh, being very gentle, and leaving scarcely a scar. In the transactions of the Royal Academy of Sciences for the year 1756, Professor *Bergius* relates the following case: A child who had a lethiferous small-pox was suckled by its mother during the disease, but on her breast only. The mother was thereby at last infected, but her disease was benign, the pustules being crowded around her left nipple only; some few broke out in the face, but only a single one on her body. The infection has likewise been caught by touching with the hand, or on feeling any one sick of the small-pox.

It is either by the one or other of these instances that the variolous contagion is conveyed from one to another; as nobody ever gets the small-pox but by infection, every one will find that those are most fortunate who catch it when the body is well prepared beforehand.

C H A P. XIV.

On M E A S L E S.

TH E measles are commonly so gentle a disease, that few children die of it if they otherwise have a good nursing, and no disorder of the breast previous to it. Nevertheless there are instances of its having raged with such violence that almost every individual affected by it lost their lives. This is the reason of the ancients having called it *Morbilli* in Latin, or the little Plague. I imagine the measles to have been of the same bad kind, which carried off so many children at *Stockholm* in the year 1713. A similar, if not a worse kind raged at *Vienna* in the year 1732, when the greatest part of the persons affected had a gangrene in the throat, and died on the third or fourth day. Also this sort of epidemical disease, which was spread in *London* in the year 1762, in the autumn, must have been very lethiferous, as about three hundred persons died of it weekly. The
measles

measles at *Edinburgh*, in the year 1758, were looked upon as a gentle kind; nevertheless every twelfth of those patients affected by it lost their lives.

This disease is generally of an epidemical kind, spreading its contagion, and being propagated in the same manner as the small-pox; consequently it must have a particular *miasma* or poison which does not dwell in the air, nor is conveyed by that element, but circulates with men and baggage from place to place; therefore it is as possible to avoid the measles as the small-pox, provided we shun the infection. The *miasma* of either of these diseases does not dwell in the mass of our blood, but there is only a disposition to such exanthematic fevers which never arise of their own accord, but when the infection is carried into contact with any person. There is no probability of any one having been affected with the true measles more than once, provided the disease has had its perfect run, and has been thoroughly cured, so that no swelled glands be left which might contain some *miasma* of the disease, and cause a new eruption. Such an instance is related by Dr. *Home* in his *Medical Facts and Experiments*, p. 280. I find likewise several physicians to pretend that one can have the measles several times; Professor *Hartman* in *Abo* likewise insists on the same; (see *Narrative to Collegium Medicum*, 1765.) But during a practice of forty-four years, I never met with a single instance.

Nobody is exempt from the infection of this disease, as far as we know, of whatsoever sex or age. In places where the contagion is seldom conveyed, many may avoid it by dying of some other malady in the mean time. Perhaps the same proportion takes place in respect to the measles as we observed of the small-pox, that the infection does not take on four or five among every hundred. But this cannot be settled with any certainty before it comes in use to inoculate the measles, as is done in the small-pox. Journals then properly kept may decide this question.

The measles affect children especially, but old people receive the contagion likewise, as a great many instances prove. Cases are likewise related by physicians, of children being brought into the world with this disease; consequently it does not arise from fear. When the
measles

measles once are spread in a place, they will continue as long as there remain subjects capable of the infection, as not yet having had it; or till they, dreading the disease, avoid all communications with the sick. This latter precaution ought always to be observed when the measles are of a malignant kind. It is a general received opinion, that a person who has had the small-pox will not spread the contagion six weeks after the cure, provided he has shifted his cloaths. Those who are cured of the measles need not keep so long a quarantine, as the thread for inoculation of the measles does not by far so long preserve its power of infecting as that for inoculating the small-pox.

We suspect a person to have caught the measles if we know that he has not yet had this disease, and that it is now spread in the place where he now lives, or somewhere in the neighbourhood, from whence the infection might probably have been conveyed to him by either man or baggage. These apprehensions are well founded, and liable to no mistake, if we find that the patient is besides affected with a dry cough, frequent sneezing, and a distilling of a serous humour from his eyes and nose, and complains of its being hot, and his body feverish at the same time.

These symptoms appear in all kinds of measles; but in other respects this disease, as a contagion, varies frequently very much. However it commonly begins with more or less chilness and heat, which the first day succeed one another by turns, but the following days the heat is predominant. A dry cough, running eyes and sneezing, are symptoms common to all; but if the cough is very violent, the eyes will distill less, and the sneezing comes on less frequent, and *è contra*. Besides, the face appears to be a little puffed up, and the eye-lids swell something, and in opening them it is done with difficulty: the eyes themselves grow red, and cannot bear the day or candle light. The patients complain of a weakness, a heaviness of the head and breast, of a pain in the throat and across the loins. They are affected with reachings and a disgust for food, thirst, white tongue, cholic, looseness, delirium, and bleeding of the nose, but seldom convulsions. These symptoms are in some persons attended with a great

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disposition to sleep, and a continual as well as pretty violent fever. Towards, or on the fourth day, red spots break out in the face, they are small, but collected or running together in bunches *. On the first day we find them to be a little elevated above the skin in the face, but on the others they stand equal with the surface, and are now broad red spots, not round, but of various shapes, both oblong, triangular, quadrangular and polygons. These increase by degrees as well in their number as size, and likewise break out gradually on the neck, breast, arms, back, belly, thighs and legs, but in these places they only appear as flat red spots even immediately after their breaking out.

These above-mentioned symptoms do not decrease or vanish when the eruption is performed, as is the case in the small-pox †. The puking is the only symptom which in some persons ceases. The rest rather increase, especially the fever, the heaviness across the breast, the difficulty of breathing, the cough, the weakness of the eyes and their running, as also the sleepiness and disgust for food. On the sixth or seventh day the skin in the face and forehead is a little rough or sharp to the touch; the spots on it decrease and dry away, but they are then broadest and at the height of their redness on the other part of the body.

On the eighth day there is scarce any spot to be seen on the whole body; on the ninth they are quite gone, and in the places where they have been, the thin skin (*epidermis*) is found fallen off like scales, or as if a fine meal or flour was strewed on the body. Now we commonly think that the danger and all the evil is past, but just then it will frequently happen, that the fever grows more severe, the difficulty of breathing increases, the cough turns more violent, so that it deprives the patient of all rest both for the day and the night. But there

* By this we may distinguish and know the measles from the scarlet fever.

† Doctor Tissot has observed, that a *bilious* vomit, one or two days after the eruption, has given more relief than the eruption itself. Ch. 2. p. 253.

generally comes to this a quick and relieving *diarrhœa*, which when it is moderate, as it were hastily sweeps away all evil. If this looseness be too violent, it will weaken the patient; if it be of too long a duration, so that it continues for some weeks, the patient will fall into a consumption, or be affected with a slow *hectic* fever, *tabes*, and a swelled *abdomen*. If no relieving *diarrhœa* should happen, things will nevertheless go well if the patient falls into a gentle and uniform moisture, for that will likewise entirely abate or lessen the fever. A copious bleeding at the nose will relieve the head-ach, the pain in the throat, and the indisposition in the eyes. If these evacuations be properly managed, we need not fear the bad consequences. But in case the fever and cough continue, the breathing short, frequent, difficult and hot, the cheeks being red at the time, we have reason to dread the consequences, as it indicates an inflammation of the lungs.

The patient is likewise in danger if the fever continues and a pleurisy comes on; likewise if the throat be inflamed so that breathing and swallowing are performed with difficulty. If the fever turns more gentle but nevertheless appears every day, an asthma being combined with it, the body pines away, and a great deal of purulent matter be hawked up, then the lungs are hurt by some ulcer. The patient is in great danger of losing his life if the eruption ceases too soon by re-entering the body and causing a delirium. The spots which are of a high red, or those which grow pale too soon, likewise give us reason to apprehend a bad event.

We also dread that kind of measles which break out earlier or later than the time above fixed. This epidemical disease is sometimes of so gentle a sort, that some children have frequently got the better of the disease, even without having complained of the least indisposition; others again are more severely attacked. It was with great difficulty that I could save a child at *Upsal* five years of age, in the year 1752, though the contagion of the measles was otherwise of a moderate kind. It was in the same room with another person who had the measles; its brother was affected with the same disease; it had the usual signs of the measles, with fever, shivering, and a running of the eyes, but the cough was

so violent that it resembled the hooping cough, and continued each time till a reaching arose; the fit was not however worse every second night. When this had continued in the manner mentioned, during one and twenty days, the measles at last broke out, and the symptoms were more moderate after that. A pregnant woman being attacked by the measles is in great danger, likewise those who have weak lungs or are subject to any *hæmorrhage*, also those who are incommoded by any kind of rupture; the cough gives them occasion to much disturbance. We ought to apprehend some fits of a convulsion if the patient sweats a great deal during the first period, and little or no urine at all be discharged. A child who has the measles runs great danger if it sucks its mother or nurse whilst she is exasperated or put into a passion.

The small-pox and measles are often spread at the same time, and in one and the same place. But to my knowledge, nobody has ever had them both at once, but first the one and then the other; Professor *Bergius* however gives an instance of it. See Narrative to *Colleg. Med.* 1765. p. 260.

The cause of the measles, and the symptoms it is attended with, is no other than the particular *miasma* or poison of this disease, which mixing with the blood, irritates and inflames it. The severe cough arises from the contagion being absorbed in the lungs by the breath, which causes such spots in the inside of them as we observe in the outside of the skin, which prevent their perspiring; but on the skin they scale off or fall away as meal: the same will happen in the lungs; but it is likely that it advances more slowly, as these are always moist. In fine, there is however something within them which continually excites coughing, and it cannot get out in any other manner. If that which is hawked up be of any consistence, it will more easily envelop and carry with it the mentioned scales or meal. That this is actually the case we find plainly by the run of the measles, which Dr. *Home* inoculated on some persons. The greatest part of them had no cough, and others had it so gentle and easy, that it was not worth mentioning.

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By what has been observed we find, that as in the small-pox there are four, the measles have three *stadia* or periods. The first period is counted from receiving the infection till to the beginning of the eruption of the spots (*stadium contagii*). The second (or *stadium eruptionis*) continues till the measles begin to desquamate or scale. And the third (or *stadium exarescentiæ*) begins then with the sixth or seventh day, and ceases on the eighth or ninth day, when all the measles spots are fallen off.

The First Period.

If the measles be of a very favourable kind, and the patient has fresh and healthy lungs, he will seldom want any other thing than good nursing. The diet or nursing here required is just the same as in the small-pox, in respect to bed, bed-clothes, and apartments, as also food and drink. Therefore the observations I made in the chapter on the small-pox concerning that point, likewise stand good here. Only, as the cough in the measles is severer, we should not venture to give any thing sourish in the food or drink. The *miasma* of measles is more volatile than the variolous matter, consequently it is more apt to be repelled; therefore the nursing in the measles ought to be managed with greater precaution in that point. It is likewise proper that no other than the necessary attendants be allowed to stay with the sick person; neither ought we to suffer several candles to be burnt at night in the apartment. For both these circumstances are troublesome to the patient, and, according to the experiments of *Hales*, corrupt or infect the air in the room.

If the contagion of the measles be severe, or of a malignant kind, it will generally be necessary to bleed the patient; for the fever is here seldom too low, but commonly too high. The indications for bleeding are enumerated in the chapter on the small-pox, p. 65. and ought likewise to decide here. Dr. *Mead* was once consulted by another physician what method he used in curing the measles, as none of his patients died of that disease? The Doctor candidly answered, that he always ordered bleeding, as he apprehended the

lungs would otherwise be inflamed by the *miasma* of measles. The physician returned some time after to Dr. Mead, and, thanking him for his advice, told him, that he had succeeded so well in following it, as not to have lost any of his patients since. The blood of all those whom I have ordered to be bled during this disease, had always an inflammatory crust: further experience will teach us whether this be constant or not. 2. It is necessary that the patient either be brought to vomit or purge.

If the patient be observed to have signs of a *nausea*, an unclean tongue, a bitter taste, a *vertigo*, head-ach, or any reachings, he must be made to vomit; which may be effected by giving him warm water to drink, with oil of olives or unsalted butter in it; or he may drink an infusion of camomile flowers; or may have from the shop the three following powders:

℞ *Rad. Ipecacuanhæ*, gr. iij.
Sacchari albi, gr. xviii.
M. f. p. Div. in 3 part. æq. Dr.

These are proper for a child of two or three years of age, it taking first one, and if that does not cause the desired effect within a quarter of an hour, the child may take the other powder; but in case that neither will operate within a quarter or half an hour, the third may be given, which will certainly raise a gentle puking. None can vomit with so great a facility as children. Their fibres are more relaxed, and they have always in proportion a greater quantity of humours than an old person. Therefore I prescribe emetics for children with greater safety than for full-grown persons. If it be given in the above manner, it will never do any harm to patients who are not otherwise distempered. Should there be no signs or indications to vomit, but the belly be distended or something puffed up, rumblings of wind being heard in it and vain efforts to stool, which incommode the patient; then a purge will become very necessary to him. We may take our choice of any of those which were enumerated in the chapter on the small-pox, p. 89. If the stomach and bowels be well cleansed before the eruption comes on, a great many inconveniences will thereby

thereby be prevented, which otherwise would occasion a disturbance during the whole course of the disease; especially the diarrhœa, which generally appears on the eighth day, will by this means turn out more moderate and gentle. In case the patient be affected with gripes and a diarrhœa from the very beginning, he ought nevertheless to make use of purges, but chiefly such as are prepared of rhubarb, in order that the cause of the gripes may quickly be carried away, and the diarrhœa stopped.

3. Afterwards the patient may use the same remedies as we have proposed, p. 90 and 91. No. 3, 4, 5, 6, and 7. In the mean time we must not neglect to preserve the eyes; which we effect by turning them from the day-light, and by means of a tea-spoon dropping frequently milk-warm water of roses into them, which washes away their salt humour, which otherwise would inflame them by irritating.

If a bleeding of the nose should come on besides, it must not be stopped too early, for it carries off the head-ach and delirium: but if that evacuation should increase to such a degree that the lips and face turn pale, the hands lose their natural warmth, or the patient feels an inclination to vomit; then we must immediately stop it. We have already enumerated the means of doing that, p. 94. where is observed how we ought to behave in case too great a vomiting, delirium, looseness, or convulsions should happen.

The cough is the most troublesome symptom in the measles. For which prepare the following palatable pectoral juice: Take the yolk of an egg, pour on it gradually two ounces of cold expressed oil of almonds, beating it well together all the while; which being well mixed, add two ounces of thin pearl-barley soup, and one ounce of *syrupus Altheæ*, or the *syrupus hordeatus*, beating all together till it acquires the appearance of thick milk; of which the child may take one or two spoonfuls at a time as often as is judged requisite. But in case the patient be troubled with a looseness, it will be safer to get *Loboch album Parisiense* from the shops, and use it as the former. Liquorice, if at hand, may constantly be kept in the mouth.

However, the most effectual assistance, in allaying the cough, may be expected from tea of elder flowers, mixed with a fifth part of milk, which ought to be drank warm, and freely. Poorer people may dissolve two drachms of liquorice-juice in a pint of soup made of groats, taking a spoonful of it at a time as often as the cough is troublesome. The cough is very painful, but seldom becomes so dangerous before, as after the measles are over. If we observe any signs that the throat will become affected, we ought immediately to use some lenient gargarisms, such as you will find before enumerated, p. 93 and 102. If the throat be much swelled in the inside, we ought then to apply a warm poultice of mustard-seed (*sinapis*), taking it off again after it has for a little while caused a painful sensation.

The Second Period.

At the approach of the fourth day it will become a matter of importance to prevent the patient from agitating or tossing his body much in the bed; for he ought now to lie quiet, as we wish him not to come into profuse sweat, but only into a gentle moisture. We have learned by experience that the measles then break out well, so that the interior parts are saved. He may then very well take a gentle emetic, in case it be wanted; or we prescribe one or two camphire powders, or a camphire emulsion; or, in case the eruption comes too slowly, we give him a powder of musk, (see p. 94.) chiefly advising him to drink freely. The latter is likewise necessary, though the eruption should come out of its own accord; in which case the camphire and musk will not be wanted.

After the eruption is performed, we ought frequently to take notice of the colour of the spots, observing whether they remain for three days on the surface of the skin, and after that desquamate by little and little, and in the same order as they broke out. In case the colour be too red, the patient ought to use the before-mentioned cooling remedies, and to take copiously of the drink proposed to him in the first period: whereas, if the colour be red in some spots and pale in others,

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we order him some powders of camphire, or a camphire emulsion.

If the spots cease too early, or re-enter the body, the last-mentioned powder or emulsion must be taken in a greater dose, or one or a couple of powders of musk. We must likewise then drink copiously of a warm tea of elder flowers, or of the *flores ulmariae*, and, besides that, a sinapism, or a vesicatory of cantharides, should immediately be applied to the calf of the leg; or, in case the patient is already delirious, these blisters are to be put upon the neck. It is fortunate if the spots then come out again. But it is most adviseable so to preserve the sick from cold, passions, frights, and similar accidents, that the spots do not re-enter the body at all. If the patient be very uneasy or unruly in this period, we may give him one or two tea-spoonfuls of the *syrupus e meconio*, especially towards night, and that as often as the uneasiness returns.

The third Period.

The most dangerous days are now coming on, which soon decide whether the patient will recover, or fall into any new dangerous disease, or die; therefore it is now of great importance to attend the patient well; and, observing the skin and pulse to be soft, we may expect that a gentle moisture or salutary nocturnal sweat will arise, by which the fever disappears. When matters stand thus, we ought to give nothing else to the sick than plenty of drink, which should be milk warm. But if there be no moisture or sweat coming on of its own accord, and our patient does not complain of any gripes or rumbling in the lower part of the abdomen, the stomach not being distended; then our endeavours must be to bring on this moisture; which may be effected by warm drink and camphire powders: however, no more of these remedies must be given than are requisite to throw him into a gentle sweat, which ought to be supported till the fever is allayed; after which the patient must be purged twice or thrice.

But if we find the stomach distended, the constitution dry, and the patient feels something of gripes
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and rumblings of wind in the lower part of the abdomen, then we may apprehend a diarrhœa, which likewise in that case seldom fails to come on, and that in such a hurry that ten, twelve, or a greater number of stools follow close after each other. If these afford relief, so that the cough is diminished, the eyes look bright and sparkling, the sick can move and rise with less trouble, and the stomach becomes soft; then the diarrhœa is useful, and ought by no means to be stopped; it will cease of its own accord, and the patient recover. But if such a looseness be attended with severe gripes, which will not be allayed by the application of warm napkins or wooden plates; we prescribe a draught of rhubarb to the patient, proposed p. 89. and apply to the stomach an unguent prepared of two drachms of *theriaca*, half a drachm of expressed *oleum macis*, and two drops of the distilled *oleum cymini*. These are to be mixed well together and spread on a skin, and applied around the navel, which is previously covered with a piece of cotton. But if the looseness go too far, and be not attended with the above-mentioned happy circumstances, or be of too long a duration, then we must stop it by the remedies already proposed, p. 94 and 98.

If no perfect crisis should happen in any of the above-mentioned ways, nor by a copious discharge of urine, but the fever continues increasing, as also the cough, and the breathing be short, quick, and difficult, with red cheeks, then a new fever will arise called peripneumony, or an inflammation in the lungs, which now is very dangerous. The patient must then immediately be bled in the arm, and on that side where the cheek looks reddest. Immediately after, in case the pulse has been soft, we apply a blister of cantharides on his back between the shoulders, and that having taken effect, we put another on the breast of that side where the bleeding was performed. The blisters should be strewed with a little camphire finely pounded, before we apply them, in order to prevent their causing a strangury. These having made the breathing more easy and less quick, we give our patient a camphire powder, so that he may be made to sweat, letting him drink frequently of the follow-
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ing mixture: Take an equal portion of whey and boiled water, in which dissolve the juice of two parts of clarified honey, and one part of good vinegar that has been boiled to the consistence of a syrup. This ought always to be drunk something warm. If the patient now begins to hawk up a yellowish and blood-stained matter with ease, then we neither bleed nor give him any more powders of camphire, but the above-mentioned drink, and some barley soup, as then to all appearance the sick person will happily recover. When the patient grows tired of this last-mentioned drink, we may prepare another of an equal portion of water and milk, for instance, a gallon of each. Just when they are boiling add as much vinegar as is necessary to curdle the mixture. The whey must be strained through a blotting paper; then dissolve therein a drachm of purified nitre, and as much sugar as will be required for taking off the sourness and making it palatable. Richer persons may use an equal portion of *sal essentielle acetosellæ*, instead of nitre. If the body be costive, a clyster must be injected each day, morning and night.

In case the patient is affected with a pleurisy and a violent fever, then bleeding must be administered in the arm on that side where the shooting pain is felt, and immediately after that a blister of cantharides applied to the place affected, and that having drawn, we give a camphire powder, and order a copious warm drink. The drinks above proposed are the most proper. When the expectoration begins, we ought neither to bleed nor to give strong sudorifics, as it might thereby be stopped, to the great peril of the patient. It is sufficient if the sick person falls into a gentle sweat, which by drinking may easily be supported. The vesicatory must first be strewed with pounded camphire, as was before observed. Clysters are likewise here to be injected, in case the patient be costive. If we cannot prevail on the patient to use the vesicatory of cantharides, then we substitute a sinapism in its place, which likewise is to be applied on that part of the breast where the shooting pain is felt, or we put on it a bladder filled with elder and camomile flowers, and saffron boiled in milk, changing it often;

often; or we anoint the place affected with *oleum lini camphoratum*, or the *unguentum althææ* which is diluted with the *spiritus camphoratus*: or we may apply to the place where the pain is affecting, five or six leeches; or, instead of that, cupping glasses; or, if nothing else is at hand, take a four loaf lately come from the oven, cut it in two pieces so that the inside or crum may be applied, whilst it is still hot, on the side where the pain is affecting.

Moreover, if we find the fever not abating, but that it returns every afternoon, an asthma coming on and a hoarseness, matter being hawked up and the body pining away; then we advise the patient to attempt the cure by milk or milk-whey. If we observe an inflammatory crust on the blood, at the bleeding of the patient, then milk will not be proper for him, but we should then curdle goat's milk, for instance, with a gut, or by the white of an egg, straining the whey through blotting paper, of which a quart or three pints are to be drank each day till the patient be restored to perfect health. If we have no reason to suspect that the blood be too coherent, but its being too thin, then it is more proper to use milk, and indeed best of all to live intirely on it; see *Tissot*, p. 257. and *V. Haller's Elem. Physiol.* VII. T. II. p. 42. or we may boil the jesuits bark with the milk*. Human milk is best, next to that the milk of asses or mares, then goat's milk; but cow's milk is less proper than any of the former †. We must

* Its salutary effect in consumptions is shewn by *V. Haller* in his *Opuscula*, III. p. 371. and by *Mr. de Haen*, in his *Ratio Medendi*, XII. p. 236. The English recommend the *Elixir vitrioli*: to which *De Haen's* sentiments likewise agree, he proving it by several instances, p. 239.

† It is probable that the milk of asses and mares has the greatest dissolvent power, but that human and sheep's milk is most nourishing: see *Elem. Phys.* VII. T. II. p. 28—39. *Mr. F. C. Medicus* has the same good opinion of and confidence in the effect of the bark in this disease as in the small-pox, and thinks that the eruption may thereby be safely dissolved. Experience must decide this. If the measles are combined with a putrid fever, a weak and soft pulse, an unclean tongue, and a bilious vomiting, then the bark will no doubt be proper, after the stomach and bowels are well cleansed.

drink as much as the stomach easily can receive every day, avoiding every thing sour and salt, and taking care to have a gentle exercise and the fresh air of the country.

The eyes are in general red and inflamed during this period, and they will receive damage if we do not take proper care of them. I have already observed, that one ought to drop the *aqua rosarum* into them; but if that has not been sufficient to prevent the inflammation, we must then immediately apply leaches under the eyes and on the temples; and when those do not suck enough we shall be obliged to direct the steam of hot water on the eyes through a funnel, by which means the discharge of blood will be as great as we choose: after that we must apply a small blister upon each temple, and after these have blistered, we give the patient a proper purge, which is to be repeated several times, according as his strength will allow. A dry cup applied to the nape of the neck has been sometimes of service. The following fomentation will likewise prove conducive: take the pulp of a tart apple baked in the ashes, make it into a poultice, together with five grains of pounded *camphire* and twenty grains of *saffron*, spread it upon fine soft linen, and apply it on each eye, of a little more than milk-warm heat.

C H A P. XV.

The Inoculation of Measles.

WE have learnt by the treatise on measles in the above chapter, that altho' it generally be a gentle disease, it happens frequently to put the patient in the utmost danger of losing his life. Therefore physicians have thought of inoculating it as is done with the small-pox, expecting the same advantage from it. Doctor *Francis Home*, a member of the College of Physicians at *Edinburgh*, was the first who has had an opportunity of making an experiment of it. He inoculated the measles in the same manner as we inoculate the small-pox, but on both the arms, and without any previous preparation. Instead of thread of inoculation, he used a piece of cotton, dipped in a little blood

blood which was got from a sick person affected with the measles by scratching the skin where the spots were closest. He observed that the inoculated fell sick in the night generally after the sixth day, and that all were easily and successfully cured without any dangerous consequences being left. They had likewise as much running from the eyes and sneezing, as those who get the disease by natural infection; but the measles by inoculation were scarce at all attended with any coughing. It was likewise finished by a *diarrhœa*; he found besides that the children who before the inoculation were troubled by some eruption or other, got rid of it together with the measles, and the wounds of incision did not break out again to discharge a matter when the eruption of measles came on, as it otherwise happens at the inoculation of the small-pox. Thus we gradually lift up the veil under which innumerable facts are hidden.

We are chiefly the first in imitating foreign customs. Would that we were as eager in following them in what is useful, and may give strength to our country!

C H A P. XVI.

ON THE SCARLET FEVER.

AN *exanthematic* fever is sometimes epidemical among children, but seldom affects full-grown persons; in it almost the whole body grows as red as scarlet cloth, and therefore it is called the *scarlet fever*, (*febris scarlatina*.) This is however a rare disease, and has now since the year 1741 not been epidemic at *Upsal*, and as far as I know it has only been heard of in *Stockholm* in the year 1763, during the summer season, and in one part of the autumn, in which place it ceased during the months of November, December, and January, but begun to appear again in the month of February, in the year 1764.

If this disease be not more frequently spread in other places, it is no wonder that so few physicians have written any thing about it. Some resemblance seems to be between this and other diseases, as the measles,
nettle-

nettle-fever, (*febris urticata*,) the miliary fever, and the *erysipelas*. Therefore it has been considered by some writers as belonging to some one of these diseases. That friend to mankind, Mr. *Tissot*, calls it a disorder of the throat (*esquinancie*) in his *Avis au Peuple*, § 112, &c. of the *Paris* edition. But if we consider the run of the disease (*decursus morbi*), its consequences, and the nicety and cautions required in preventing them, we must agree that it deserves a particular name*.

I will here describe this fever according to the journal I kept of it in the year 1741, when it was to be met with almost in every house at *Upsal*, where children were to be found, affecting likewise some full grown persons. It was sometimes gentle, but sometimes very severe, so that of several children who lived under the same roof, it frequently happened that some of them were easily cured, whereas the others recovered with great difficulty.

This scarlet fever began always with an indisposition in the throat, after which some weakness followed, and a tenderness or painful sensation over the whole body. When the first twelve hours, more or less, were elapsed, a violent *nausea* came on, pukings which sometimes were bilious, shiverings, headach, and a great propensity to sleepiness during the first days. The sickness in the throat was in the mean time increasing

* Doctor *Sydenham* calls it *scarlatina*, and seems only to have seen that which was very gentle. Doctor *Morton*, who lived at the same time, and in the same place, has seen a very severe kind of it, but looked upon it to be the same with the measles. Doctor *Simon Schultze* describes a very lethiferous kind of it in *Eph. N. Cur. A. 6 et 7*; but calls it a malignant miliary fever, *purpura maligna*. Doctor *Navier* in his *Dissertation sur plusieurs Maladies Populaires* calls it *fièvre rouge*. Mr. *Plenciz* adopts the name Doctor *Sydenham* has given to it: *vide ejus Opera Medico-Physica Tractat. iii.* Both these former gentlemen have seen the disease both benign and severe. Mr. *Plenciz* tells us, that the scarlet fever was so little known in the beginning of the last century, that Doctor *Sennertus*, who lived at that time, though he was a man of great reading, did not know it, and was puzzled what name he should give it.

quickly,

quickly, so that some patients had their *fauces* and inside of their throat very red and inflamed within the first four-and-twenty hours. In the interval of their sleep they were anxious, uneasy, and troubled with a short and difficult breathing. I observed none of them to get affected with *epilepsy* or convulsions, which symptom however is mentioned by *Sydenham* and others. Small red spots broke out generally on the second day, but in some patients on the third day. The spots appeared first in the face, after that on the neck, and then on the breast, lower part of the body, thighs, legs and feet. A part of these spots were small, and a part a little bigger, but after four-and-twenty hours they had spread and dilated themselves so much that they made only one spot over the whole face. The same happened in the other parts of the body, especially in the flexures of the arms; however they disappeared in the same order that they had broken out, so that the redness in the face for instance began to go off when the legs and feet were most red. These spots were not the least elevated either on the first day or any of the following; nevertheless that part of the body where the redness still remained, appeared bigger than usual, and collapsed or subsided again when the redness went away. At the pressure with the finger on any place of the body, that spot looked white as in the *erysipelas*, and immediately after the finger being removed, the red colour returned again.

A difficulty of swallowing continued to trouble the patients till towards the end of the fourth day, and one could find that they felt an impediment in speaking, and on their speaking, it sounded as when one talks who has some obstruction or stoppage in the nose. But at the end of the fourth day, they begin partly to endeavour to cough, partly to cough and hawk up a quantity of slime, which was more copious on their being syringed in the throat. The difficulty of swallowing now went away, the eyes began to look sprightly, and the patients likewise answered directly to any questions put to them.

It happened besides, at this last-mentioned time, that some patients on a sudden got four, five, or six loose stools,

stools, which ceased of their own accord, and mitigated the disease.

Some of them likewise were affected with a bleeding at the nose on the beginning of the fifth day, which also proved beneficial. Others had that hæmorrhage on the seventh day, but in a small degree.

The heat and fever, which had hitherto been pretty severe, especially in the afternoon and towards night, began also to abate about this time, but did not cease intirely till the seventh day.

A delirium generally appeared in the evenings of the first four days, but was of no great consequence, as it went away on the hours when the fever was abated.

The pulse always continued quick, more or less; but in some persons high, in others low, which latter were affected most severely.

Stools seldom came on of their own accord, unless on the fourth day, as I mentioned; nor did I observe any one to fall into a sweat sooner than in the night after the fourth day; neither did they spit, as otherwise is the case in difficult disorders of the throat: the nose was generally dry in the inside, and no sneezing troubled the patient as it does in the measles; neither was there any running of the eyes to be observed.

The urine was discharged sometimes, but not without efforts; however it was not so red as one might have expected, considering the heat: I never found it to be mixed with blood, as some authors observe. None was troubled by coughing, till the slime, which we observed, loosened in the throat, and then it was generally to some effect, in hawking up matter. What the sick complained of most, was the disorder in the throat, and the heat in the skin.

On the fifth day, in the morning, the redness began to diminish, first in the face, and gradually afterwards on the other parts of the body, so that on the eighth day in the morning no more redness remained. On the sixth or seventh some small and pale bladders appeared, resembling the white miliary spots; but they were quite empty, and had their seat chiefly in the neighbourhood of the ears, on the neck, on the wrists, and on the feet. These bladders grew gradually

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broader,

broader, and made way for the desquamation of the *epidermis* which afterwards took place over the whole body, but was especially remarkable on the hands and feet, so that it did not fall as a meal, or in single scales, from those places, but large pieces could be drawn off. This desquamation was performed pretty fast in some persons, but in others very slowly, continuing even from two till three weeks. The more copious the eruption had been, and the greater the heat which had affected the skin, the more did it scale off.

The patients were excessively tender in respect to heat and cold, both during and for some time after the desquamation, so that they felt pain by only the chamber-door being opened, or by touching a warm napkin.

The scarlet fever seemed to be quite at an end after the eighth or ninth day: the sick complained no more, but left the bed, got an appetite and found sleep. But now it was of importance not to become too secure: for notwithstanding some complied with the admonitions, and kept within doors in a moderate warmth, taking purges, and using a moderation in food and drink, nevertheless the glands under the ears and the under-jaw swelled, first and most on one side, and then on the other; though this swelling was of very little consequence, as it went away gradually and of its own accord. But others, who did not chuse to follow the advice, and to confine themselves for some weeks on this account, began to look low-spirited between the eighteenth and twenty-second days, when the disease was supposed to be quite cured; and they complained of weakness: just at which time, first the face and then the body began to swell, as in a dropsy (*anasarca*); and upon this came on a fever, anxiety, uneasiness, oppression, and asthma. Very little was discharged, and it is said to have been bloody in some patients, or appeared as water in which fresh meat has been washed. Several children have been lost in this *stadium* at *Stockholm* in the year 1763, that is to say, such as did not follow advice, or asked it too late.

As I have seen but few who have got such a swelling, I will here relate the following observations of *Dr. Plenciz*, made in regard to that point.

I. That

1. That such a dropfy has followed a very gentle scarlet fever now and then; but chiefly comes after a malignant kind, which has been attended with much eruption.

2. That those swelled most, who had the greatest desquamation; however, that some patients swelled a great deal who had less remarkable desquamation.

3. That children were more subject to this swelling than full-grown persons.

4. That it was stronger during the winter than in the summer, and likewise longer in those who went out too early than those who kept within doors.

5. That a greater number die in this period than during the eruptive fever itself. And finally,

6. That there is no necessity that the swelling should follow the eruptive fever, as it is often prevented by necessary precaution. He confessed, however, that sometimes it could not be prevented at all, notwithstanding he had taken all possible measures against it.

Such is the run of the scarlet fever. However hereby must it be observed, that, as far as we know, it always appears as a contagion; but that it is not confined to a certain season; for it was spread at *Upsal* in the year 1741 during the winter, and at *Stockholm* during the summer and some part of the autumn of the year 1763, and appeared again in 1764, in *February*. Neither does it appear to depend on any certain wind or weather; for it has been very different the three above-mentioned times: so that it is plain that it is contagious. And it chiefly attacks children who are under fifteen years of age, though older ones cannot secure themselves, unless they have been afflicted with it beforehand; for I have never heard of its seizing any one more than once.

Nor should it be forgot, that several children in the same house may have the scarlet fever in a very different degree, so that while one scarce seems to be sick, another is in the greatest danger of life, and a third not to be recovered by any endeavours human art can afford.

I have some reason to think, that, of three children in the same house, one was cured of this disease without its coming to an eruption. For two of them had

the scarlet fever in a high degree, one after the other; and the third was likewise affected, having a disorder in the throat, nausea, pukings, shiverings, heat, and after that, within twenty-four hours, a very profuse sweating, by which all the evil was finished.

By all that we have above observed, it will be easy to distinguish the scarlet fever, especially if we know of its being spread in the neighbourhood, or that it is in such a place, from whence the contagion might have been conveyed to the patient.

It is true, that it begins at first in the same manner as other exanthematic fevers: see p. 68. But if we hear that the person taken ill has had the small-pox before, or observe that no tears flow from the left eye, or find that they are not hot; then it is likely that it will not turn out a small-pox. If there be no dry cough, no frequent shiverings, and no hot water running from the eyes, one cannot expect the measles: but if spots have broken out already, one cannot well mistake it for either.

The run of the scarlet fever, and the circumstances attending it, likewise plainly shew, that it constitutes a particular kind of exanthematic fever, and therefore ought to be distinguished from them. For,

1. In the small-pox the eruption is raised above the surface of the skin, and tends to a suppuration. In the scarlet fever the spots are flat, and not elevated at all.

2. In the measles we shall not find the spots so red, but a little elevated above the skin in the face during the first days; from the eyes runs a hot water, sneezings are frequent, the thin skin or *epidermis* scales off mostly as a flour or meal, though not so much by far as in the scarlet fever, the fever of this being also at an end on the eighth day; but, in the measles, the fever will just then, or on the ninth day, frequently set in much harder, the difficulty of breathing increases, and the cough grows more violent.

3. In the nettle-fever (*febris urticata*) the spots are elevated also.

4. In the miliary fever (*miliaria*) I have likewise observed the feet to swell, but not the whole body, as in the scarlet fever, in which, as we observed, the swell-

ing begins first in the face, since one has been fever-free for about a fortnight.

5. In the spotted fever (*febris petechialis*) the spots do not come out so soon, nor do they run together.

6. In the *erysipelas*, only a particular place will be affected; for instance, the face, or feet and legs, turn red, and swell; but here it is universal over the whole body. When the *erysipelas* goes off, it leaves the skin wrinkled, and the *epidermis* falls off like scales.

Besides, the disorder in the throat is not so severe in any other exanthematic fever as in the scarlet fever, and the pale bladders which here begin the desquamation are not to be met with in any one of the other exanthematic fevers.

The cause of the scarlet fever is as unknown to us as that of the small-pox and measles. We only know that it is propagated by the contagion, and that people would be secure from being infected, provided they could avoid the contagion. We see very plainly that the skin here is inflamed; for no more is required than redness, heat, pain, and swelling, to make an inflammation, which is here not of a kind that tends to a suppuration, but only separates the *epidermis*, and causes it to fall off from the other skin. The inflammation in the throat must be similar to that of the surface of the skin; for neither does it suppurate, but causes scaling, or turns to a gangrene. That a great and copious desquamation may happen in this place, is plainly proved from the cases related by Dr. Plenciz, p. 186 and 188.

The scarlet fever is sometimes, and in some persons, so favourable and gentle, that the patient only requires a good nursing: whereas sometimes it is so lethiferous that it will carry off the patient in a day or two. Children generally come off more easily than full-grown persons in this disease. We commonly look upon it as a good sign when the eruption does not take place sooner than on the third day; but I have frequently found, both in the year 1741 and 1764, that the disease has proved favourable notwithstanding the eruption came out on the second day.

Strong inflammation in the throat, and the difficulty of swallowing which arises from thence, are bad signs;

also a great heat in the skin; quick and low pulse; short, frequent and difficult breathing, and much weakness; likewise too much or too little sleep; also a strong delirium, following a severe head-ach. We likewise esteem it an unfavourable sign, when the patient is troubled with uneasiness, anxiety, and tosses about much in the bed; consequently symptoms contrary to these announce a favourable event.

When the spots break out sometimes more, sometimes less, and are more or less red; then the consequence generally will be a severe and violent delirium, and after that either a sudden death, or first a palsy (*paralysis*) in either of the sides, and then death. But if at that time a *pus* stained with blood should come out through one of the ears, there will still be some reason to hope for a recovery.

During the time of eruption it sometimes happens that the spittle is stained with blood, as well as the urine is mixed with blood in other patients, afterwards when the body swells. Dr. *Plenciz* assures us, that this circumstance signifies neither good nor harm.

When younger children are affected with the scarlet fever, we ought to pay attention to their gums, and the signs of dentition (*vide* p. 21 and 22.); for if that likewise should trouble the patient, there will be much danger.

The patient is likely to be affected with a dropfy, after a copious eruption, together with a great heat in the skin, and a profuse desquamation. And if after that, having been well for about a fortnight, the appetite begins to fail, the patient looks pale, complains of weakness, and has no copious discharge of urine, and the dropfy then actually comes on, there will be great danger: for if proper remedies be not timely used, and the water does not go off; fever, great thirst, restlessness, delirium, and convulsions, ensue; then nothing more will avail; but certain death closes the scene.

The cure of the scarlet fever, during the first period, is generally the same with that of the measles. If the disease be favourable, scarce any other thing will be required than a good nursing, both in respect to ap-
partments,

partments, bed, and bed-cloths, as well as to food * and drink : (see p. 83, and the following, and likewise the chapter on measles). It will be most suitable to the circumstances of the common people, to give their children to drink a mixture prepared of four parts boiled water and one part milk, which drink ought always to be kept warm. Although the disease has been very favourable, yet the children ought to be kept within doors for three weeks after the eruption and fever are at an end ; which ought to be observed whether it be winter or summer, because, as I mentioned before, a person is not secure from falling into the dropsy even after a favourable scarlet fever.

We know the scarlet fever to be very malignant, and that it turns very severe, if the patient immediately and without any manifest cause loses his strength, and from the very beginning is affected with a difficulty of swallowing, his voice is altered, he breathes short and difficult, and the surface of the skin is very hot. In that case the first question will be, if the patient should be bled ? This ought immediately to be decided according to the reasons and arguments alledged, p. 87. The bleeding will generally be of an indispensable necessity to a full-grown person, and must be repeated after a few hours, if the above-mentioned bad symptoms continue to trouble him : but in respect to a child, the affair is very nice. One must judge and decide by the violence of the disease ; and in case bleeding cannot be performed, we ought to apply leeches under the ears, in order to draw off so much blood as is wanted to diminish the fever and inflammation. This application will be of still greater importance, if the child at the same time labours under a difficult dentition, it being then the only remedy we know of, that can save its life.

* If ripe fruit is to be gotten, as cherries, strawberries, raspberries, bilberries, juicy apples, pears, and sweet oranges, we may by all means indulge the patient to eat of them, though but little at a time. Nothing quenches the thirst and refreshes so much as these in hot fevers. Besides, such fruits diminish the fever itself, increase the urine, and keep the body open.

When nausea and vomiting ensue, they ought to be promoted with milk-warm water, or camomile tea, of which the patient should drink after each puking till it returns clear again: (see p. 150). for an emetic will here hardly be wanted. But, if it be judged necessary, it may be used according to the advice given, p. 150.

When the reaching ceases, which however scarce ever happens here, stools will commonly follow; but in case it does not, and the stomach is found distended and puffed up, rumblings of wind are heard, and the child makes vain efforts to stool; then it will become necessary to give it a gentle purge; for instance,

℞ *Elect. Lenitiv. Edinb.* ℥℞.

Cremor Tartari, ℥j.

Syr. Rosar. Solut. ℥℞.

M. D. Sr. A gently-purging juice.

To be given a tea-spoonful at a time every hour till it operates.

Or we may chuse one of the purges which are proposed, p. 89. But if we suppose the eruption to be very near at hand, then we should rather inject a clyster, made, for instance, of three gills of whey, two spoonfuls of oil of olives, and a little sugar, adding a drachm of nitre for the first day, but not afterwards; for such a clyster ought to be injected every day during the whole course of the disease, and sometimes twice a day when the fever is violent. We must however chuse, for that purpose, those hours of the day on which the fever is least violent.

Our intention by this is to prevent dangerous accidents and symptoms during the disease, and to lessen the inflammation in the throat and the surface of the body as much as possible.

But a particular attention to and care of the throat is nevertheless requisite. Therefore we must prepare thin fomentations of pounded leaves of mallows (*fol. malvæ*) four ounces, and bruised seeds of flax two ounces, which must be boiled in milk to the substance of a thick poultice, spreading it on linen rags in order to wrap it round the neck, and of a moderate warmth. There ought to be one ready to apply as soon as the
other

other grows cold. In case of necessity we may use a poultice of mustard-seeds for the same purpose, which however we must remove as soon as it has caused some small red pimples on the skin of the neck.

2. Gargarisms, prepared by boiling some slices of figs with water. If the patient has not strength enough to gargle with this, he must be contented to keep it frequently and for some time in his mouth. Or we syringe him often but gently in his mouth, always at the sides of it, by the following composition: Tea of elder-flowers three pints, elder-vinegar two spoonfuls, and two spoonfuls of jelly of black currants, (which likewise in England are called squinancy berries, on account of their great use in diseases of the throat.)

3. We may also allow the patient to swallow some of these berries preserved.

4. A sponge, dipped in hot water and elder vinegar, should be put on a piece of cloth and placed on the breast, in order that the air which the patient is breathing may be filled with this dissolvent vapour. As the patient is generally affected with dryness and stoppage in his nose, and consequently breathes with open mouth, by which the tongue and throat grow very dry; therefore,

5. We ought frequently to moisten the nostrils with a roll dipped in warm milk.

If all this should not procure any relief in the throat, then we must apply leeches under the ears *; and in case of the utmost necessity, to scarify the inside of the

* Sir John Pringle recommends the following gargarism in diseases of the throat; which however I have not as yet tried:

℞ Decoct. Pector. Lond. ℥xv.
 Mellis commun. ℥j.
 Spiritus Salis Ammoniaci, ℥j.
 M.

We have still to learn by experience whether the wild rosemary (*ledum palustre*) will prove as useful in this disease as it is said to be in other diseases of the throat, by a Hungarian physician. It is to be used as a fomentation round the neck, and as tea for gargarism.

throat.

throat with a covered lancet. See *Heister's Surgery*, P. II. c. 94.

When lumps of slime begin to be hawked up, then the most significant symptoms are past; and after that it is only required to keep the throat or neck well covered, and sometimes to use syringings.

We should give the same refrigerant powders internally, as are proposed in p. 90. No. IV.; but as, at this time, these can seldom be swallowed, we are obliged to calm the fever with cooling food and drink, especially that which was proposed in the place now quoted. The richer sort may use lemon-juice instead of vinegar.

If a bleeding at the nose should ensue, we should observe what was said above, p. 94. If convulsions come on, we must follow the advice given in the chapter on that subject.

If a delirium seizes the patient on the first days, towards night, when the fever is severest, and goes off when the fever is more gentle; then nothing else is required than what has been proposed already for diminishing the fever. But if the delirium comes on the sixth or seventh, or any one of the following days, it will be attended with greater danger, and in that case leeches ought to be applied as before mentioned, or the patient to be bled; also clysters must be injected, and sinapisms applied on the calves of the legs, or a vesicatory in the nape of the neck. The cases which are enumerated by *Dr. Pleniz* shew, that such a delirium has not ensued, unless necessary evacuations were neglected from the beginning of the disease.

On the fourth and on the following days we allow the patient to drink tea of elder flowers; for it would be in vain to give any sudorific before that time, since nothing can be let out through the skin while it is inflamed. I do not venture to propose any of the more heating sudorifics. When sweat comes on, it ought to be very well attended to and supported; otherwise the event might be as unfortunate and fatal as with the boy of whom *Mr. Tissot* speaks, c. 1. p. cviii.

When

When the patient is so far recovered that no more redness and fever is to be observed, and the appetite is restored, then it becomes necessary to him, 1. to keep within doors in moderate warm apartments for three weeks: 2. that his body be rubbed every morning and evening with a piece of woollen cloth which has been smoked with berries of juniper, mastix, or the common fumigating powder: 3. to eat moderately: and 4. to take, every second or third morning, any one of the purges frequently above mentioned; and, in case the urine will not go off freely, to drink an infusion of toasted juniper berries. If this does not sufficiently increase the discharge, let there be added to this infusion 15, 20, or 30 drops of *Essent. Scillæ Wirtenb.* and instead of a common soup he may eat one prepared with onions or of heps.

By this method we may prevent the dropsy generally dreaded to succeed this disease. But if it should arise, which one may discover by the above-mentioned signs, we must oppose it immediately with efficacious remedies. Children of the poorer sort may continue to use the infusion of toasted juniper berries, and, 2. every morning take in it the following powder:

℞ *Nitri Puriss. Crystall. gr. L.*

Rad. Scillæ leniss. siccata. gr. x.

Zingib. alb. gr. L.

M. f. pulvis Div. exactiss. in x p. æq. D. S.

Dissolving and diuretic powders; of which one is to be taken at a time.

If it does not affect the patient much, or the child be strong, then a half or a whole dose may be taken again after two hours; and in this manner we continue each day till the swelling has disappeared.

Children of richer parents may use, 1. the same powder (or *Vinum scillit. Paris.* a little tea-spoonful at a time) likewise for every day; but as their stomachs are generally more tender, we let them take the medicine in simple cinnamon water. If it nevertheless causes nausea, we stop it by a spoonful of the same cinnamon water, which may be made still a little stronger with some syrup of cinnamon. If the powder be not thrown up again, it will cause no further nausea, but

but operate within an hour in carrying off the water, either by the ordinary way or by the stools.

3. If the powder be taken in the forenoon, let them fetch from the shops the following *liquor resolvens*, in order to take a tea-spoonful three or four times in the afternoon.

℞ *Flaved. Cort. Aurant.* ℥ij℞.

Vini Moschani, ℥x.

Conquassentur, atque dum vinum saporem imbu-
erit aurantior. adde

Arcani Tartari, ℥ij℞.

Conquassando solve, & adde

Sacchari albi, ℥vj.

Conquassa donec & hoc solutum sit; filtra.

It will commonly be too late to expect any cure, since fever and thirst are likewise added to the swelling. But, as one ought not to leave a sick person without assistance while he is alive, we may try if any thing can be effected by *Cremor Tartari*, taken to two, three, or four drachms a day.

When the swelling is removed, we endeavour to restore strength to the body again by dry food, frictions, bark, and chalybeate wine; or, if the body is bound, we use *Tinctura Rhei Amara Edinb.* prepared with wine. How each of these remedies is to be administered is already laid down in several places of this work.

C H A P. XVII.

O N V O M I T I N G.

Vomiting is often so gentle, that nothing is requisite to stop it: sometimes it is also salutary; and therefore we frequently find that colic and pains in the stomach cease as soon as the patient vomits. Sometimes again it is of so long a duration, or makes such frequent returns, or is so violent, that it ought to be looked upon as an important disease, requiring speedy relief. I will here omit to mention what the
body

body generally suffers in respect to nourishment, when the food taken is thrown up again, which must cause the blood to turn acrid when it is not refreshed by a new supply. These consequences are not so soon observed, as the misery one sometimes finds children to labour under, when they, for instance, on the first days of the small-pox or measles, are incessantly reaching day and night, and blood is at each time rushing out from the nose, or coming up from the throat.

I will only observe, that vomiting, which children are subject to, is of many different species, according to the different causes it arises from, and their different seats.

The first sort arises from distention, when a tender child sucks too much. It then lies whining, is uneasy, and cannot sleep. As soon as it can throw up a little of the milk, it falls asleep and is well again. To this cause likewise it is owing that older children get a pain in the stomach after hastily eating or drinking too much, and thereby get a vomiting. In both these cases we may consider the vomiting as both the cause and the remedy itself; and in order to promote it, in case it will not go of its own accord, we may tickle the throat with a feather dipped in oil.

The second sort arises from cold. If a tender child is unswaddled, and its stomach exposed to cold, it then immediately gets a hiccup, and when the nurse suckles it in order to stop the hiccup, the child instantly vomits. This cause may be removed by applying a warm napkin.

The third species is caused by the stench of burning coals. I have frequently observed a child to be affected with a vomiting by the mephitic smell of burning charcoal; which however is soon relieved by removing the cause, and sprinkling and fumigating the apartment with a little vinegar. If, in this circumstance, we do not watch the nurses narrowly, children will easily lose their lives.

The fourth sort arises from crudities in the stomach, which by degrees are collected there when children get into the pernicious custom of eating too much, or have such strong and hard food to eat that their tender

der stomachs and bowels are not capable of digesting it*.

These either trouble by their quantity, or by the acrimony which they acquire in the stomach; (see the treatise on coughs) for vomiting, and coughing from the stomach, are known by the same signs, and cured in the same manner. In the same place you will also find the signs enumerated which indicate that such crudities are actually in the stomach. It is likewise useful to know of what kind these crudities are. We shall generally find them to be four in sucking children, as these live on milk only. But acidity also troubles older children, if they feed mostly on dishes of milk, fresh beer, sometimes wine, or sily eat unripe fruit, or even that which is ripe, if they devour it in too great a quantity, as gooseberries, cherries, and the like, or food seasoned with much vinegar or juice of lemons. We discover the acidity of children by the sour smell which they emit both from above and below; by their pale countenance; and in more tender children by their excrements being of a green colour, or mixed with small curdled lumps. We may cure the acidity of tender children with the powder of oyster-shells, or with my powder for children. [*Vid. Dorelli Pharmacop.* for the parishes, p. 257. No. 90.] It is to be prepared thus: Magnesia half an ounce, carraway seeds three drachms, *radix violarum* half an ounce, and saffron half a drachm; which are all to be well pounded, mixed, and ground into a fine powder.

* The ingenious Doctor *F. C. Medicus*, pretends (*Observ.* Vol. II. p. 491.) that indigestion is the principal cause of convulsions in children. I believe nobody denies that indigestions may cause convulsions. But when the question is, Why a child is more subject to convulsions than a full grown person? the answer will be obvious: Because children have more sensible nerves. For if a nurse is exasperated, and gives the child to suck, she will not thereby get any convulsions, but the child will be troubled with them. If a child is affected with acidity in the stomach, it will thereby be attacked with convulsions, but a full-grown person only receive a *Cardialgia*. See *Zimmerman von der Erfahrung*, II. p. 564.

Of this we may give a couple of grains at a time in fennel-water, five or six times in a day, till the acidity is tempered, and the child gets rest. Older children may be cured by the same, but they ought besides to use some tincture of rhubarb which is prepared without sugar: or they may use as a tea, rhubarb half a drachm cut in small pieces, and two grains of cochineal; which being put into a tea-pot, pour on it three dishes of boiling-hot water, and keep it on hot ashes all night; then filter it, and mix with it a tea-spoonful of cinnamon water; of which the child must drink two dishes immediately, and one dish an hour after. In order to correct acidity, both in children and full-grown persons, nothing will prove more efficacious than to dissolve (*sal tartari*) salt of tartar half an ounce in a pint of spring-water, of which a child of two years old, for instance, may take a tea-spoonful at a time, twice or thrice a day, in a tumbler of water: but the dose for a full-grown person is a table spoonful taken in a large glass of fresh water. The acrimony which the food and drink acquires in a weak stomach may likewise be of a putrid or rotten kind, and shews that the child has eaten too much animal food. We discover this to be the case when a stink issues from its mouth like that from rotten eggs; which we cure with a little lemonade, or with small powders of *cremor tartari* and *morfulæ citri*. We take, for instance, of *cremor tartari* six grains, and of the *morfulæ citri* twenty grains, making it into a powder. Two, three, or four of these may be given to the child in a day, till the stinking breath be corrected.

The above-mentioned crudities are sometimes rancid, and it will always be the case when a person eats too fat and greasy food, yolks of eggs, fat pancakes, butter and bread, or pork; and by this means it is discovered that the patient has lived on such food. We relieve the disorder with a little sugar, or with the above-mentioned powder of *cremor tartari* and *morfulæ citri*: but tincture of rhubarb will afterwards become necessary, as otherwise a (*diarrhœa biliosa*) bilious looseness would follow. If the crudities only consist of a tough slime, which is collected in the stomach when children feed mostly on meal-pap, meal-groats, or bread which
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has not been well fermented, and what may have been prepared by these; by which their stomachs grow hard, are distended, and puffed up; then an emetic will become necessary to the cure, and after that the tincture of rhubarb.

Again if the food is thrown up, undigested, or without having undergone any change in the least, it is a sign that either the child has not chewed the victuals sufficiently, or that they have been too hard, or the stomach too weak; this ought therefore to be strengthened again, which as soon as the vomiting is over, may be done with some good stomachic *elixir*, for instance my *visceral-elixir*, from 15 to 20 drops a day in some weak cinnamon water; vomiting is beneficial in evacuating all these crudities or collections in the stomach, and ought not to be stopped, but promoted by drinking warm water, or taking an emetic in case it should be thought necessary, in order that the stomach may be well cleansed; for if that be neglected, the foulness enters the blood, and causes a fever, or it descends to the intestinal tube, and frequently causes a troublesome *diarrhœa*, which often will not yield to any thing but an emetic.

The fifth species arises from *verdigrease* *. When the child's food is boiled and left to cool in a vessel that is not well tinned, or if milk or whey or any thing of that kind which is intended for the child is left for some time in a brass or copper vessel; it grows sourish, and corrodes the meat. Children who have swallowed any such thing grow extremely sick; and it is not long since I saw one that at first appeared to be already deceased, but it was however saved, when by great difficulty I at last got it to vomit by irritating its throat with my finger, and afterwards poured into it milk and oil. Here it will likewise be proper to mention that the vomiting which I have observed to arise from roasted meat, which for a few hours had been kept on a silver plate: if for instance a roasted fowl be put on a silver plate before the fire, in order to keep it warm, we shall find, after a few hours, a green ring on the plate

* See *V. Haller's Elem. Physiol.* vi. p. 216.

surrounding the meat: this comes from the little copper contained in the silver, which is attacked by the salt of the butter with which the bird was roasted, and consequently the green appearance is nothing else than *verdigrise*. To this sort belongs likewise that class of vomiting, which fried eggs cause when they have been kept on a pewter plate over night: that the white part of an egg attacks the pewter is plainly to be perceived by that black spot which it leaves on the plate when fried eggs have laid on it. The child is however lucky if it thereby be immediately brought to a puking: if not, we excite it, by tickling its throat with the finger or with a feather previously dipped in oil. The time will not allow us in such circumstances to get from the shops a thick emulsion of almonds, mixed with much oil, a little of an egg's yolk, or *mucilago gum. Arabici*. We ought to lay hold of what we can first get that may be proper on the occasion; either milk-warm water with butter in it, sweet cream or milk, with oil of olives in it, fat soups and such like, and pour down the child's throat as much of these as possible. The poison will thereby be blunted, and loses its power of irritating and corroding. All other things which otherwise usually stop a vomiting, would here be hurtful.

The sixth species is what attends the small-pox and measles during the first period: we have already, p. 93, observed how that is to be relieved. When the measles were spread at *Stockholm* in the year 1760, the vomiting was one of the first symptoms which troubled the children; and I now recollect how hideously the children of a nobleman were taken ill of it, so that blood was pressed through the throat; but they had immediate relief by the application of a poultice for the stomach, made of groats, strewed with pounded mint, and wrapped up in a napkin.

The seventh is owing to a repelled scab, and is cured by expelling it again. See the Chapter on Convulsions and Coughs.

The eighth species frequently is obvious in children who are affected with worms, of which I will treat in a separate chapter.

The ninth arises either from the hooping cough, cough from the stomach, or tickling cough. See the Chapter on Cough and Hooping Cough.

Now we will proceed to the tenth and most dangerous sort, which is that painful vomiting which troubles children who are affected with a rupture when it is strangulated, or whose bowels are shut up by any cause whatsoever, for instance, any irritating cause which has effected a constriction in them that no opening can be procured, by which means the *peristaltic* motion is hindered from going downwards as usually, but turns upwards, and empties or throws up by the mouth all that is found in the stomach and bowels, so that the patient neither can retain the food nor medicines. As this is attended with an intolerable pain, it excites a fever and an inflammation, often quickly bringing on a gangrene and death itself. Here a hasty relief is likewise required, for if the remedies are deferred till an inflammation has already taken place, then scarce any thing more will avail. The disorder itself is in its own nature very serious; but the difficulty is in a great measure increased, since the remedies themselves are thrown up.

If a rupture is the cause of the vomiting, the evil ought as soon as possible to be remedied; and though ruptures are of several kinds, nevertheless that part which has fallen out ought always to be returned, whether it be the guts or the *omentum*, not all at once, but gradually, first beginning with what has last fallen out, and last pressing in that which first came out. We observe by this, that the patient is to lie in a position which prevents the rupture from pressing by its specific gravity on the opening it has fallen through. Before we try this, it is however frequently necessary first to bleed the patient, and inject several clysters, which may be prepared of oat-gruel, a little oil, *oxymel* and *nitre* or *oxymel scilliticum*; and the tumor itself, and the place through which the rupture has happened, is to be softened by moderately warm fomentations made of the heads of white poppies, mallow leaves, and bruised flax seeds boiled in milk, to which afterwards is added some good oil of olives. If the vomiting is a hindrance at the operation in returning the rupture, we stop it with

a sixteenth, an eighth, or a fourth of a grain of *extractum Thebaicum*, which with a little sugar is to be rubbed to a powder, or made into pills with some syrup, externally applying saffron bags. When the intestines are replaced, our care must be to procure a well-made bandage against the rupture, in order to prevent any further return of it.

But if we are convinced that the vomiting does not arise from the rupture, but the child complains of a violent pain in the lower part of the abdomen, rumbling winds in the bowels, and neither they nor excrements can be let down, notwithstanding several clysters have been injected, and the vomiting continues incessantly; we then find that some part of the intestines is shut up or contracted by some irritating cause, and consequently that the dreadful disease called the *Miserere* is at hand. In such a case we ought first to bleed the patient, if any plethoric signs or the least fever seems to require it; secondly, to continue to inject clysters, sometimes such as is above-mentioned, but sometimes prepared of the oil of olives only; and thirdly, to give the child a little of the *extractum Thebaicum*, in order that the vomiting may cease for some hours, the patient may drink a tea of a half or whole, or of several ounces of the *folia sennæ*, to which we have squeezed a little lemon juice. This is to be given in small quantities but frequently, and after each time a piece of preserved peel for to keep in the mouth, or any thing of that kind, which we know the child to be fond of. This being performed, we now place the child in a warm bath, in a manner that the steams are prevented from getting to its face, encouraging it to continue so for a long while, and likewise then to drink of the now mentioned tea; or if a vomiting again ensue, let it farther take one or two grains of the *antispasmodic* pills. When the child cannot any longer sit in the bath we must carry it to bed again, and cover the lower part of the abdomen with the above-mentioned fomentation of a moderate warmth; or if that should fall too heavy, apply a flannel four times doubled, dipped in a decoction of mallow leaves and milk, and well squeezed out. When it is practicable again, the bathing must be repeated, continuing in this manner alter-

natively with the bathing and the fomentation, till the desired effect be obtained.

I can never forget the very great uneasiness Professor *Shulzenheim* and myself were in some years ago, when we had an only child of a noble family under our care, it being affected with this dreadful disease, and we under the necessity of concealing our apprehensions, in order not to alarm the tender concern of the parents. It was however in the above manner evidently snatched away from the jaws of death. But it required one ounce and a half of the *folia sennæ* before any stool could be effected. I only mention this case, as otherwise many a one might have thought our prescribing, stopping and purging remedies at a time to be improper. But without the *extractum Thebaicum*, the tea would have been thrown up, and the spasms not given way: and without the assistance of the bath and the fomentation, the tea would have been ineffectual in procuring a stool. Consequently all that is prescribed against a disease ought to aim at, and to be conducive to the same purpose, which is to remove the cause and all that may be an obstacle to our intention*.

The eleventh species is caused by the emotions of the mind, as chiefly fear and sudden fright: for by fear the force of the heart is diminished so that it cannot drive the blood towards the surface of the body in a due quantity; the muscles and sphincters grow relaxed;

* It did not then run into my thoughts to order linseed oil, which I know to be recommended by several, even by Bar. *Van Swieten*, in Comment. ii. p. 147, and after that by Doctor *Gallesky*, in his *Abhandlung von der Darmgicht*. I cured a servant woman with oil of olives when linseed oil was not at hand; I let her take a table spoonful at a time each hour, in barley gruel. The vomiting and the pain ceased immediately, and stools were effected afterwards. She was already bled before I saw her, and several clysters and various sorts of emollient fomentations used to no purpose. Dr. *Matth. Bruckner* assures us, that a vesicatory of *cantharides* applied on the place where the pain is most acute, is an efficacious remedy ascertained by his own experience. I find likewise that Mr. *De Haen* does not disapprove of this. See *Ratio medendi* ix. p. 201.

therefore

therefore in such a circumstance we turn pale and anxious, the perspiration ceases, and the pores are absorbing moisture; we tremble, and are subjected to vomiting or *diarrhœa*. But by sudden fright the whole nervous system is brought into disorder, we may get spasms, convulsions and epilepsies. The blood retires from the surface of the body, which is followed with anxiety and palpitation: we grow pale, all the natural evacuations commonly cease, but in some persons they increase. Every one therefore will easily observe, how dangerous it is to keep children in continual fear.

Parents and school-masters ought rather to live with children in such a manner as to be looked upon by them as their best friends; and the desire alone of pleasing their tutors should make children avoid all faults, except those which are childish and wear off as they advance in years. We likewise find that it is still more dangerous to frighten them suddenly with harsh words, disguised persons, stories of ghosts and goblins, and such like stuff. Besides, it would be useful to use them early to see horses, cattle, dogs, and to hear fire-arms, kettle-drums and the like, especially as we in authors read several instances of children who by such things have been frightened and got the *epilepsy*. See *Boerhaave's* *Consil.* xxix. 11. *Ab. Heer*, obs. 24. *Van Swieten's* *Comment.* iii. 415. *Andree* on the *Epilepsy*, p. 15. *Schenckii* obs. p. m. 100, and several others.

If a vomiting is brought on by fear, we encourage the child, and give it a little wine, or the *liquor cornu cervi succinatus*, or a few drops of *balsamus vitæ*, or *spiritus lavendulæ compositus*; (palsy drops) on a piece of sugar, or in a little cinnamon water, mint water, or wine.

But if the vomiting arises from the child's being frightened, then *paregoric* remedies ought to be given, not only for the sake of stopping the pukings, but also in order to prevent more dangerous consequences. It will prove most efficacious to spread *theriaca* on leather, and apply it on the stomach, and a warm napkin over that.

Internally we must give the *extractum Thebaicum*, according to the age, to a sixteenth, one eighth, or one fourth of a grain, and a little well distilled water

of *rue*. But when the child is so weak that it cannot swallow any remedy, then we dip linen rags in warm *rhenish* wine, and squeezing them, wrap the child up in them. When the child has recovered a little strength we may give it a little *cornu cervi liquor succinatus*, to be taken in some wine, and towards the night, a little of the *extractum Thebaicum*, made into a powder with a little sugar *. Besides, we must not neglect to encourage the child, and let it be entertained by those persons in the family that we know it loves most, letting it understand that it is now out of all danger. But if the child is so young that we can expect nothing by reflections, then one must play and amuse it with such things as it is usually rejoiced at, or shew it such things as please its eyes and ears, and engage its attention, that it forget what has happened. Afterwards we avoid to shew or let it hear for a long time of every thing that might recal to its memory the danger it has been in.

A coachman to a gentleman carried a child a year and a half old into the garden, in order to entertain it by looking at a young foal, but as he approached the mare itself too near, she gave the man a kick that he tumbled down, being hit on the same arm which held the child. The child was by the kick and the fall frightened to such a degree, that being immediately taken up, it was thought to be dead, for it had all the appearance of a dead corps, being cold, its eyes and mouth shut, the body relaxed, and the pulse not to be perceived. It was put into a bed and wrapped up immediately in linen dipped in warm *rhenish* wine, and then squeezed out. A full hour being elapsed, the child began to come to itself again, shrieking hideously immediately after it got the liquor *C. C. Succinat.* in *rhenish* wine, and slept after that six hours running, and fell into a profuse sweating. In a few days it was tolerably well recovered, but soon after was affected with a tedious *diarrhœa*, which did not cease until I prescribed chalybeat wine to be taken every day in

* These powders will easily slip down the throat, if given in *Syrupus Hordeatus*.

cinnamon water. Notwithstanding the tender age of the child, it nevertheless retained an aversion and dread of the door towards the yard, so that it trembled on being carried towards that side, for it was just close to that place where the fall happened.

When children are affected with any pain in the stomach, or vomiting, old women commonly think it arises from the little cartilage annexed under the breast bone (*Cartilago Xiphoidea*) being depressed, and therefore officiously offer to suck it up by their dry cupping. Vomiting in this case may sometimes happen to full-grown persons, in whom the cartilage is already ossified, and by some accident depressed, and consequently the cupping is conducive to the cure*. But as for children, this circumstance will never happen, for their (*epiphysis Xiphoidea*) is still an elastic cartilage, which retakes its former situation the same moment it should happen to be pressed inwards.

C H A P. XVIII.

On the COUGH of CHILDREN.

EVERY thing which irritates the *aspera arteria*, and its nerves, will effect a coughing; either the irritating cause touches it mediately or immediately. In the former case it has its seat either in the wind-pipe, or within the breast, or in some other part, the nerves of which communicate with those of the *aspera arteria*; and this is the true reason that a remedy is conducive in one kind of cough, but in another is without efficacy, but on the contrary may prove hurtful †.

I will first mention that sort of cough which is most obvious in children, the irritating cause of which has

* Confer *Element. Physiol.* by Baron Haller, iii. p. 15.

† Confer with the *Elem. Physiol.* of Baron Haller, iii. p. 300. Cough is the same to the breast as sneezing is to the nose.

its seat in the stomach, from whence it has got the name of the stomachic cough.

Children seldom eat with moderation, but they guttle all that we give them, or as the saying is, their meals last from morning to night; and their food commonly is such as will easily grow sour, or of a kind which turns clammy; for instance, as meal pap, meal gruel, bread which is not well fermented, &c. Therefore their stomach will not be capable of digesting or changing it as it ought.

From hence arise collections and crudities (*saburra cruda*) in their stomach, which puff it up large and hard, causing sleepiness, a pulsation on the temples, head-ach, heavy breathing, a disgust for food, and frequently a vomiting. These crudities do not remain a long time in the stomach before they bring on an acrimony, and when this irritates the nerves of the stomach, the irritation is propagated or communicated to the breast, and causes this sort of cough. The lungs are then excited to coughing in the same manner as the reachings are excited when we are affected with the cholic or the gravel. This stomachic cough is easily known by the child's having a stinking breath, a foul tongue, distended stomach, and disgust for food: also that the coughing chiefly comes after eating, and a tickling or pain is felt at the orifice of the stomach a little time before the coughing comes on; besides, it being finished sometimes by a vomit, after which the patient gets a longer rest. We may likewise order the child to hold its breath for a little while, and if that excites coughing, it is a proof that the irritating cause has its seat in the breast or lungs only, and not in the stomach. It is easily distinguished from the whooping cough, as that is worse every other day, and scarce permits the patient to draw breath during the fit, but continues till the patient is quite spent, or vomits. The latter is besides epidemical, which does not at all belong to the stomachic cough.

By what has already been said, it plainly follows that pectoral juices and common pectoral remedies, are rather injurious than conducive in the stomachic cough, for all that weakens the stomach increases also the crudities, and consequently the coughing; on the contrary,

trary it will be easily and quickly cured with gentle emetics; with how much safety these may be taken even by tender children, is already explained in the chapter on the measles. If a looseness should not follow of its own accord a few hours after the vomiting, then we ought to inject a clyster of a little milk, oil and sugar. The same remedy may be used some days running, by which means we are sure to stop the coughing, especially if afterwards we give the child a moderate quantity of food, putting the stomach in order by some stomachic elixir, or with a few grains, each day, of a very subtle powder prepared from the leaves of mint, with an equal portion of sugar.

Children are likewise subject to another sort of cough called the catarrhal cough. This they may contract by cold, as for instance, when we take them with us on journies in autumn or winter, or otherwise suffer them to be exposed to a chilly air, to run into places where they get wet, or play with the snow, &c. Or they will contract this cough by being less warm than usual, for instance, if their bed or cradle stands too near the fire-place: for if the child is taken from thence, and a little after that is kept nearer to the window, it will immediately get a catarrh and cough. The same will happen if it be suckled by the mother or the nurse who is lately come out of the cold. The child is also subject to catch cold if it be allowed to remain in the open air late in the evening during the summer, when the heat is great in the day-time, and the nights are cold.

The cause will be understood from the following description: The windpipes and lungs are provided with innumerable small pores, through which a subtle steam is continually exhaled. We may see how these vapours are collected by breathing on a bright looking-glass. They are so copious in a healthy person, that when, for instance, eleven ounces are perspired from the surface of the whole body, twenty-two ounces, which is double the quantity, will exhale by the lungs. We see therefore how much those are mistaken who expose themselves to the cold when they are affected with a cough, thinking themselves well preserved provided they are thick clothed. It is true that the body
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itself is thereby secured, but the lungs are equally exposed to the cold air. But, besides these pores, the windpipe is also provided with a great number of small glands, which through their minute orifices discharge a fine thin glue or slime, which, lubricating the *aspera arteria*, makes it smooth on the inside, preserving by those means its nervous membrane from feeling or suffering any thing from dust and the like. Now when a constriction is effected in these orifices of the glands and exhaling vessels, either by cold or warmth, then the effort itself, of the matter which is shut up, causes an irritation; the membrane of the *aspera arteria* loses its above-mentioned defence, and the perspirable matter, which is now shut up or confined in these parts, becomes acrid, in the same manner as we very well know it to be the case in a catarrh of the nose, the inside of which frequently will be excoriated, as also the skin under it grows reddish. Now the irritation, which the above-mentioned circumstances occasion, is the very cause of this sort of cough, which is easily known because it arises from cold, and is attended with a catarrh of the nose, sneezing, as also pretty frequently with a sore throat, and because it is most difficult towards night.

The matter which is hawked up at the beginning of the disease is thin, and the coughing will certainly not cease while it continues in this state, notwithstanding it should be ever so copious. But when it acquires a thicker consistence, becoming firmer and yellow, and is hawked up with ease, the distemper will soon go away.

This sort of cough is not very dangerous in its kind. But if it be slighted, and suffered to remain a long time, the matter will acquire a higher degree of acrimony and excoriate the throat, nay it may even cause a consumption. When the coughing is very violent, it may, besides the other inconveniences, cause an *hæmoptysis*, which in that case ought to be prevented by bleeding. However that will seldom be required for children, as their fibres are more smooth, soft, and relaxed, and therefore do not so easily burst.

When the disorder is still in its beginning, we shall frequently be able to stop it immediately, by confining the
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the child to a warm room, likewise by warming its cradle or bed, and fumigating it with sugar, and letting the nurse drink tea with anise and fennel seeds in it: we give this tea to the child itself, in case it is already weaned, or we may prevail on it to drink warm whey copiously, so that it falls into a profuse perspiration.

This will not be sufficient, in case the cough has already lasted for some days. The surest and best cure is then to let the child take, 1. a gentle purge every morning, or every other morning, agreeable to its strength and age. We may, for instance, chuse for that purpose manna, from two to three or four drachms, dissolved in a pint or more of whey, or we may fetch from the shops, one, two, three, or four grains of the *electuarium lenitivum*, prepared according to the Pharmacop. of *Edinb.* for that will keep a longer time than the *Elect. lenit. Lond.* this is also to be dissolved in whey and taken. If the dose mentioned is found too small, it may be increased the next time.

2. In the afternoon let them drink a little almond-milk, thin and well-strained; or warm whey, thin and well-strained barley-gruels, turnep-juice, or tea with milk. And,

3. Continue to give them some paregoric remedy every night, in order to give them rest, till the matter grows thick and ripens. For instance, we may mix together *extracti thebaici* one grain, *cort. rad. ipecacuanhæ* two grains, and seventeen grains of sugar, rubbing it well, and dividing it into four equal parts; and if that dose over night is not sufficient to stop the cough, then the quantity may be increased the next evening.

But if the child is not troubled with coughing in the night-time, this remedy will become unnecessary; otherwise it is indispensable. For by continual coughing the thin part of the serum (*lymphæ*) would be pressed out through the pores, which are not yet quite shut, and so coughed up, although this liquid is necessary to soften and relax the above-mentioned orifices, as also to dilute the slime, and to ripen it, in order that it may get into the *aspera arteria*, and then be hawked up with ease.

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This species of coughing will still sooner give way if the child is also kept within doors, especially in a warm bed, and is anointed with goats tallow under the feet, warming them all the time over coals. Also it must drink freely, and eat food which is easy of digestion, avoiding every thing sour and salt.

A hoarseness will arise from the same cause, that is to say, when the upper part of the *aspera arteria* becomes dry. And that happens when the above-mentioned mucus and the exhalation is shut up, and consequently cannot lubricate the wind-pipes. It is shut up when a constriction is caused in the aforesaid orifices by means of a sudden change from warmth to cold, or is choaked up as it were; which happens in the small-pox, measles, and *aphthæ*; or if the natural slime is made too thick by heating liquors, sour things, or from certain diseases. Therefore we find that drunkards are commonly hoarse. Or if the coughing is so frequent, that the before-mentioned *mucus* is exhausted before it can be recruited again. For which reason people labouring under consumptions are generally hoarse.

Here we ought likewise to take notice of the tickling cough, (*tussis titillatoria, toux gouttorale*), which has its seat in the *aspera arteria*, where a tickling is felt which irritates the coughing and vomiting. This may be cured in the manner above prescribed, or by taking a tea-spoonful at a time of the *electuarium zingiberis*, which is compounded of a table spoonful of clarified honey mixed with fine and well-sifted powder of ginger-root to the quantity of a tea spoonful. However the syrup of ginger is still better and more palatable, or else the juice of preserved ginger-root. I have likewise tried the *succus hyoscyami*, or juice of henbane, to the amount of a few grains, which immediately cured this sort of coughing.

Children are subject to another kind of cough, which arises from a repelled scab. This is so much the more dangerous as it corrodes and affects the breast in the same manner as it usually does the surface of the body, and may therefore easily cause a consumption, or even death itself, if proper remedies be not timely applied. This cough does not yield to the usual

usual pectoral remedies, but the only thing serviceable is to expel the scab again by all possible means. Therefore, after having cleansed the stomach and bowels, in case it is judged necessary, by any one of the above-mentioned purges, we confine the child to a warm bed, and give it a few grains of the *flores sulphuris* to be taken in a little warm milk, giving it to drink after that a tea of *flores ulmaricæ*, with or without milk, until it comes into a good sweat, which we must support during a few hours by the above-mentioned tea.

This we continue trying for some days running, and if the scab then intirely breaks out, the cure is performed; but if not, then we are obliged to apply a sinapism or a vesicatory to the place where the scab has been most copious [that which is prepared according to the *Pharmacop. Lond.* is the best], and as soon as it begins to take effect, or to blister, we must give the child a tea-spoonful at a time of the *Fulapium e Moscho Lond.* till it occasions a sweat. Or we may give it some pills prepared, for instance, of three grains of musk, one grain of camphire, and a little syrup *de baccis Norlandicis*, ordering it to drink the before-mentioned tea after it. If this should also, contrary to all expectation, prove insufficient, then we shall be obliged to prescribe four or five grains of *æthiops antimonialis*, to be taken either in wafers, or mixed with some syrup, drinking the said tea after it. If the coughing be very violent, it must be palliated in the interim by any one of the remedies which were mentioned as paretics in the catarrhal cough under No. 3. especially as we may give them here with much less risk, because the matter is of such a nature that it cannot be hawked up, but requires an issue through the surface of the skin*.

* Compare this with what I have written of convulsions, p. 36. To this belongs likewise that violent cough which is described by Dr. *Zimmerman* in the *Acta* of *Zurich*, II. p. 398. He found it to arise from knots or indurations on the child's neck, which on disappearing from thence attacked the lungs. It yielded only to the above-mentioned remedies.

On this occasion I think it proper to mention how we may more easily allure children to swallow medicines in wafers. We must, for instance, handle wafers and pounded sugar in the presence of children, without saying for what intention. Probably they will then ask for sugar. We give them a little in order to quiet them, in the mean time wetting the wafer, and wrapping up some sugar in it, so that the child may be induced to swallow it for the sake of the sugar. If we continue them for a few mornings running, the child will be accustomed to swallow such wafers or boluses, and after that is easily prevailed on to take medicines in that form when necessary.

The sorts of cough which are symptoms in other diseases, as dentition, the *aphtæ*, small-pox, measles, and worms, are treated of in the same chapters as their principal diseases.

C H A P. XIX.

On the HOOPING-COUGH or CHINCOUGH.

THE whooping-cough, like the small-pox, measles, and the venereal disease, never appeared in Europe originally, but was transported thither from other parts of the world by means of merchandise, sea-men, and animals: it was a new disease to our ancestors in Europe, and probably was conveyed to them either from Africa or the East-Indies, where it was rooted before*.

* Professor *Mathiæ*, in his *Dissertation de tussi convulsivâ Infantum*, 1768, looks upon the chincough only as a high degree of catarrhal cough. I have read his arguments no where else than in the *Göttingische Anzeigen* (Literary Gazette of Gottingen), in which they were opposed, according to my judgment, with very good and sufficient objections. And this is done with all the modesty and regard which ought to be observed towards so learned a man.

Its first appearance in *Sweden* cannot be determined with any certainty; but in *France* it began in the year 1414.

From hence it plainly follows that it does not arise from any hereditary fault, or any acrimony distilled from the head, or from any slime in the stomach. For in that case it would have affected our ancestors as well as the people of the present age. Consequently the quantity of slime, which is vomited up by children in the hooping-cough, is not the cause of the disorder, but ought, in my opinion, to be looked upon as an effect of the true cause, irritating the glands, which makes the discharge of slime more copious, for the same reason as the bladder presses out a greater quantity of mucus when it is irritated by the stone. For it appears as improbable to me, that the mucus or slime, which is pressed out by means of the irritation of the stone in the bladder, should be the cause of the pain felt by a patient afflicted with the gravel, as that the slime vomited in the chincough should be the cause of that distemper.

It is likewise observable that the hooping-cough always appears as an epidemical disease. I think its nature is easily to be understood, since I have many times plainly perceived it to be contagious, and that it infects only such children who have not yet had it. Therefore it infects in the same manner as the measles or small-pox. I knew the hooping-cough conveyed from a patient to two other children in a different house by means of an emissary. I have even myself carried it from one house to another undesignedly.

A person who has once had the hooping-cough is as secure from the danger of catching that disorder again as those who have had the small-pox and measles are with regard to those respective diseases. During my practice I never found or heard of any one who has been infected with the hooping-cough more than once. Dr. *Hillary* has made the same observation in his book on the air and the diseases at *Barbadoes*, p. 45. Dr. *Kirkpatrick* likewise agrees to the same in the second edition of his *Analysis*, p. 64. *

It

* They may however get a return of the same disease, and

It is true indeed that a child, who had had the chin-cough, was afterwards affected with a very violent cough, during the first period of the measles, which founded very much like the whooping-cough, each fit terminating in a vomit; but it was not worse every second day, which is however the true and essential sign of a whooping-cough. This cough disappeared as soon as the measles were well come out.

The whooping cough is sometimes attended with a fever, and sometimes without any perceptible one; but as long as it is not put out of its order by improper remedies or any other accident*, it will always be found worse every second day. The patients commonly feel cold on the smaller part of their legs.

and fall in again, as it happens in intermittent fevers. And Dr. *Morris* has observed, that children, who had the whooping cough in the autumn, fell into the same disease again the next spring: see the *Medical Obs.* by a society of physicians in *London*, Vol. III. p. 281. for the cause of the disease had not been intirely removed, altered, or evacuated. In the year 1769 the chin-cough was spread through different parts of *Sweden*, and was of the severest sort I ever had seen. A child in its fourth year was then infected by the disease. When it had continued for some time, the child unexpectedly was seized by a quotidian ague, attended with cold, heat, and sweating for some days together. On those days the coughing ceased; but when the ague disappeared, the whooping-cough re-appeared with equal violence: the child bled often through the nose, and it likewise lost a great deal of blood from some blood-vessel or other bursting on both sides of the nose. No venæsection was performed at the beginning of the disease. After the disorder had continued for some weeks, the child was affected with troublesome eruptions about the groin, but the cough was not thereby relieved. The eruption continued likewise after the whooping-cough was cured, and did not go away till a boil settled in the *perinæum*, which ripened, was opened, and was cured as usual. Another child could not be prevented, during the chin-cough, from scratching itself between the root of its nose and its right eyebrow, till a hole was made thereby which turned into an ulcer, but the cough continued with equal violence.

* See the observations of Doctor *Blom* and *Faxe* in the narrative to *Colleg. Med.* 1769, p. 11 and 250.

It comes on only by degrees, and is at first dry, but when it has continued ten or twelve days, it turns humid, and the matter which is then coughed up looks ripe; nevertheless it increases more and more, leaving long intervals; the fits return at certain hours, but continue at each time with such violence and for so long a time, that the child grows blue in the face, its eyes look as if they were forced out, and they run besides, and a bleeding of the nose is sometimes brought on; it coughs till it is quite out of breath, that one is in apprehension of its being choaked; for if the patient now and then is capable of drawing some breath, it is with a sounding which very much indicates with what difficulty the lungs can admit the air. The coughing continues, and does not leave off for that time, till the child vomits up a quantity of slime. If at any time the coughing should intermit without the paroxysm being ended with a vomiting, it will immediately return again, and will not cease but after a vomiting. If the paroxysm happens to come on immediately after the child has taken nourishment, it will grow blue in the face; stumple, and be stifled if one does not quickly excite vomiting by irritating its throat with a finger. Therefore such patients should not be left alone by themselves, but be attended by a sensible person who has a presence of mind, and who will besides be of service in preventing them from hurting themselves; for they will generally tumble down during the fit. However, they commonly lay hold of something when the coughing seizes them; for instance a chair or table; keeping it fast with all their strength, whilst they during that time are stamping with their feet. The chincough is called *Coqueluche* in France, because they formerly thought it to arise from a running of the head, and that it was to be cured by keeping the head warm by a cap. We have not received any particular name for the chincough from the ancient Romans and Greeks, as it was not then known to them.

Consequently the true cause of this disease must be some heterogeneous matter or seed, which has a multiplicative power, as is the case with the small-pox, and that it only affects children who have not been infected with the disease before. Whether this multiplicative

○ *miasma*

miasma be a kind of infects, I cannot affirm with any certainty; however we find that it is communicated by infection, and that a part of it is attracted by the breath down into the lungs; but the greater part of it is swallowed with the *saliva*, and comes down into the stomach. On both these places, especially on the latter, it irritates and gnaws the nerves for some hours, and again it is quiet at certain hours, nay sometimes for half part of the day; this irritation excites, and by means of the communication of the nerves, (*consensus nervorum*) causes such a convulsive coughing, whose paroxysm does not cease before the most vivid and active part of the mentioned seed or *miasma* is thrown up by vomiting, but will not intirely leave off to trouble the patient until it is destroyed, rendered ineffectual, or expelled out of the body. From hence it follows, that for the cure of the hooping-cough, such remedies are required as will kill the seed, and render it inactive, or such as expel it out of the body the soonest.

It is worth our while to take this into consideration; for the disease is both tedious and severe. When it is left to the course of nature alone to be worked out, it commonly will last eleven or twelve weeks, nay frequently half a year. What is still worse, the disease is very dangerous and often fatal*. A number of patients are stifled by it, getting convulsions and apoplexies, others pine away entirely, others again are puffed up by it and die. Besides a great number contract ruptures hereby, or become deformed.

* From the bills of mortality and accounts kept on the mortality of certain diseases, we find in the course of sixteen years, (counting from 1749, till the year 1764, these years included) 43,393 children to have lost their lives by the hooping cough, which amounts to 2712 children dead each year. In the year 1755, 5832 children were carried off by this distemper; but in years when it has raged with less fatality, about 1700 or 2000 children are lost by it. Of the above-mentioned 43,393 children were 21,543 males, and 21,850 females. Consequently the hooping cough has proved a little more fatal to the weaker sex.

It is easily prevented by avoiding the infection as much as possible when it is spread in the neighbourhood: for it is most probable that the hooping cough always is raging in some part or other of the kingdom, and is conveyed and circulates from one place to another by travellers, or lies concealed for certain times in cloth and merchandizes, as the infection of the small-pox does.

The cure might easily be obtained if we knew any remedy which had a specific power of killing this seed or making it inactive. The leaves of the wild rosemary (*Sedum palustre* Linn. *folia rorismarini Sylvestris pharmacop.*) operate probably upon this principle when used copiously as tea. *Archiater V. Linne* mentions, in his travels to *Vestrogothia*, that the common people in that province cure their children of the chin-cough successfully with this remedy. Most likely musk acts, and is effectual in this disease upon the same principle. I find in fact that the English writers give it great commendations as such, for instance, Doctor *Fuller* in his *Pharmacopœia extemporanea*, p. 111, 206. Those who chuse to try this remedy, may prescribe for instance the *Fulep. e Moscho Lond.* six ounces, and give the child a spoonful of it at a time in the intervals of the paroxysms, more or less frequently, according as the intervals are longer or shorter. I have not yet had any opportunity to try this remedy in the hooping cough, but as I have found its good effect in other distempers which have some relation with this, it makes me pretty certain that it may be used without any risk, and to all appearance to advantage. It is to be wished that physicians would try several other remedies which kill insects, and which we know are effectual in *exanthematic* fevers. Last year, 1770, seal's fat began to be used against the chin-cough; half an ounce was boiled in a pint of milk for a quarter of an hour. Of this milk was given a table spoonful morning and night to children at the age of a year or half a year, giving more in proportion to those who were older. It is assured that the worst symptoms (as the child being out of breath and nearly stifled) went off within eight days, but the coughing continued for a longer time. This however was likewise afterwards cured with a few drops

of tar mixed with the yolk of an egg. See the newspaper from the provinces for the year 1770, No. 24, and the cases the Society of Surgeons have published in *Stockholm*, year 1769, in which Mr. *J. B. Brandt*, p. 105, confirms it from experience, and pretends that its salutary effect had been observed from the first day it was given. Doctor *Morris* prescribes the bark and the *castoreum* against this disease: he mentions likewise that he had heard of children being cured within nine or ten days by the peculiar rank stench which comes from a goat or a fox. See ch. i. p. 281. I have good reasons to expect that we soon will learn which of these remedies is the most effectual, and that consequently the hooping cough will be rubbed off the list of the severer diseases. I know, pills of the extract of tobacco have frequently cured other convulsive coughs, but I have not yet had an opportunity of trying it in the hooping cough, nor the *naphtha nitri* and *spiritus æthereus Frobenii*, both of which I find to be much extolled.

The other method of curing the hooping cough consists in expelling out of the body, by means of gentle emetics, that *miasma* which I look upon to be the true cause of the disease. Assessor *Strandberg* cures his patients in that manner, and has given a succinct description of it in the *Acta* of the Royal Acad. of Sciences for the year 1749, p. 251. The same method is also recommended by Assessor *Bergstral* in the newspaper of the Sciences, 1752, No. 40. An old *French* physician named *Basseville*, never wanted to have recourse to any other remedy than emetics in curing the hooping cough, which his son mentions in a dissertation published in the year 1752 at *Paris*.

An unexperienced person will think it daring to give emetics to children, but they can bear them better than full grown persons. I allow that the nerves of children are more sensible and tender, but the dose of the emetic may be moderated accordingly. Their solid parts are soft, supple, and easily relaxed; abundance of humours are in their body, consequently they can vomit without danger. The surest remedy to effect vomiting, is the *cortex radicis ipecacuanhæ*; it is to be given on the hours the child is better, and in the same manner as we have advised in the Chapter on the Measles. If the first and
second

second dose of it should not have a sufficient effect, we must give a third. For some patients a few doses will be sufficient. We are able to direct the effect of the remedy according as we chuse, by the giving it in this manner: instead of *Ipecacuanha*, we may order for the same purpose the *sulphur. auratum Antimonii tertiæ præcipitationis* or *kermes minerale*, the *emetic tartar*, or *Huxham's essence of antimony*, or the *vinum emeticum*: it is indifferent which of these we employ. The dose may differ a little according as they contain a little more or less of the reguline part of antimony. For instance, we may take a grain of *emetic tartar*, and rub it into a subtile powder, together with thirty-two grains of sugar, dividing it into eight equal parts. One of these is to be given every day to the child in a little water or milk, at those hours when it is better. The child will not suspect this to be a medicine, because it tastes sweet, and does not change the colour of the milk. If one dose should not operate sufficiently, then we may give another a quarter of an hour after, just in the same manner as with the *Ipecacuanha*. Compare this with what Doctor *Fothergill* observes in the *Med. Obs.* Vol. III. p. 319. When the *emetic* begins to operate, the child must have something to drink, that it likes most. In this manner we continue till the coughing yields. We may either increase or diminish the doses, according as we find them operate more or less.

If the hooping cough has already turned irregular, so that it is not remarkably better the one day than the other, then we must begin to give the *emetic* as soon as the child begins to recover a little, after the paroxysm is over. If it be plethoric, and liable to *hæmorrhages* at the nose during the fits, it ought to be bled before-hand. If the body of the child be bound, we may inject a clyster or give a little rhubarb. In case it has been sick for some time, it being already weakened by that, so that we cannot venture to give it an *emetic*, then we may, according to the advice of Doctor *Strandberg*, let it take the bark alone, or let it drink mares milk at the same time.

The signs of recovery are 1st, an abatement of the fever; 2^d, the breathing becomes more easy; 3^d, the intervals between the fits of coughing are longer.

If the child has already gotten a rupture, the abdominal contents, which are fallen out, ought immediately to be replaced, and prevented from coming out again, applying proper compresses, till further assistance can be procured by a truss.

C H A P. XX.

ON THE JAUNDICE.

ALTHOUGH the jaundice (*Icterus*) is one of the diseases to which persons of all ages are subject, nevertheless it is looked upon as deserving a place among the diseases of children, because it frequently affects them; nay even during their tender age*. However it is not so common to those of *Sweden*, as in other countries, probably because it is there a custom universally received, even amongst the common people, to give new-born children manna sugar, in order to purge them well from viscid slime and the *meconium*.

As to the causes of the jaundice, we shall find them to be such which effect a stoppage in the channels that carry the gall or bile from the liver, the *pori biliarii ductus Hepaticus*, *ductus Choledochus*, or its opening into the first of the small intestines (*duodenum*), so that the bile is prevented from being freely discharged in the mentioned *duodenum* †. Therefore slime and glutinous liquids

* I have not seen children born with the jaundice, but find instances of it related in *A. N. Curios. Dec. i. A. vi. Obs. 241. Dec. iii. A. ii. Obs. 40. Fr. Delaboe Sylvius, Prax. Med. Libr. i. Cap. 46. No. xi. p. 302. Theod. Kerkring Spicil. Obs. 57. p. 118.*

† The gall bladder, its channel (*ductus cysticus*) and stones of the gall-bladder, do not cause a jaundice, unless they are retained in the *ductus cholodochus*, and shut up that passage; this is demonstrated in a *Dissertation de Ictero*, p. 38 and 39, spoken at *Upsal* by Doctor *Bjur*. Six angulated stones were found in the gall-bladder of the late King *Frederick*, three of which were larger, and three smaller; notwithstanding

liquids may cause the jaundice in new-born children, by shutting up this opening, which will so much the more easily happen, as the great common biliary channel (*ductus choledochus*) goes a little way between the membranes of the *duodenum* before it opens into it (*lumine obliquo*) with an oblique aperture.

When children have sucked, and the milk becomes curdled by acidity, the mentioned aperture may then be obstructed by the small lumps of this coagulated food. The same may likewise happen to them if they feed on milk pap. A jaundice will likewise arise from constrictions which are caused by gripes in the *duodenum*, and the aperture of the *choledochus* into it*.

When a child is weaned, and now lives on other food, this may cause crudities, either by being devoured in too great a quantity, or too little chewed, or of too hard and crude a quality, for instance as unripe fruit, in which case the collections and crudities will either by their quantity and hardness press and obstruct the biliary aperture in the *duodenum*, or irritate it to a constriction. In each of these circumstances, the natural discharge of the bile is prevented.

It also frequently happens that children get affected with a jaundice, when by some means or other they have had a severe vomiting, or have taken a strong purge given by an ignorant person, or if worms torment and gripe them severely. In all these circumstances the jaundice will first arise when the pain is spread further in the stomach and bowels, so that it reaches even the *duodenum* and the aperture of the *choledochus* into it, causing them to be shut up by constrictions.

standing this, his Royal Majesty had never had the jaundice, or was in the least affected by it. Dr. *V. Haller*, who has made so many dissections, has never found stones in the gall-bladder of children. *Vide opusc. Patholog. iii. p. 325. confer p. 328, and the following.*

* I have observed children to grow yellow in the face on sucking the mother or nurse after their being exasperated. But whether they thereby get a true jaundice or not, I have not found. See p. 34.

Intermittent fevers of long duration, agues, or irregular cold fevers, will frequently leave a difficult jaundice behind them, especially if the child has had several relapses of the ague, and it has been attended with much vomiting, or the violence and long continuance of the disease has weakened the intestines, and has corrupted the blood to such a degree, that obstructions and indurations are effected, which may press together and shut up the bilious canals.

When the natural flow of the bile is interrupted by one or several of these causes, it will be collected in too great a quantity in the bilious canals, and ascend into the gall bladder, which is hereby distended. It will likewise distend the bilious canals, by which it irritates the nerves on both of these places, and sometimes cause a fever.

As an intimate connection subsists between the nerves of the liver and those of the stomach, this last mentioned *viscus* also suffers a great deal; it aches, loss of appetite, nausea and a vomiting ensues, the breathing is laborious, the child has no rest, is in pain, cries, and will not suck. Hence the bile is pressed into the blood vessels through the *vasa lymphatica*; (see the mentioned dissertation *de Ictero*, p. 31. not. 5.) consequently being mixed with the blood, flows with it all over the body to the smallest vessels of the surface.

Therefore a yellow colour is diffused over the whole body, this being especially more conspicuous on the temples, the white of the eyes, and the nails*; the urine turns yellow, and stains paper and linen dipped therein with the same colour; the linen of the bed gets likewise a yellow cast from the sweat; the spittle and the veins under the tongue appear also yellow, and the fat which is filtered from the blood gets the same colour: also the brain, all the *viscera* in the cavity of the breast and the *abdomen*, muscles, mem-

* As *icterici* do not look yellow by candle light, a physician ought to visit such patients in the day time. The hair is said to grow yellow in some patients, as Doctor Schenck asserts in *Obs. M. L. III. Obs. 1. Riedlinus, M. Lin. Med. A. 1697, Feb. 7. p. 88.*

branes, cartilages, and bones; nay the blood itself also looks yellow, according to the observations of several authors, as well as my own, especially respecting a noble lady, who, having the jaundice combined with a *pleuritis*, was bled a few times during the disease.

As the bile is bitter, all that the patients receive into the mouth likewise tastes bitter to them; and several physicians have observed that some patients affirm all objects look yellow to their sight.

The bile, being of a bitter and acrid quality, causes a violent itching, which, chiefly in the night-time, becomes almost intolerable to full-grown persons when the disease is of a long duration. The bile is a subtle soap, and consequently of a very dissolvent power; therefore it comes to pass that the blood in this disease is dissolved to such a degree that it cannot be contained within its vessels. This is the cause of the dropsy and dangerous hæmorrhages, which follow after a jaundice of long standing.

The great damage caused by the bile's returning in this manner and mixing with the blood is not the only evil which arises from thence; for besides that, its necessary presence and good effects in the intestines are also thereby lost. Therefore acidity will now prevail; the patients will be affected with gripes, and the bad consequences attending them (see p. 18.); the food cannot be digested as it ought, consequently a bad *chylus* is prepared from it, which can only form bad blood. The body will be bound, the wind pent up, and the belly distended and hard; the excrements get an unnatural colour, grow white, or, in case the *meconium* still lasts, they turn black.

After what has been observed there will be no difficulty in knowing this disease. It discovers itself plainly by the yellow tinge on the white of the eyes, on the temples, forehead, and the whole body; by the yellow urine which stains linen and paper dipped into it; besides, this liquid generally has a thick appearance, and leaves a sediment at the bottom of the glass something like pounded brickstones. The distemper is also known by white excrements, and a costiveness which commonly attends it; by disgust for
food,

food, rumblings in the lower part of the *abdomen*, and a pain in the pit of the stomach, by a tension, pressure, and tenderness near the lower ribs of the right side.

When the jaundice is severe, the spittle will also be yellow and thick; the tongue yellow; with a bitter taste in the mouth; also the sweat stains the linen, and even the silver that the patients carry about them; [see *Petri Borelli Histor. & Obs. Med. Phys. Gent. 1. J. Jac. Wepfer de Apoplexia*, p. 274.] the itching in the night-time is very violent and troublesome; objects appear cloudy to the patients, and to some all that they see looks yellow. If any *micacious* or glittering appearance is seen in the urine, the disease will commonly be very obstinate.

By what has been already observed it will be easy to judge which sort of jaundice will be more or less difficult to cure. It is more easy to cure in new-born children. The recovery of older children will be more or less easy, according as the different causes of the distemper are conquered with more or less difficulty. Either of them being neglected in the beginning, the consequence will be gripes, convulsions, and death. A jaundice which is attended with a fever is worse than when the patient is free from one.

We have great reason to hope that the jaundice will give way soon, when the patient falls into a good warm sweating over the whole body; and the urine, which before was yellow and frothy, or black and darkish yellow, begins to regain its natural colour; the body is unbound by nature's own efforts, and the excrements regain their yellow colour. When the itching ceases by means of a gentle sweating, then also the yellow tincture will soon disappear.

The cure must be regulated according to the causes; therefore it is easily performed with respect to new-born children, where it is only required to carry off the slime and viscosity which is collected in the intestines during the child's existence in the womb. The electuary of manna is a gentle and proper purge for the purpose, if it be only mixed with a few grains of good rhubarb. Of this we give a small teaspoonful at a time, every third or fourth hour, till
by

by rumblings in the lower part of the belly we judge that stools will follow. The jaundice will be over as soon as the *meconium* and the glutinous and viscid juices are in this manner well carried off, and the excrements have got a yellow cast. The child will not afterwards have occasion for any other remedy when it can get the first or the new milk of its own mother, for that is then of a purging quality.

But a different cure is required when the jaundice arises from gripes. We must first be certain if the child is really troubled with acidity; which we discover by the signs which are enumerated, p. 18, and 173. Having found it to be the cause of the distemper, we prescribe some of the remedies which we have proposed against acidity in the place above-mentioned; and then, after having gently purged with the electuary of manna, we regulate the diet of the mother, or nurse, in the same manner as likewise was observed there.

If we know of an older child who has lived on meal-pap, meal-groats, and such other glutinous food; that it has made strong meals, especially of hard and improper food, and that it has the bad custom of not chewing its victuals well; observing also its stomach to be much distended and hard, and a jaundice to have succeeded; then we must, as much as possible, prevail on the child to drink copiously of barley-water, or whey with a little clarified honey in it. The intention of this is to dilute the crudities and loosen them, in order that they may afterwards be evacuated more easily by an emetic. (see p. 150.) This however becomes unnecessary, when the child pukes of its own accord, which frequently happens in this case. As for purges, it is always necessary to give afterwards such as are gentle. I have always chosen the *Elixir proprietatis Boerb. sine acido* for the children of the poorer sort, giving of it from six to ten drops every day in a little mint-tea sweetened with honey. The *Vinum aloëticum alcalinum Lond.* will be of the same use, if it be given in the same manner from fifteen to twenty drops at a time. But I would rather have it prepared in the shops with water, and not with wine. The children of richer parents can afford to use *Tinctura rhei amara Edinb. c. v.* to one or

two

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two tea-spoonfuls in a day, or they may take an elixir which I have called *Elixir hepaticum*, and which does not fail in this disease. The composition is the following:

R	<i>Rad. rhei selectiff. contusæ,</i>	℥ viij.
	<i>Arcani tartari, - -</i>	℥ iij.
	<i>Aqua Cinamom. f. v.</i>	cong. $\frac{3}{4}$
<i>Digere loco frigidiusculo vase clauso, per hebdomadas 4 vas sæpius agitando; deinde adde</i>		
	<i>Flaved. cort. aurant. rec.</i>	℥ ij.
	<i>Seminum cardamom. contus.</i>	
	<i>————— Fœniculi, āā</i>	℥ β
<i>Digere per octiduum vas pluries agitando</i>		
<i>Residuo post colat. cum expressione affunde</i>		
	<i>Decocti depurati rad. chicorei,</i>	℥ vj.
<i>Agita & per linteum express. adde priori colatura, & in mixtis dissolve</i>		
	<i>Sacchari, - -</i>	℥ xxiv.
<i>D. S. Elixir hepaticum. A couple of tea-spoonfuls to be given at a time.</i>		

When the stomach has hereby become softened, and no more pain is felt in it, nor in the right side, we must not yet admit the patient into the open air, but still confine him to a warm room, giving him tea of elder-flowers to drink a few times a day, in order to keep up an universal and uniform moisture, which finally will soon carry off by perspiration all that tinges the surface yellow.

If the jaundice arises from vomiting, it is easily cured by stopping this evacuation according to the advice given in the chapter treating on that subject. Besides which the patient must drink freely of the above-mentioned tea, in order to drive off the remainder of the yellow colour by perspiration.

But if the jaundice be the consequence of too strong a purge, we must immediately endeavour to make the child vomit; which may be effected by prevailing on it to drink warm water with oil, or unsalted butter melted in it, afterwards tickling it in the throat by a feather dipped in oil. For some part of the medicine might still remain in the body, and by this means be carried off; otherwise we must weaken and take away

away the effects of the purge, by making the child drink as much as possible of some fat soup, or warm milk mixed with sweet cream; also injecting a clyster of milk and oil, with intention to palliate or relieve the gripes, and in order as it were to give the intestines a lining. When the gripes have been thus relieved, the yellow tinge will soon disappear. The stomach having suffered much on the occasion, the patient ought to continue, for some weeks after, to take the *Tinctura rhei amara Edinb.* to thirty, forty, or fifty drops every day.

If worms should be suspected as causing the jaundice, one must first be assured that the child is affected by them; and, having discovered that to be the case, by the signs mentioned in the chapter on worms, one may remove the cause by the remedies recommended there.

But in case the child has for a long time been afflicted with the ague, and had frequent relapses, the stomach afterwards becoming hard and distended; then it may be depended upon that some obstruction or hardness is in the liver, or in the adjacent parts of it, which pressing on the often-mentioned bilious canals, consequently cause a difficult and obstinate jaundice, which will end in a dropsy, if relief be not soon procured. A long time is required to resolve such indurations, therefore we ought to administer remedies with a constancy equal to the obstinacy of the disorder.

For children of the poorer sort we may, ift, prescribe the following pills:

℞ *Saponis Veneti*, $\bar{\zeta}ij.$
Extracti rad. taraxaci, $\bar{\zeta}j.$
Mellis sinceri, q. s.
M. f. pilul. ponderis gr. 3. Dr. Sr.

Dissolving pills. To be taken from ten to fifteen and twenty each day.

2. The patient must drink at each time after this a half-pint or a pint of such whey as is mentioned, p. 59. provided it be in the season, that is to say in the spring. But at other times of the year one may use every day, instead of the former, a drink prepared
of

of *radix graminis* with a dram of *radix taraxaci*, which being well washed and cut into small pieces, ought to be boiled up twice over the fire in half a gallon of fresh water, and then be strained and made palatable with a little honey.

3. When it is convenient and proper to give the child broths, we boil in them the leaves of *taraxacum*, (dandelion), *cherefolium* (chervil), spinach, endive, and such like greens, when they can be got.

4. The belly ought to be rubbed every morning and night with a piece of flannel for half an hour together, always fomenting it afterwards with such-like flannels, or woollen cloths, dipped in warm vinegar and oil, squeezed out, and applied. When the *herba conii* becomes more common, and can be got cheaper, we prescribe it to the fomentations after the aforesaid frictions, morning and night. Three handfuls of this herb may for that purpose be stitched betwixt linen, and dipped in a strong decoction of the above-mentioned *herba conii* Linn. or *cicuta* Stork. and having squeezed it out, we apply it warm, changing it when it grows cold.

5. We encourage the child to keep company and play with other children, especially to take exercise in the open air when the season will admit of it. When the child is so far advanced in years as to be able to ride on horseback, that exercise would be very salutary.

6. For the rest, the diet ought as much as possible to be the same with that I have advised in the chapter on rickets.

Children of richer parents are to be cured in the same manner. But instead of the pills proposed No. 1. they can afford to use the *pillul. e conio* Storck, [see p. 59.] or the following:

℞ *Sapon. alicant.* ʒx.
Rhei opt.
Extr. marub. alb.
Tartari tartarifat. āā. ℥x.
Mellis sinceri, q. s.
M. f. pilul. pond. gr. iij. fol. Lunæ obd.
Dr. Sr.

Dissolvent

Dissolvent pills. Of which five may be taken at a time, morning and night, afterwards drinking whey in the spring, but at other times of the year the drink, No. 2. *

Or they may use *elixir hepaticum*, or the following *liquor resolvens*, to the quantity of a tea-spoonful at a time, repeated several times in a day, so that it does not purge, but only keeps the body unbound :

R	<i>Flaved. cort. aurant.</i>	℥ijß
	<i>Vini Mosellan.</i>	℥x.
	<i>Conquassentur usque dum vinum saporem imbue-</i>	
	<i>rit aurantiorum. Adde</i>	
	<i>Arcani tartari,</i>	℥ijß
	<i>Conquassando solve & adde</i>	
	<i>Sacchari albi,</i>	℥vj.
	<i>Conquassa donec & hoc solutum sit : filtra.</i>	

We read instances of jaundice arising from fleshy excrescences near the great common bilious canal [7. *a Meckern Obs. Chir.* 43. *Boneti Sepulchr. L. III. Sect. XIII. Obs. XIII.*] Also from this canal being dried up, shrunk, and not hollow [*Bonet. l. c. Obs. XVII.*] And its being grown together [*Bonet. l. c. Obs. VIII. § XII.*] And ossified [*Rhodii Obs. Med. Cent. II. Obs. 96. p. 121. and Cent. III. Obs. III. p. 128. Bonet. L. c. Obs. XVI.*] This canal has also been found to be wide at the upper end, but its orifice into the *duodenum* not larger than to admit a hair [*Bonet. l. c. Obs. XIV.*] In such circumstances we plainly perceive that there is as great an impossibility to discover the cause as to obtain any cure for it †.

From

* We accustom children to swallow pills by rolling them in the *syrupus aurantiorum*, or the like, that tastes agreeably. But if they be not at all able to swallow the pills, those of Dr. *Stork* for instance, a drachm of *extractum conii* may be dissolved in half a pint of elder-water, and made palatable with a little syrup of raspberries, giving a tea-spoonful at a time, two or three times a day. The *herba conii* may also be used as a tea.

† It happens sometimes that a jaundice arises from a venereal cause : as likewise may be the case with a tedious *diarrhœa* :

From hence it likewise follows, that an universal and sovereign remedy for the jaundice does not exist. The yellow membrane of the gizzard of hens is looked upon to have such a virtue, also the white part of goose-dung, tender birch-leaves boiled in ale, saffron, *rad. gentianæ*, *hypericæ herba*, and several other things of the like kind, to which either superstition has procured credit, or which persons easily persuaded to any thing have thought themselves cured by.

In that manner the gentleman I spoke of, believed himself cured of the jaundice by the before-mentioned yellow membrane, which, together with the white part of goose-dung and a little sugar, was made into powder and swallowed. He happened to take this remedy just when the bile in his liver came to maturity and discharged the *pus* into the gall-bladder, and from thence into the bilious canals, which, being now delivered from the pressure which had caused the jaundice, gave free passage into the *duodenum*, both for the purulent matter and for the gall.

Also an elderly gentlewoman thought that she knew an excellent remedy against the jaundice. She was troubled by that disease several times, in a year, it always beginning very violently with an uneasiness in the stomach, a nausea, anxiety, vomiting, fever, pain and tenderness in the right side. These symptoms were followed by a jaundice, and afterwards a *diarrhœa*. When the fever was something abated, she drank always a little ale in which young birch-leaves had been boiled; in this circumstance following the advice of some other person. After this the jaundice went off, but returned again in a month or two, with all the above-mentioned circumstances. In the mean time she extolled her excellent remedy, but always forgot to mention that at each time, she was bled, using besides emollient and lenient clysters, fomentations of

diarrhœa: and also the *fluxus hepaticus*. In such circumstances all other remedies besides mercury will be given to no purpose, the disorder yielding to that only. See the chapter on venereal diseases.

sweats. The sweating having ceased, the patient is well again for certain hours till a new paroxysm comes on. If it returns every day, or within twenty-four hours, it is called a *quotidian* ague. If it returns every second day, it is called a *tertian* ague; and it is termed a *quartan* ague, if it only comes back every third day: but in case the fit of the ague returns every day, so that, for instance, the paroxysm which appears on a Monday, both in respect to the violence of it and the time of the day, is equal with the paroxysm which comes on the Wednesday next following; and the Tuesday's paroxysm is similar to that of the next Thursday following, resembling it also both in respect to the time and violence; then the disease is a double tertian. But if a person has the paroxysm two days following, and is free the third, it will then be termed a double quartan. When those who have been affected with the quartan begin to get the paroxysm every day, it is commonly said that the quartan is changed into a quotidian ague: but that, however, is not the case, but they have then a triple quartan: for upon a more minute inquiry we shall find, that, both in respect to time of the day and violence, the paroxysm, which comes for instance on the Thursday, agrees with that of the last Monday; the Friday's paroxysm resembles that of the Tuesday past, and the Saturday's paroxysm is similar to that fit the patient had on the Wednesday of the same week.

Each paroxysm ought to be sustained with great patience and carefulness, otherwise the ague may easily turn irregular. For we experience almost every day, that when the sick do not wait patiently till the sweating is over, which follows after each hot fit, and consequently closes each paroxysm of heat and cold, but drink something cold, throwing the clothes off, rising from the bed, or changing linen, then the sweating will cease, and in its place comes a new paroxysm, or the heat comes alone, without any antecedent cold, and will not give way unless by another sweating. But if the patient likewise is careless and negligent during that time, he will immediately fall into another cold and heat, which continues also till the sweating comes, and is patiently sustained, as it ought, till it ceases of its own accord: for we ought

not to shift and dry sooner than that. In this same manner the agues of children are ill managed, and turn irregular; for as they cannot describe their uneasiness and the heat they feel during the sweat otherwise than by shrieking, therefore being taken out of the cradle in order to be silenced, they grow cold and the sweating ceases; which causes several paroxysms to follow close upon one another that might have been avoided by its remaining in bed till the true paroxysm was finished, together with its sufficient sweating.

I will omit all vain hypotheses with respect to the true cause of intermittent fevers, as also all unnecessary enumeration of the accidents which make them break out*. Let it be sufficient to shew how it is to be remedied, and the importance of not leaving the cure to time and to the efforts of nature only: for though that should succeed in other countries, yet we have found that it will hardly answer in *Sweden*. The change of heat and cold weakens the patient so much, that the strength vanishes with a few paroxysms, and the blood is so dissolved that its thinner parts are exhausted by sweating, the body grows lean, the fresh hue of the face is lost, and the whole complexion grows fallow; till at last the patient gets affected with a swelled stomach, indurations in the intestines, and a dropsy, or such other diseases, which then hardly stand the cure. If the child be very weak, and get the ague in the autumn †, then it is of still

* It is remarkable, that though the patient feels himself very chilly during the cold fit, nevertheless it is proved by the thermometer, that he is in fact as warm as in his healthy state, or five or six degrees warmer.

† We call that an autumnal ague which takes its beginning in any of the months from *August* to *February*: the others are called vernal agues, and frequently depart of their own accord; but autumnal agues are obstinate, and the sooner they appear in autumn, the more people will commonly be affected by them that year. When *Nordlanders* are seized by the ague in some of the other *Swedish* provinces to the southward of them, it is usually very obstinate, and difficult to cure. The same happens to foreigners who get it in *Sweden*.

greater importance soon to undertake an effectual cure, as it would otherwise be very liable to the rickets after such an ague. Full-grown persons are said sometimes to have reaped benefit from a tedious ague. The famous mathematician *De la Hire* got rid of his *palpitatio cordis* by a quartan, and attained a great age. But perhaps it was the bark which cured both these diseases together. Another got the better of an old difficult rheumatical pain in his right shoulder by means of a cold fever *. But this cannot stand good in respect to children; for the greatest number of their diseases arise from acidity, which rather increases during the intermittent fevers: the only advantage I have seen accruing to children from this disease is that they grow much. Professor *Schulz* in *Halle* speaks of a boy who was affected by a quartan for two years and a half, and grew an ell longer during that time. It is true that children sometimes get rid of their first ague without taking any remedy, especially if they get affected by it in the spring: but if it be an autumnal ague, it will hardly cease within two or three months, nay sometimes a longer time, unless the child gets a hard swelling (*placenta febrilis*) in the left side under the ribs, or some other disease which destroys the ague. This puts me in mind of a boy who was troubled by the irregular ague for three months together, and got rid of it by being infected with the small-pox. A child who had a tertian was inoculated on the day when it was free from the fever; and the paroxysms never returned, neither during nor after the small-pox. See the Provincial Newspaper, No. 47. year 1769.

The ague is sometimes disguised under other diseases, and it is then very difficult to discover. I saw a child in *Gesle* who was affected by a violent bleeding

* A gentleman, who for several years had been affected by a rheumatical pain in his right shoulder, got an ague in the autumn of 1766. After a few paroxysms the pain vanished: but the ague being cured by bark and *sal ammoniacum*, the pain seized its former place. This vanishing again, a tooth-ach tormented him, but that yielded to a large blister of *cantbarides* applied on the left shoulder; since which time he has felt pains no where.

at the nose every second day. It had already lost so much blood as would have endangered its life, had I not immediately given it the bark. A gentlewoman was tormented, every second day, by a very violent pain and inflammation in the eyes, which kept a regular course, and would yield to nothing but the bark. I cured a gentleman with the same medicine. He was affected every second day with pains in the right side, otherwise quite similar to those which commonly attend the gravel. Another had a violent dry cough, which came on every second day, the paroxysm of it always being finished by a profound sleep and sweating. He was also relieved by the bark. We may discover such a disguised ague by its being intermittent, and the paroxysms keeping their time regularly, beginning with yawnings and ending with sweat of a sour smell; (see *Halleri Elem. Physiol. VII. p. 54.*) and the urine, during the interims of the fits, deposits a sediment at the bottom of the glass, resembling brick-dust. Such agues will not bear any dallying with, but require a speedy relief. But those are most dangerous which during the fits are attended with a violent vomiting alone, or together with a *diarrhœa*, or bloody stools, or pains at the left orifice of the stomach, or violent sweating which does not relieve the heat, or with cold sweat; or such as come on without manifest cause, with fainting and oppressions; or when the cold fit does not terminate in heat and sweat; or such as are attended with a profound sleep, as if the patient was touched with an apoplexy; or such as are changed into a bad continual fever. Such agues are mortal, and kill the patient within the third, fourth, or fifth paroxysm, if they be not immediately stopped by sufficient doses of the bark. Of that kind are also the agues in *Sweden* sometimes, but more especially in *Italy*, *Minorca*, *England*, and *Hanover*. We have commonly been of opinion, that those who die in the ague always go off in the cold fit; but it was found in *Minorca* that the greater number died during the heat. A similar observation is made by *Dr. F. Lind*, in his *Essay on the Diseases incident to Europeans in hot Climates*. I only mention this in order to shew that the ague is a dis-

ease not to be trifled with; but that it requires good nursing, and, in case malignant symptoms appear, a speedy relief. I shall therefore hasten to mention the remedies suitable to children.

A child affected by the ague ought to be put into a warm bed, which should be kept in a large apartment if possible, free from the draught of air; for, as we always perceive a sour smell to arise from a patient lying in the ague, it is plain, that this, being confined together with the patient in a small room, would be absorbed, and consequently protract the fever: therefore the room ought to be kept neat, and the floor bestrewed with fresh branches of spruce chopped. Also, when circumstances and the season permit, the door or a window may sometimes be kept open during the hours in which the patient is free from the fever; taking care, however, to do this prudently, that he be not exposed to a sudden gust of air. Indeed it would be better for the patients to live in the uppermost stories. But, if there be no opportunity for this, some sticks should be kept burning constantly in the stove, in order to clear the air of the room.

The sick ought not to drink any thing during the cold fit, for that will cause oppressions of the stomach, and increase the uneasiness. It will be more proper for him to drink freely during the intervals of the paroxysms, for instance some palatable ptisan of *radix graminis*, *taraxaci*, &c. and, according to the advice of Mr. Tissot, a little tea of elder-flowers with honey, a little before the paroxysm is expected. Irritations, or dispositions to vomit, are to be promoted by tepid water, which for that purpose should always be at hand. Any one of the following will serve as a proper drink during the hot fit, for instance, a little warm tea, with a few drops of Rhenish wine in it: whey, but diluted with water, for that makes it more refreshing, or quenching to the thirst: panada, made palatable by a little lemon-juice, sugar, and a very small portion of Rhenish wine: tea, with lemon marmalade: or equal portions of small-beer and water mixed with a little lemon-juice and sugar: barley-water, in which a little *gelatina cornu cervi* (hartshorn jelly) is dissolved: or one may take preserved red currants, Norlandic berries,

berries, strawberries, raspberries, cherries, or cranberries, pouring boiling water on them; and, when this begins to cool, we add a little Rhenish wine to the decantation of it; or we may dissolve jellies of them in water. Sick persons soon grow tired of one sort of drink, therefore it is necessary to have a variety for change. It is a disadvantage, in the cure of this disease, that we are obliged to order such four things, as nothing else would quench the thirst so well; for the agues, especially those of children, are attended with much acidity, and therefore plain water, or very weak chicken broth, would be better.

It is more proper not to drink any thing till the heat is arrived at its height. The head-ach, which at this time usually troubles the patient, will easily go off, if he can bear a thin cloth over his face; for the perspiration, being confined under that covering, serves to soften the pores of that part, and soon brings it into a sweat. Cold applications are dangerous on these occasions: the sweating must be sustained with patience: but the patient may drink as often as he pleases during that period, only a little at a time, and such as is not cold. There is no necessity for keeping the hands under cover: it is sufficient to lay a handkerchief over them: but if they were quite bare the sweating would go off too soon. The sweating having ceased of its own accord, clean linen ought to be put on, taking care that it be thoroughly dry, and warm, in order that it may attract the unclean moisture which still lodges in the pores. It is also necessary to smoke it with mastick, as a means to prevent too great a relaxation of the pores. We may take the child out of bed when the paroxysm is over, and carry it before a blazing fire, that the exhalations which still continue may be the better dissipated, and neither stop in the pores nor at the surface. The sheets ought likewise to be shifted, or at least dried by a flat iron, before the child is put to bed again.

The diet ought to be regulated in the following manner: No nourishment is to be taken during the paroxysm, nor soon after it; but it should be done about four or five hours antecedent to it, in order that the concoction may be over before the next paroxysm

comes on. In general the patient must avoid milk, fish, salt and smoked beef, raw greens, eggs which are boiled to hardness, and every thing that is fat. It were better if the sick would be contented with a little roast mutton or veal, broths, barley-gruels, mulled ale with eggs in it, and soups of beer and bread: for the stomach must not be overloaded, but only so much food taken as is required to keep up the strength. It will seldom succeed, to cure the ague by hunger. *Tulpius* gives instances of its being attended with bad effects.

The first paroxysm being over, we must resolve on what remedies the patient is to take during the free hours; as either a purge or an emetic will be required, both of which being weakening, we must give the proper remedy immediately, before the strength be exhausted by the fever. The emetic becomes necessary if the child has made hearty meals, especially of solid and hard food, and its tongue and *fauces* are sordid; if it complains of a bad taste and difficult breathing, it having been vertiginous during the paroxysm, and the under lip trembling; or if *nausea* or real reachings make their appearance. Therefore we excite a vomiting by *cort. r. ipecacuanhæ*, which is to be mixed and administered according to the prescriptions given, p. 197. in the chapter on the hooping-cough. But as for the time of administering this remedy, it is commonly given three hours before the paroxysm, so that it may take effect before the cold fit comes on. Nevertheless I am thoroughly convinced that it is of greater service to give it immediately after the paroxysm, especially the first or second; for, after several returns of them, the child will be weakened, and require more time to recover after each. The reason of the vomiting being more serviceable at that time is the following: In the same manner as we find the paroxysm closed by an external sweating, which carries off a part of the febrile matter; so likewise sweat, together with some febrile matter, comes from the internal parts, and is retained within the body, in the stomach, intestines, and liver; from which last place it is carried with the gall down into the bowels. Therefore watching the opportunity to expel it out
of

of the body before it has time to enter the lacteal vessels and mix with the blood again, a great deal is thereby gained. For this reason we find that many get rid of the ague by a single emetic. The remedy may be repeated after the next paroxysm, in case it be judged necessary. If the stomach is distended, rumblings of wind and the pain of the back are troublesome, then a purge or two will do service. I commonly make use of the following powder :

℞ *Rad. jalapii* gr. x.
 *Ari præparati*
Salis absinthii . . āā gr. iv.
Tartari vitriolati gr. ij.

M. f. pulvis D. S. A gentle purge for the ague.

To be taken on the fever-free day in weak chicken broth, so that it takes effect two hours before the next fit is expected.

We may repeat this medicine on the day free from the fever, in case the same signs should still continue. And I know many who, by this method only, have got rid of their ague.

Every second paroxysm is more severe in a double tertian ague, and, as the patient always finds himself most easy on the next forenoon after the severer paroxysm, therefore it is most proper to chuse that time for giving the purge.

When three paroxysms are already past, we ought to give of the following fever-draught to the child, to be taken a spoonful at a time every second or third hour on the intervals of the paroxysms: one drachm of salt of wormwood is to be dissolved in half a pint of water, adding to it gradually upwards of two ounces of lemon-juice, till no more fermentation ensues; then make it palatable with as much syrup of oranges as is required. For want of lemon-juice we may take good vinegar. The dose which is taken of this draught next before the paroxysm ought to be a little warmed. If this does not prevent the paroxysm from returning, we must examine, by the signs above-mentioned, whether there be still required an emetic or purge; in which case they are to be repeated, and after that the fever-drink is to be continued again till the ague be quite cured.

cured. We have reason to hope for good success in this: 1. If that paroxysm which falls on the fifth day be neither longer nor more difficult. 2. If the urine grows turbulent after the paroxysm, and precipitates a pale sandy sediment. And, 3. If each paroxysm after that is more gentle. 4. If the strength does not give way too much. 5. If the patient now gets some eruptions on the nose or the lips; for I have frequently observed, that, if this eruption comes earlier, the ague will prove obstinate, especially if the patient has it for the first time. In case these signs should not appear, but the ague continues, we ought likewise to continue with the fever-drink, and to effect that the child gets a heat and sweat by the time the cold fit and chilliness should come on. And so far it is necessary to take notice how many hours the paroxysm changes in coming sooner or later, or if it always returns exactly on a fixed hour of the day (which last signifies an obstinate ague). Otherwise we do not know on what hour the patient is to be brought into a sweat.

I have attained this point by several things. 1. By the patient's going into a warm bed an hour, or half an hour, before the paroxysm has been expected, and drinking warm tea, or warm ale, with bread and cummin seed in it; and at the same time a thick piece of woollen cloth or flannel has been dipped in a mixture of fresh butter and vinegar melted over the fire, then squeezed out, wrapped up in linen, and applied to the stomach as warm as the child could bear it.

2. For others I have ordered this piece of cloth to be sprinkled besides with a little *aqua reg. Hung.* or Hungary water, or instead of that with a little brandy.

3. Sometimes I take the half of a hot loaf of sour bread, wrap it in a piece of thin linen, sprinkling it with Hungary water, or instead of that with spirit of camphire, and then apply it to the stomach as warm as the child could bear it.

The sweating which followed I always supported, during the paroxysm, with warm tea, whey, or whatever drink the child relished most. When the next paroxysm was expected, I proceeded in the same manner, by which the ague generally gave way, if it was not of a bad kind.

Almost

Almost all the remedies which are employed by old women and quacks against the ague act according to this principle. It is very well known that the ancients applied a vesicatory to the neck, or on the inside of either of the hands, so that it should begin to raise a blister at the time the fit of the ague was expected. By this means sweating and heat ensued instead of the shivering. Now in the same manner old women apply the plant *ranunculus ficaria* (Linnei) on the wrist, which often cures the ague by effecting heat, instead of the cold fit, if it happens to raise the blister just at that time. Others spread an unguent of tar and garlick on the stomach, chiefly in the form of a horse-shoe, thereby raising pimples or blisters. Some persons take equal portions of foot, ginger, and salt, making it into a plaster with the yolk of an egg, and then apply it to the wrists; and renew the remedy every twelve hours, till the cure is performed. Others again make similar plasters, or applications of foot, *sal ammoniac*, cobwebs, pepper, *theriaca*, or turpentine oil. It is indifferent what materials we make it up of, provided there be something acrid in it which is capable of causing blisters, heat, and irritation, at the time the patient otherwise would get his cold fit. The following remedy was communicated to me by a friend, who asserted that it had cured old and young persons both of the quotidian and quartan agues in the space of twenty-four hours. Take as much tobacco as commonly is required for stopping a tobacco-pipe, mix with it nearly double the quantity of sour bread, making it into a coherent paste with some vinegar, a little before the ague-fit, and, when that comes on, tie a part of it over the pulse of the wrists. An itching and pain will hereby be caused, but the paste is not to be taken off or moved in the least within the first twenty-four hours, nor are the pustules to be opened which then appear. I tried this remedy on several patients during the summer in the year 1753: some were hereby cured, on others again it did not produce the least alteration. A man of veracity told me that the following plaster had cured the ague: Take two drachms of *theriaca*, one drachm
of

of turpentine ; *flores sulphuris*, allum, and pepper, of each twenty grains, *oleum distill. rutæ* ten drops, and camphire ten grains ; make it into a plaster, and apply it on the inside of the wrists. I have heard others give great encomiums to the milk of a larger quadruped immediately taken out of the animal, and applied on the stomach of the child as warm as it is. I have not tried this, but nevertheless I firmly believe the above-mentioned piece of flannel to be both more commodious and more useful. Others again make a little bag, in which they put a little *assa foetida* and camphire, and suspend it on their neck. I never found this to succeed, though I know a great many who tried it. Camphire externally applied causes a sweating in many subjects : consequently the foundation is the same. Old persons are frequently cured of the ague by taking garlick internally, according to the same principle.

Prosper Alpinus mentions that he has cured himself and several others by clysters made with a pint of *decoctum majoranæ* and three ounces of *oleum lauri*. Others have been used to anoint the *spina dorsæ* with calefacient oils. *Forrestus*, for instance, mentions himself to have cured a relapse of the quartan ague with a mixture of *oleum anethi* and *chamomillæ* applied in this manner. *Pr. Alpinus* also made a plaster of equal portions of wheat-flour and *thus mascul.* mixed with the juice of mint and spread on linen, and applied it warm on the *spina dorsæ*. Mr. *De Haen* (in his *R. Med.* XII. p. 262.) relates that a woman, who had been troubled with a quartan ague for five weeks, got rid of it by taking sulphur just when the paroxysm came, which threw her into a profuse sweat. The paroxysm did not return again, notwithstanding a purge was taken soon after. The same remedy has been for a long time customary among the poorer people in *Sweden*.

But we dare not rely on such remedies when the ague is of a bad kind. Double tertians, in which the severer paroxysms happen at certain fixed times, are generally of a bad kind. The third paroxysm of it will commonly shew if it will turn out severe ; for if any of the above-mentioned bad symptoms then
appear,

appear, they will return still more violently the next paroxysm. When matters stand thus, we must immediately have recourse to the bark: therefore I always give this blessed remedy when the paroxysm, which falls in on the fifth day, is longer and severer than any one of the former. Also if the child be weak, and falls into a profuse sweating as soon as it is asleep. The innocence of this remedy would plainly appear from the numerous salutary effects it has produced, and which I and my brethren the physicians could prove by many cases, if it were required. Only we ought to take care that the bark be not adulterated, and that we use a sufficient quantity of it, continuing till the febrile matter be quite eradicated; otherwise, any thing of that remaining in the body would bring on the ague again, in the same manner as the scab will return if the contagion has not been quite destroyed by a sufficient quantity of sulphur. Therefore we must not alledge the returning of the ague as the fault of the bark, but to the patient's not having taken a sufficient quantity of it. All the distempers which some people unjustly blame the bark for, were formerly more frequently subsequent upon an ague than at present, notwithstanding that the bark was unknown in those days. It was first introduced into *Europe* about the year 1649, but very sparingly given till 1679. It was first known in *Sweden* in 1690. The greatest difficulty is to make children take it. I have commonly used the following method*:

* Mr. *de Haen*, i. c. p. 261. mentions that a noble lady made the bark palatable for her child by boiling three ounces of it with two pints of water for an hour and a half: it being cool, she strained it several times through blotting-paper laid double. The coarser powder then partly fell to the bottom, and partly remained in the strainer. The decoction was thereby made weaker, but the taste of it a great deal milder. It is indisputable that the bark in powder is more efficacious; but the decoction agrees better with those who have a sensible stomach. In p. 190. of this work is mentioned how one may induce children to take bark in wafers.

Boil

Boil three drachms of fine pounded bark in a pint and a half of good water till three ounces of water only remain. This is to be pressed through a strainer; then pour two ounces of *aqua aurantiorum* on the remainder of the bark, and let it likewise be squeezed through the strainer, and be mixed with the former, adding also a half or a whole ounce of *syrupus hordeatus Paris.* according as the child loves it more or less sweet. Of this we give the child a tea-cupful at a time so often, that two such whole doses prescribed in the recipe may be consumed during the hours the fever intermits. Though no other paroxysm comes on, the child must nevertheless drink such a dose every day, a tea-cup at a time, till it has quite recovered its former health and fresh hue again. Then we leave off giving the remedy for seven days after the *tertian*, and thirteen days after the *quotidian* and *quartan* agues. These days being past, we give the child a dose again each day for seven days. This is called the first repetition. Then having made another interval as long as before mentioned, we make another repetition for seven days, continuing in the same manner till three or four intervals and repetitions are past; and in case the child has been afflicted with a quartan ague, then I always use the fifth repetition for greater security sake. If the child grows tired of this potion, we may give it the bark in the following manner:

Take of preserved orange and lemon peel one ounce and a half of each sort, pound them in a marble mortar, adding to it during the time, gradually, six ounces of cherry water and three ounces of orange water; press it all through a strainer, and adding to it three drachms of bark, two drachms of weak cinnamon water, and an ounce and a half of syrup of oranges; keep it in a phial, and give of it a spoonful at a time so often that all be taken before the next fit is over. We may also give the powder of bark in an emulsion of almonds, or in weak chocolate. A young nobleman who was accustomed to drink wine, was cured by the following, as he could not take the bark in any of the other forms.

R *Pulv. Chinchina*, ℥vj.
coqu. c. aquæ Fontanæ, ℔vj.

ad

*ad remanent. ℥ij. residuo affunde,
Vini Albi Gall opt. ℥ij℥.*

*Diger. p. horam, exprime et affunde de novo
Vini optimi, ℥j℥.*

*Digere p. horam, cola et exprime,
In colaturis mixtis solve super ignem,
Sacchari albi, ℥xv. et adde
Flaved cort. aurant. rec. e malis duobus
Ebulliant semel addendo,
Pulv. cochinilæ, ℥j℥.*

D. S. Bark wine, to be taken two spoonfuls at a time every hour or every two hours during the intermission.

The child will not be injured in the least by taking more bark than what is requisite for the cure, but it will suffer by taking too little. If the child cannot at all swallow any preparation of bark, it may be cured by clysters of that remedy. The body must first be unbound by an usual clyster, then we may inject a few ounces at a time of the decoction, so that it may be retained, and enter into the blood by the absorbent and lacteal vessels. See *V. Haller's Elem. Phys.* vii. p. 178. As soon as one is carried off, another must be injected again.

A purge will seldom be wanted after the cure is performed, for a good bark alone keeps the body open; nevertheless parents will commonly require it for their child; and in case its body be bound, we give it a little rhubarb with the bark.

If the child is affected with the ague before it is weaned, we cure it, 1st, by cleansing its stomach and bowels well by the elixir of rhubarb; 2d, by letting the nurse take the bark in the same manner as if she herself had the ague. She may take it in powder, rather wrapping it up in wafers, in order that she may not grow tired of it.

In the year 1750, I was affected with a kind of ague which physicians call the *Semitertian*. It was attended with one paroxysm the one day, and two the other. As I had a little before that been troubled with a difficult *mesenteric* fever, I had grown tired of taking the bark, and was besides so weak and enervated, that I
could

could not take any medicine at all. Therefore I ordered six ounces of bark to be boiled with water into a poultice. This was put between thin linen, and applied of a moderate heat to my stomach in the morning on the third day, warming it as often as it grew cold. The paroxysm did not return any more. I continued the use of this fomentation for seven days, and my former strength and health recovered tolerably fast. In the Medical Observations and Inquiries, Vol. ii. p. 255. published in London, 1763, I find that Doctor *Sam. Pye* has fallen on the same thoughts. He relates several cases of children having been happily cured by external applications of the powder of bark, both from agues and intermitten fevers. Doctor *Alexander* has likewise cured himself of the ague, by bathing in a decoction of bark. See his experimental essays. The great difficulty we have in prevailing on children to take the bark internally, shews that such inventions are of importance*.

* As for the *Oleum animale Dippeli*, I never tried it for children, but I have prescribed it frequently for full grown persons, likewise in the quartan ague. The body being prepared, the patient took thirty drops of it in a little warm ale and bread, half an hour before the paroxysm was expected; silence being kept about him, he fell asleep and into a profuse sweat, and thereby the cure was attained. But if during that time he was awaked by one means or other, the remedy would not succeed for that time; but better precautions must be taken at the next paroxysm. *Sal amoniac* has for a long time been recommended against agues, but it is not possible to make children take it on account of its taste. I have seldom been able to prevail on older persons to take it in a sufficient dose. A gentleman did however swallow two drachms in a day of it in warm barley-gruel, and was thereby cured of the quartan, but getting a relapse after a few weeks, he then chose rather to take the bark. The common people who do not mind the taste so much, will reap more advantage from this *sal amoniac*; but I fancy it must be repeated in the same manner as the bark, as I have found relapses otherwise to follow when it was used without repetition.

C H A P. XXII.

On W O R M S.

WHOSOEVER is affected by worms, ought to endeavour to get rid of them, the sooner the better, for they cause a great many disorders in the human frame, and keep increasing both in bulk and number, as long as they remain undisturbed; one is not secure a moment from being attacked by them; for every thing that may happen to cause them to move, creep, suck, or to bore as it were in the intestines, will immediately bring on sickness; for instance, eating something one is not accustomed to at home, or any thing sweet, &c. Children and young persons will be immediately affected in such cases; but old people, whose intestines are less sensible and irritable, as also robust persons, whose bowels are lined with a firm *mucus* in the inside, do not so easily feel the disturbance. Nevertheless worms are so far equally hurtful to all, that they always partake and consume a great deal of the food one has taken, and that their excrements and the exhalations of them mix with the food, whereby the nourishment of the body grows too scant or too bad, or produces continual hunger*. Therefore the more in number and larger the worms are, the more one will suffer in this respect. Besides, it is to be observed, that those who are afflicted with worms, will always be more endangered than others by inflammatory fevers, especially by the small-pox. For this reason we do not venture to inoculate a child that is known to be troubled by the worms.

* Doctor *Nitret* in his letter to Doctor *De Haen*, *Act. Med.* xii. 219. mentions a woman who was so hungry, that she was obliged to eat day and night. The reason was, that she had eighteen tape worms (*teniae*) which were afterwards expelled.

Worms are bred of their own particular seed or egg, as all other living animals; a fly is bred of a fly's egg, the egg of a hen produces a chicken and not a snake; of a goose's egg is bred an animal of the same species; worms also are propagated by worms and nothing else. Their eggs are conveyed into the human body by food and drink, especially by the water one drinks, and by which the vessels in the kitchen are washed. The common people in *Sweden* drink much water, sometimes not very clean, especially during the summer; they then likewise eat much raw ham. In all these the worms might have laid their eggs by thousands, which are swallowed and bred in the stomach and intestines. Nay, perhaps, small worms are sometimes swallowed with impure water, therefore the vulgar are so much troubled by them; so that among the sick people who are to be cured at the mineral water at *Satra*, by the charitable foundation of Bishop *Kalsenius*, three fourths are affected with diseases which arise from worms. Some fish, for instance, the bream, the eel, the rud (*cyprinus rutilus*) * are frequently infested with worms, especially the *tænia*, which probably is more commonly conveyed to people by eating those fishes; for it is more common in places where plenty of fish is to be gotten than elsewhere, so that more people are affected by the *tænia* at *Stockholm* than at *Upsal*, and still more in *Finland* and in *Russia*. Every other person in *Holland* is plagued by this worm, and every tenth person in *Switzerland*. It is true that the *tænia*, which lodges for instance in the bream, is flat and white, but perhaps mostly without articulation. Nevertheless it is found sometimes articulated, which may be seen in a *tænia* taken out of a bream from the lake of *Malaren*, and which animal I still preserve in spirits. But as the same species of *tænia* which lodges in man is likewise found in water, according to the assertion of *Archibater V. Linné*, Bishop *Menander*, and Doctor *Unzer*, there is no doubt but that it may also live in fish. That in fact it is found

* See more of this in the narrative of Doctor *Faxe* to *Colleg. Med.* 1765. p. 281, and the following.

in fish, does likewise appear from *Observ. Anat.* p. 84. One would think that the worms and their eggs would be destroyed, as the fish is always boiled before its being eaten; but seven persons besides myself once found the contrary; a dish of *bream* was brought on the table, and in one of these was a *tania*, which was still alive and plainly moved about. The fault is probably, that the fish seldom are well boiled in this country, but eaten frequently half boiled. The ingenious Dr. *Montin* has communicated to the Royal Academy of Sciences, year 1763, p. 113. his experiment of the great heat the worms can bear before they die.

Few people would be able to avoid the eggs of worms, as sometimes one thousand of them are swallowed with a glass of water. Hence the question arises why every individual is not troubled by these animals? Because eggs of worms are bred in the stomach and intestines, 1st, If there be a moderate warmth; 2d, If they get a resting place, for instance, being fastened in the *mucus*, which makes a coating in the inside of the intestines and bowels, or in the folds of the bowels, or in a place where they are not disturbed by the continual pulsation of adjacent blood vessels; 3d, If on account of a weaker *motus peristalticus*, they are not immediately expelled; 4th, If they do not happen to be dissolved, or their vegetative power destroyed by the steams which are perspired in the stomach and bowels, in the same manner as corn is enervated and cannot grow when it has been exposed to frequent rain. Such is generally the case with a weak person. But on the contrary, the *motus peristalticus* is greater in robust people, the arteries pulsate with a greater force, the perspiration is brisker and the heat greater, so that it is often equal with the 94th degree of the thermometer of *Fahrenheit*, in strong persons, but not so in weak; consequently supposing a weak and strong person to live on the same kind of food and drink, and therefore to swallow an equal quantity of worms eggs, it follows that these would easily be bred in the former, but must perish in the latter, unless by frequent drinking of unclean water, some eggs of the immense number swallowed, should at last fasten to the *mucus* coating of the intestines, or in their folds, which perhaps is the case

with the vulgar. For otherwise it is plain by what I above observed, that children are more commonly infested by worms than old persons, women more frequently than men, and persons of a sedentary life more so than those who have continual exercise; which is confirmed by experience.

Although there is no part in the human frame where insects or worms of some kind or other have not been found*, nevertheless the stomach and bowels are the places where worms principally take their abode.

There are chiefly five kinds of worms which infest mankind. The first sort resembles the cheeseworm, and is called *Ascaris* (*Linn. Syst. Nat. Edit. xii. T. i. p. 1076*); it is generally white, pointed at both ends, however something more blunt at one end, according to the remarks of Mr. *Phelsum*. These worms dwell in the *intestinum rectum*, likewise sometimes in the colon, are of an incredible swiftness in their motions, creeping frequently out and in again, whereby sometimes they cause an immense pain about the *meatus urinarius*, nay even the *fluor albus* in young girls; they are never found but in great numbers.

The second sort is called *Lumbricus intestinalis teres*, (*ibidem, p. 1076.*) These resemble the common red ground worms or rain worms intirely, except in the internal conformation, and that they are more white, and that they have not so plain a ring or *cingulum*, as the earth worm. Nevertheless that has also been observed by Mr. *Phelsum* (*Essay on Worms, Tab. v.*) and likewise Mr. *Van Den Bosch* (*Historia constit. Epid. verminosæ*) which I find quoted in the *Literary Gazette of Gottingen*. They are marked with about one hundred incisions. Baron *Munchausen* has counted about one hundred and forty such incisions on a common red earth-worm (*Lumbricus terrestris Linn.*) At each ring, the great one excepted, are four rows of double setiform productions (*setæ*), and consequently eight hundred such hairs or *setæ*, when the worm is marked with one hundred rings; these he can also move out-

* A great collection of these are enumerated by Mr. *Pallas* in his *Dissertation De Infestis viventibus intra viventia.*
wards,

wards, and contract at pleasure; their direction is from both ends towards the middle of the worm, but there they stand strait erected*; *Archiater V. Linne* has observed them on the intestinal round worm, (*lumbricus teres*.) These are the instruments for the worm to move about with, to keep himself fast, to prickle, gnaw and to wound the intestines, which may cause innumerable plagues. Great pain may likewise be effected by its mouth, which is found at that end where three small elevations are to be seen. The *lumbricus terrestris* contracts, or makes itself thick and short. The *lumbricus teres* or intestinal worm is destitute of that power. The former is soft whether it be dead or alive, the latter is hard and distended; its rings are however to be seen, although they are drawn out as it were. Such a worm is seldom to be met with alone or single in the human intestines, but commonly with several more; they are then generally small. If a single large worm is expelled, then we hope that there are very few or none of them left behind: a poor little girl, eight years of age, was affected by worms so hard, that she sometimes, after her convulsions, lay insensible for a quarter of an hour, nay half an hour together; within nine days I expelled something more than ninety *lumbrici* by the pills which afterwards are to be described.

The round worms which infest the human species, are either males or females, but earth worms (*lumbr. terrestr.*) are hermaphrodites. Notwithstanding the great external similarity between these two sorts, nevertheless the internal shape is very different, which one will find on comparing *Wilisii* Anatomy of *lumbricus terrestris* (see his book *De Anima Brutorum*, Chap. iii.) with that of the *lumbricus teres intestinorum* made by *Redi*, *Valisnerus*, *Tyson* and *Klein*. Several have observed that these worms sometimes pierce the inner coatings of the intestines, and take their abode between them. Such an instance may especially be read in *Storck*, *Ann. Med.* ii. p. 228. This species of worms not only lodges in the stomach and intestines, but is likewise

* For all these observations we are indebted to Professor *J. A. Murray*.

sometimes to be met with in the reins. See *Ruyfch. Obs. Anat. Chirurg.* No. 64, and *Pallas* l. c. p. 18, 19. Nay Mr. *Du Verny* found one in the head in the *sinus longitudinalis*, on a child five years of age, which, during its life time, complained of a severe pain at the root of the nose. See *Hist. de L'Acad. R.* year 1700. They are also to be met with in calves, fish, hogs, and several other animals. See *Pallas*, c. i. They likewise frequently lodge in the reins of dogs, and cause them great pains. *Pallas*, c. i. p. 19. *Redi*, *Bagliv*, *Andry*, *Le Clerc*, *Lawsoni*, *Torti*, and several other laudable men, have tried to find out what best would kill them, by pouring on them several things when they were expelled; but the experiments giving so different results, one can reap very little benefit from it. In cold water they die immediately, which I likewise find Mr. *Van Den Bosch* to have observed. They also avoid quicksilver; they are supposed not to be able to bear wine and brandy, but I saw a worm, which in the morning being expelled from a child, was still alive in the evening, notwithstanding it had been preserved all that time in a phial of *spiritus vini*. Mr. *Pallas* killed a dog with the poisonous *semina staphisagriae*, and after being opened, the seeds were found together with several living *lumbrici* and small tape worms; see c. i. p. 48. The third sort of worms is called *Tenia* (*Linnei Syst. Nat.* Edit. xii. T. i. p. 1323) or tape worm, on account of its resemblance to a binding. It is flat, long, articulated, and commonly white. It is likewise supposed to increase with new joints or articulations as a *fertularia*. Of this sort there is sometimes one single, sometimes more in one and the same person. The one end of it is broad, with long articulations; its other end is gradually tapered, with shorter and shorter articulations, so that at last they are scarce to be distinguished by the magnifying glass, which part perhaps is the neck, and at last is terminated with a narrow point, which by the greatest number of physicians is called the head of the worm. This smaller end it can lengthen or shorten; (see *Nitret* in *De Haen*, l. c.): the joints at the broader end are easily separated one from the other, and these pieces are termed *vermes cucurbitini*, or cucumber worms, which

which as each of them can live separately, have unjustly been looked on as a different sort of worms. When only a few yards of a tape worm are expelled, all the articulations seem to be of an equal length and breadth. But when sixteen or twenty yards appear at once, one can easily perceive that the middle is broader though the articulations there are shorter than that part which is called the broad end of the worm. Each articulation is provided with a kind of nipple or round sucking vessel (*osculum*): the first species of *tania* has one such sucker on the edge, and the other has two on the side. These vessels can be pointed outwards, and retracted, when the worm is still alive*; and the sucking which is felt by patients in the bowels, arises probably from them. Besides other services they may be of to the worm, it is curious to find how thick a joint grows on being put into tepid milk. It grows almost to an incredible length in the human intestines; I have myself not seen more expelled of it at once than 160 feet, but others have seen 600 feet. Doctor *Van Doevern* mentions, that a peasant, after having taken an *emetic*, vomited up 40 *Dutch* ells of tape worm, and would have got clear of more if he had not been afraid of puking out all his guts, and for that reason bit the worm off. Hence it is plain that it lodges in all the intestines, both *crassa* and *tenuia*, nay likewise in the stomach. These are frequently observed in dogs; but Doctor *Raulin* has found a tape worm 16 feet long in the third of the *intestina tenuia* of a dead body.

When a tape worm first comes out, it is always something longer and broader than a little afterwards; one can also observe a reptile motion in it when it is expelled alive, how it alternatively grows broader and more narrow, and that the edges of it are tumbled as it were like waves; and that is the tumbling or undulating motion patients complain of who are infested by this worm. One would sometimes think it quite dead after being expelled, though it is still alive. I have frequently tried this even after its having laid on a plate in the window for twenty-four hours; for when I put

* Confer Mr. *Kœnig* in *Actis Helvet.* Vol. i. p. 28.

it into a bowl, and poured on it some warm water, its creepings and motions were immediately to be observed, but on pouring a little cold water on it again, the motions ceased, and the worm appeared to be dead; and in this manner I repeatedly could make it torpid and revived again. After many repetitions of cold and warm water, a very thin skin, which the animal is wholly covered with, was at last separated. That it has feeling, I often observed by pricking it with the point of a pair of scissars, for when still alive, it immediately begun to move, and its articulations to grow shorter and broader. It being provided with smell, will besides other instances, appear from the experiment by Mr. *Kœnig*, l. c. One would think it an easy matter to draw out the whole worm when already a part of it appears, but I know it to be impossible: for tho' one eye so gently endeavours to perform this, the patient begins to feel as a number of balls were in the belly, and such an itching that it causes convulsions if one does not immediately give way to the worm, or cut him off; if one then ties a silk thread to the worm, it will be dragged up in the body two or three yards, but at last falls off and soon gets out.

By this we partly find why this worm is so difficult to expel, which difficulty is probably increased by the power it is provided with, in keeping itself fast by the sucking vessels above mentioned. Besides, the animal adheres with its small end in men as well as in dogs and fish, so that it cannot without great difficulty be loosened. This small end is probably the common mouth to the worm, for each articulation has its proper mouth, that is to say, the above mentioned suckers. Mr. *Wepfer* has observed a worm to adhere so closely to the intestines, as leeches do, when they are sucking blood. (*De cicuta aquatica*, ch. iii.) Confer *Herrenschward's* Letter to *V. Swieten*, in his Comment. iv. p. 739.

Doctor *Tyson* (*Philos. Transact. Abr.* T. iii.) saw a living tape worm in an opened dog: the broader end of the worm lay loose in the *intestinum rectum*, but the smaller end was so adherent to the first of the *intestina tenuia*, that it was with difficulty he with his nail could scratch him loose. It fastened itself to the intestine again as before, and must be separated in the
same

same manner. Hence we find that one cannot be sure of having got rid of the tape worm, if every part of the small end has not also been expelled. For if something should remain, it would soon increase again; nay if one single joint only should remain, it might grow to a long worm. There is a probability of its growing sometimes so long that it has not room in the intestines, but a part of it must go out. Sometimes a part of it pines away or dies, which may then easily be carried off by the excrements or medicines. It is certain, that the articulation itself, or a joint of it, is sometimes so corroded, that growing more and more slender, it at last goes off: I have observed this to happen in two different ways, for the corruption has either begun at both the edges, and in a form of two half moons advanced to the middle till their meeting there, or it has begun in the middle and advanced to both edges, leaving there only one or the other fibre. This may therefore be the cause of pieces of tape worm being frequently carried off without the assistance of remedies. It is now also a matter out of dispute, that this sort of worm is to be met with in other places besides the human intestines. We heard before that it has been found in water and fish, which is confirmed by men of veracity, (see the Royal Swed. Acad. of Sciences, year 1747, p. 113.) It has also been obvious in the intestines of dogs, cats, lambs, hens, geese, pigeons; nay, Assessor *Darelius* has found it in the bowels of a quite new-born and opened whelp. This makes me apt to believe that one might be born with the tape worm, as I myself know two daughters, their mother and grandmother, to have been affected with the tape worm. This becomes more probable by the experiments *Van Dæveren* has collected in his Dissertation *De vermibus Intest. Hominis*, p. 31. and by what Mr. *De Lille* relates of his daughter, eleven weeks old, from whom worms were expelled, though she had not yet fed on any other thing but her mother's milk. The late Professor *Brendel* in *Gottingen*, preserved in spirits a number of small *lumbrici*, which were found in the *intestina tenuia* of a foetus prematurely brought to the world. See *Pallas*, ch. i. p. 59.

The

The fourth species is called by *Archiater V. Linne*, *Ascaris Lumbricoides*, (*Syst. Nat.* Edit. xii. p. 1076.) It is in all circumstances resembling the *Ascaris vermicularis*, by being pointed at both ends, but it is about a quarter of a yard long. This has commonly been confounded with the *lumbricus teres*, or intestinal round worm.

The fifth sort is the *Fasciola intestinalis Linnei*, *Syst. Nat.* Edit. xii. p. 1078. Doctor *Montin* has expelled it from a lady, and well described it in the Swed. Royal Acad. of Sciences for the year 1763, p. 113. It is thick, with a longitudinal *fulcus* or notch on each side. These notches consist merely of a number of impressed shrivelled dots. The larger end of this *fasciola* is obtusely angulated, but at the other, it is gradually attenuated to the extremity of the point, with which it is so excessively adherent in fishes, that it is commonly torn off when it is to be taken out with the guts, unless the fish be put in very cold water. Its edges have fine rings, which are felt very sharp when you rub it all along, especially on those pieces which are rigid. This is probably the cause of the cuttings, which the patient complains of at each stool when the worm is going off. Doctor *Montin* made experiments with this sort of worms taken from fishes: when he put them on strong blazing charcoal, they extinguished the fire two or three times by their slime before dying; and were often found to endure strong flames for two minutes. Besides, the Doctor speaks of a gentlewoman in *Holland*, who, on eating a bream's tongue, luckily felt something strange in the mouth, and spitting it out, it was found to be a living *fasciola*.

Here may likewise be added the sixth sort, which by our industrious observer, Mr. *Anton. Rolandson Martin*, is called *Gordius*, the knot or thread worm; the body of it is cylindric, pointed at both ends, but one of them is more acute, and the worm stretches it out till it is quite fine and subulated when one pours any thing warm over the animal itself. This worm is of a white colour, except the last mentioned point, which is paler than the other parts. The exterior skin is nearly of the same colour, but the interior parts or the *intestinum* is still paler; therefore it appears in spirit of wine as
linen

linen threads cut short. It makes various contortions, and the smaller end of it seems to be the principal instrument in moving the body along, and there is probably its mouth. It enters the air-bladder of the fish, in order to grow there and propagate. The biggest are an inch long, and the older are more tough and enduring than the younger. They pierce the air-bladder, which nevertheless remains equally distended as before: afterwards they go through the guts, liver, and the gills.

Mr. *Martin* has found these animals in (*gadus virens* Linn.) a species of cod-fish, (*salmo fario*) in trout, herrings, and in (*salmo cperlanus*) smelts. The appearance of small rolls of thread, which one meets with in the mesentery or the white-roe of herrings, is no other thing than these *gordii*. Its food is probably the *chylus*. For the above reason the inhabitants of *Helsingfors* in *Finland* always open the back of the smelts, and take out the air-bladder before they venture to eat that fish.

Mr. *Martin* himself is troubled by this guest, and has communicated the following signs of it: That the nostrils itch, especially towards night; that the spittle ascends to the mouth; that vomiting sometimes comes on inadvertently, night sweating, uneasy sleep, spasms in the liver and about the milt, by which winds ascend, attended with pain about the *præcordia*, redness on the cheeks, sometimes more so on the left one than the other: the patient grows anxious, indisposed to all kind of work, timid, peevish, and sometimes in a passion without reason; the body is heavy and fatigued, so that one has not strength to lift moderate burdens; the stomach is puffed up and distended; both before and after having had stools, one feels pain under the short ribs, and vomits slime, especially after the stools. However Mr. *Martin* looks upon the itching of the nostrils and the slimy vomitings as the surest signs of being affected with this kind of worms. A more minute account of this is given by this gentleman in the transactions of the Roy. Acad. of Sciences for the year 1771.

All these five sorts, I fancy, will seldom be found in one person. But I know a poor man's child of
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four year's old, who was very lean and weak : on receiving a little dram of barley-brandy from the mother as a cordial, it immediately after voided an innumerable quantity of *ascarides*, eight feet of a slender tapeworm, and ten worms of the second and fourth sort. These guests being expelled, the child recovered strength and a jolly appearance.

Worms are more obvious in persons on certain years than otherwise : and when any epidemical diseases appear, one will be quite amazed at the vast numbers of them which the sick void upwards and downwards. This was the case with a great number of horsemen and soldiers who returned home sick from the campaign in *Finland* in the year 1743. It is not easy to determine whether it arose from their drinking unclean water, or if a previous mild air had promoted a more copious brooding of the eggs, or whether there was any other cause then favourable to the propagation of the worms. A minuter inquiry and observation ought to be made on such occasions. But so far we know, that in curing such an epidemy, it is necessary to endeavour to deliver the patient from such new guests, who alone are sufficient to stir up a fever, or to increase that which one is already affected with, or to make it irregular, cause gripes, a distended stomach, delirium, convulsions, &c.* Mr. *Van Doevern* had under his care, in the autumn of the year 1752, a robust soldier who had the ague. During one of the paroxysms the patient got a hideous trembling, especially in the arms, likewise a particular laughing, quick but low, trembling, and sometimes intermitting pulse. *Van Doevern* therefore administered an emetic, by which a large round worm, together with much slime, was voided, and after that the symptoms ceased, and the ague itself soon after. Confer Dr. *Faxe* in the Narrative to *Coll. Med.* 1765, p. 184.

The pains which are caused by worms arise, 1. from the large size and great number ; for the larger and more numerous they are, the greater share of our nou-

* See *Hist. Const. Epid. Verminosæ*, by *Van den Bosch*, 1769, 8vo.

rishment they partake of. Hence arises the great appetite in those who have worms, especially if it be the tape-worm, the patient being sometimes so hard-taken that he faints away if he does not immediately get a piece of bread. This is also a reason that he will be always indisposed in the mornings if he is only used to make one meal in a day, as dinner for instance; but he will make it out tolerably well, if he use breakfast and supper besides. [See the Transact. of the Swed. Roy. Acad. of Sciences, year 1747, p. 119.] Therefore a woman big with child, who has the tape-worm, must eat more than another, in order to avoid being troubled by it.

2. It arises from their lying together in a heap, surrounded with much slime, which we commonly call a worm's nest: hence it happens that the bowels are either dilated or shut up, by which, the wind being confined, are occasioned the colic, vomiting, and the dreadful disease called *miserere*.

3. From the exhalations from the worms and their excrements, all which, being heterogeneous and easily putrescent, may cause a diarrhœa, dysentery, or severe fevers, if together with the chylus they be absorbed into the blood. The same disorders will happen if those animals die in the body, and are not immediately expelled.

4. Great pains must also be caused by worms when they pierce the intestines and fall into the cavity of the belly. How this is effected is not exactly known; but that it is a matter of fact is very well attested by many physicians of veracity. [See the Anatomical Dissertations of *Von Haller*, Vol. VI. p. 718. and the Transact. of the Roy. Swed. Acad. of Sciences, year 1747, p. 104.] Such is supposed to have been the case with *Herodes Agrippa*. See the Acts of the Apostles, c. xii.

5. But worms are chiefly troublesome by their motions, creepings, and sucking. They move of their own accord when they are hungry, or when they are irritated by food or medicines which they cannot bear, and then seek for a retreat, or fasten themselves close to the bowels. In general, worms cannot bear salt food, as salt salmon, sour wines, dishes seasoned with onions and leeks, nor anise, liquorice, sugar, and mead.

mead. Milk is relished by them; but, though it sometimes pacifies the pains, it sometimes increases them; which latter probably arises from the greediness of the worms, creeping from the more distant parts of the intestines in order to reach the milk in the stomach. As both the stomach and intestines are tender and irritable, therefore the motions and suckings of the worms may cause spasms, nausea, bitter taste, white tongue, a pressure under the breast, anxiety, vomiting, rumbling in the intestines, belly distended, tender stomach, gripes, and sometimes looseness, sometimes costiveness, sucking in the stomach, &c.

Now, as the stomach and bowels communicate with all the other parts of the human frame, therefore the irritation of the worms is sufficient to bring the whole body in disorder. When spasms are more universally spread, we get shiverings; when the reins are contracted, it causes the urine to cease entirely, or at least to grow pale; if constrictions happen in the throat, one is disabled from swallowing. From hence also arise all the other pains which physicians frequently have observed in those who are affected by worms: for instance, a small and sometimes intermittent pulsation, beatings or palpitations of the heart; faintings, vertigo, difficulty of speaking distinctly, (see the *Trans. of the Sw. Roy. Acad. of Sciences*, year 1747. p. III.) loss of speech, blindness, sounding in the ears, fearfulness, loss of good humour, stupidity, delirium, spasms during the sleep, troublesome dreams, uneasy agitations of body and mind, anxiety and hideous thoughts, *singultus*, convulsions, epilepsy, and apoplexy. We have instances of those who all at once have grown raving mad, but quiet as lambs again as soon as the worms were expelled. We have found that the interruption of the regular evacuations particular to the other sex has been frequently owing to these animals. The milk of nurses will often dry up too soon, if they be affected by worms; their teats then burst, as it often happens to the lips, and will be surrounded by a pale ring. Dr. *Spigelius* relates of a noble lady who was not married, but got nausea and longings as a pregnant woman: her belly swelled, and the menstrua quite ceased. She was examined as a woman big with child,
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and was judged to be so: therefore no remedies being given, the patient pined away and died, by the ignorance of others and want of nursing. She was opened and found innocent; there being no fœtus in the womb: but there was found a quantity of slime and water in her bowels, as also a worm as long as the intestines themselves. For this reason those physicians are very much in the right who say, that there is not any disease so severe and uncommon but what may be occasioned by worms. Therefore if any uncommon and unaccountable distemper arise on a sudden, they justly inquire if there be any signs of worms in the patient. These I am now going to enumerate in general, and afterwards endeavour to point out, by which one may find out the particular species of worms the patient is infested with.

Signs of worms in general are: a frequent changing of complexion in the face, alternately from pale to red; blue ring under the eyes; tickling or itching in the nose; frequent pains in the head, which come on immediately after one has begun to eat; the mouth found full of water when one awakes in the morning, and saliva spilt on the pillow during the night; inquietude and spasms during sleep; the patient generally rests on his belly, grinds his teeth, and behaves in his sleep as if he was swallowing something; sits upright during the sleep, speaking and calling out, but lays down again and sleeps quietly; thirst in a morning; frequently subject to faintings; frequently vertiginous; soundings in the ears; he has sometimes a nausea and disgust for food, but at other times, and mostly, a great appetite; stinking breath; rotten and corroded gums: besides there ensue vomitings, oppressions under the heart, gripes and pinchings chiefly about the navel; sudden swellings and tenderness of the belly, and rumblings in it; one feels a sucking internally, and a sort of trembling motion; sometimes great looseness, sometimes costiveness; stinking excrements; one eats hearty commonly, as was before observed, but nevertheless the body remains lean; finds one's-self worse in the mornings, especially if neither supper nor breakfast has been eaten: such patients are always more indisposed during the beginning
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and end of the wane of the moon; they feel an itching in the anus, sometimes to such a degree that they faint; or have frequently vain efforts to stool: they are sullen, anxious, and unapt to their customary offices: sometimes peevish contrary to custom, they do not know what they will; they have a difficulty of speaking plain, and sometimes are not able to utter a word: some grow raving mad, *maniaci*; some fools; (see Eph. N. C. Dec. III. A. III. Obs. 135); others get convulsions without any apparent cause, and without knowing any thing about it: the mouth is foaming when these convulsive motions are violent, otherwise not. Others grow stiff in their whole body, lying in fainting fits, awake with some violent spasm, then grow delirious, afterwards falling asleep, again awaking within a short time with quite sound understanding, and feel no other indisposition but some weakness. Some of them drink often; some have a dry coughing, nearly resembling a chincough (Commerc. Lit. Norimb. Anno 1732. p. 46.). They lie under great difficulty in recovering their strength, after having been sick; *palpitatio cordis* often affects them. Dr. Alex. Monro says, that a greater dilatation of the pupil is one of the surest signs: (see the Comment of Baron V. Swieten, IV. p. 721.) Also it is a pretty certain sign, if one on a sudden grows sick, and is instantly relieved by drinking a glass of very cold water. The reason is obvious by what has been said of the effect of cold water on *lumbrici*, *tæniæ*, and *fasciolæ*. But the surest sign of all is worms, or parts of them, having been voided.

Nobody can expect to meet with all these signs in one single person; it is sufficient if many of them appear: consequently I was in the right to suppose a girl, ten years old, to have worms, because she eat heartily, but grew lean, was pale, and had a blue ring under the eyes, and was confined to her bed with pains in her knees and legs at the beginning of several wanes of the moon. The anthelmintic powder mentioned in the sequel of this chapter cured her. I knew likewise another child to grow lean, and often to fall sick without any apparent cause. But when it awaked in the morning it was always found to have lain on the belly.

belly. Purgings pills, with calomel, being given, discovered it to have a thin and slender tape-worm. *Van Doeveren* makes mention of an otherwise healthy child, twelve years old, who on a sudden got fainting fits, spasms, convulsions, and a faint epilepsy; and after that a quotidian ague. He gave it to drink water in which quicksilver had been boiled. Two large round worms (*lumbrici*) were voided, and thereby all the violent pains ceased. Our learned *Lindestolpe* was consulted concerning a young miss, ten years old, who complained of a lancinating pain, mostly on the left side: she had a dry cough, some heat, strong pulse, great thirst and dryness in the mouth, and sometimes a pinching in the stomach; sometimes she lost her speech, and had spasms. *Lindestolpe* looked upon all these as an effect of worms, and ordered some anthelmintic powders. Having taken two of them, she got affected with such violent spasms two days after, about noon, that her feet were nearly contracted up to the back. The paroxysm being over, she felt no more pain, but slept till night. Her mother, then putting the bed to rights, found there a worm a foot long, twisting and tumbling itself like a snake. It had crept out quite dry, and probably during the violent fit. She got rid of several skins and empty pieces of worms after that, and was quite recovered: (see his book on worms, p. 20.) When any one begins to feel uneasiness and rumblings in the intestines, chiefly as if he was distended by wind on one side, and gets oppressions under the breast, with anxiety and peevishness; and on taking a large dose of wormwood extract, finds that the oppressions disappear always with a rolling motion in the side; then one may be certain of being affected with worms. Mr. *Delius*, in his *Amœn.* p. 349, makes mention of a youth who got affected with pains in the right thighs and loins, so that the right foot was turned inwards, and he limped. The parents thought that the joint was dislocated: but the doctor took notice of the young man's having a hard stomach, and often pains in it; his mouth being sometimes filled with water; the nose itching, and his urine resembling whey. Hence worms were judged to cause the lameness, as well as the other complaints, and the

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patient was actually cured of all by expelling the worms.

But in order to know and distinguish what particular kind of worms a patient is affected with, we must observe the following signs: The tape-worm causes a sucking in the intestines, and the patient feels as if something living was there, which has a tumbling or rolling motion. He is affected by a heaviness on one side, as if there lay a roll, or large ball. With the excrements sometimes small pieces are voided, which, when they are parts of the species with sucking vessels on the edges, resemble cucumber or gourd seeds; or, according to *Archiat. V. Linne*, they have the appearance of the *semina cardui*. But he says that the joints of the other sort, with the suckers on the sides, resemble barley-corns: (see *Amœnit. Acad. de Tœnia*). Such pieces or joints above-mentioned are chiefly voided after having taken a purge, or eaten much of carrots, or drank birch-juice, or after sucking much of the interior and younger bark of pines in the spring.

Particular signs for discovering the round worms are pinchings and gripes, chiefly about the navel; and sometimes a skipping (*motus saliens*) in the body. But signs of the *ascarides* are, itching in the *anus*, frequent vain endeavours to stool, and a fullen and pettish humour. It is besides necessary to observe, that those who have worms of either kind are not constantly affected by them, but only at times; so that one is constantly troubled by these guests at the end of the wane and in the very beginning of the increasing moon*.

If for the present there be no opportunity of attacking the worms, but one only chuses to palliate the pains caused by them, the following methods will do to carry such a point: 1. The patient may drink one or two

* I do not ascribe this to the influence of the moon (see *V. Halleri Elem. Physiol* VII. p. 11. and 152.); but I only know by experience that it happens at that time, and I have frequently thereby been able to tell the date, when an almanack has not been at hand. Worms have perhaps certain times to move on, as the *ascarides*, for instance, are troublesome only in the evenings.

pints of milk while it still retains its natural warmth as it comes from the cow; for boiled milk will not so easily stop the pains: Or, 2. One may prescribe an emetic, such a one as is mentioned in the chapter on the whooping-cough. I have thereby relieved many children from violent pains during the paroxysms. The following case only will be sufficient: In the year 1752, a girl, four years old, voided a round worm in the morning. For one-and-twenty days running, after that, she began to shriek excessively from seven o'clock every evening till eleven at night, complaining of pain in the belly only. The physicians who were present employed the best remedies known against worms with all due care, but without effect. Being consulted, I advised the mentioned emetic powders to be given just when the shrieking began. She has afterwards taken several anthelmintics, chiefly when she was successfully prepared and inoculated for the small-pox in 1758, but neither worms nor signs of them have appeared since. To full-grown persons I have prescribed thirty or forty drops of *tinct. antihyst. Durietti* to be taken in a little wine or brandy during the fit, when round worms were supposed to cause anxiety, faintings, and small convulsions. But when I had reason to suspect the tape-worm as the cause of weariness of the mind, anxiety, pressure under the breast, and a distention of wind; I always ordered one or two spoonfuls of wormwood extract to be taken in wine, which was attended with that good effect, that the pressure and distention quickly disappeared, with a rolling motion in one of the sides*.

But such remedies procure only a relief for the present; they do not remove the cause, unless a vomit, by the internal motions it causes, should shake the adhering worms from their abode and expel them. That this frequently happens, we find by the cases Mr. *Brouzet* relates in his book *De l'Education Medicinale des Enfans*, II. p. 60. and by Mr. *Vogel's* Dis-

* Perhaps a table-cloth dipped in cold water, and applied on the stomach, would have the desired effect, to make the worm torpid or quiet.

fertation *de Ufu Emeticorum ad expellendos Vermes*. Gott. 1765. Therefore we ought likewise to know how to kill and to expel worms out of the body.

The *ascarides* are often expelled by eating raw carrots, or drinking birch-juice, or by sucking the juice of the young bark of fir, till one gets a looseness: also by tying a string to a piece of fresh pork, introducing it into the *intestinum rectum*, and pulling it out again after a little time; for a number of these worms will then always follow. This must be done repeatedly, changing the pork at each time, in order to evacuate them all. One may likewise eradicate them with clysters of tepid milk and a little salt, or with our common mineral waters and salt *; likewise with

* Dr. M. G. Heberden, in the Medical Transactions of London, Vol. I. mentions a patient whose pains were stopped by injecting a little warm milk. *Tenesmi* and slimy stools ceased when milk and oil were injected. After having taken half a dram of rhubarb, mixed with as much cinabar, he always voided a quantity of slime, resembling the white of an egg, and with that followed a great quantity of these worms, and much more than when the rhubarb was taken alone. The *ascarides* are sometimes very difficult to eradicate. Dr. Heberden relates, in the fourth Memoir for February, 1757, that a patient got affected with a violent pain in the stomach, attended with nausea, obstruction, restlessness for the most part, and nearly an intire loss of appetite. He grew very thin, and had scarce strength to walk or stand on his legs; his stomach was hard, and contracted to the back; the urine was always milk-coloured, and the sediment of it white; his excrements were hard, resembling sheeps-dung, and could not be voided without assistance. After having tried many remedies to no purpose, he, by the advice of some person, dissolved two pounds of common salt in half a gallon of spring-water, and swallowed all within an hour. He was immediately taken ill, got a pressure over the stomach, violent vomiting, and by the fourth reaching brought up a quantity of worms; some of which were *ascarides*, but some resembled those which are found in horse-guts, of the size of a wheat-corn: then, after having been costive for a fortnight, he got six or seven copious stools, voiding stinking and bloody excrements, together with a quantity of similar worms.

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with a clyster of a drachm of fine sugar and an equal portion of rats-dung, well rubbed together, and mixed with tepid milk (not boiled), to be injected five or six nights running.

The following clysters will likewise prove a good remedy: Take one pint of water and an ounce of quicksilver, boil it gently in a covered earthen pot, and add a little honey to it. This, being injected repeatedly, will certainly deliver the patient from these guests.

But the most efficacious remedy is a clyster of tobacco-smoke. See Medical Observations, Vol. II. p. 307.

Lumbrici teretes, or intestinal round worms, are not so easily expelled as the former. The remedies against them ought to be given, 1. At the beginning and at the end of the wane of the moon. 2. To be swallowed at the hour one is used to breakfast; for, as the worms are accustomed to feed at that time, one may the more easily cause them to suck or feed on that which is given to kill them. 3. The remedies should be given in tepid milk, or weak mead, or in quicksilver water; and, a little before a stool is expected, one should inject a clyster of a half-pint, or a pint, of warm milk, with an intention to allure them to descend lower down in the intestinal tube. 4. Some people think that the worms would hide themselves, or shun the medicine, if the patient has prepared it himself, or smelled at it; therefore that should be avoided. 5. If one intends to attack the worms by internal remedies, one ought not then to apply external anthelmintics; for the worms would likewise in that case take some safe retreat,

He soon recovered, and the third day after took another such dose of salt with almost the same effect, voiding worms, but dead ones. After which he enjoyed a good state of health. However, for greater security, he took half a pound of salt in a pint of water two or three days before each new moon. If he had taken smaller doses he would have avoided much pain, and by degrees have gained the same point.

But if the patient, a little after having swallowed the anthelmintic, should get affected with severe pains and spasms in a fixed place in the lower part of the *abdomen*, it signifies that the worms have retired to that part, and are going to pierce the intestines. Then they ought immediately to be driven from that place by applying *petroleum* externally, opposite to the pain *; or one may have a cake ready prepared of wormwood-buds, garlick, rye-flour, and fresh ox-gall; put it into thin linen and apply it moderately warm as the former. 6. When one intends to administer remedies against worms, the patient ought, for some days before, to abstain from feeding on any kind of dishes of milk; but should feed on hard, coarse, and salt food, leek-porridge, horse-radish, purslane, high-seasoned food, and the night before on a piece of salt herring, without drinking after it. The former serves to weaken the worms, and causes them to descend into the lower intestines, so that they are more easily expelled; the other allures them to suck more eagerly of the anthelmintic medicine.

The powder I have commonly made use of against this sort of worms is as follows:

℞ <i>Sal martis Lond.</i>	gr. iv.
<i>Sem. santonici</i>	gr. x.
<i>Rad. jalappæ c. saccharo opt. pulveris.</i>	
<i>Mellis puriss.</i>	ana gr. xx.
<i>M. f. pulvis subtiliss. Dr.</i>	

This is the dose for a full-grown person, and is to be taken at breakfast-time, as was observed. If the patient does not mind how it tastes, I add to each powder a drop of oil distilled of tansy. If his body is not easily unbound, we increase the dose with five to ten grains of jalap. But we diminish the dose of that root, in case the patient is easily moved. It is always necessary to rub the jalap very well with sugar, previous to its being taken alone, or mixt with other

* The author of the *Landarzt* (the country physician) mixes *petroleum* with oil of turpentine.

remedies, in order to prevent gripes. The dose, for a child, of the above-mentioned anthelmintic powder, is a tea-spoonful the first day; and, if that does not procure sufficient stools, the dose is to be increased, the next day, with a half or a whole additional tea-spoonful, according to the circumstances of the child. When the powder begins to operate, the patient is to drink a glass of cold water after each stool. It is to be taken three days running, at the beginning and the end of each wane of the moon, and consequently one may fetch six powders at once from the shop. One may besides drink a pint, or more, of the following quicksilver water, on these days, in order to make the surer of expelling the worms.

Take <i>radix graminis</i>	ʒij.
<i>The yellow of orange-peel</i>	gr. xxx.
<i>Winter's bark</i>	gr. vi.
<i>Fresh water, a gallon.</i>	

Boil it till a fourth part be evaporated. Let it be strained, and stand, together with two ounces of quicksilver, in a covered earthen pot, on a moderate warm place over night. Decant off the water in the morning, and add to it a little clarified boney, suitable to the taste of the patient.

I now hear that hyssop has acquired a great repute against worms. A woman drank of it as a tea against her cough, and gave her child also some dishes of it each morning. The effect was, that a great many worms were expelled.

When the patient cannot swallow powders, I am used to prescribe the following pills:

℞ <i>Extract. tanacet.</i>	
<i>Sem. cinnæ pulverisat. ana</i>	gr. vj.
<i>Sal martis</i>	gr. iv.
<i>Resin. rad. jalappæ opt. c.</i>	
<i>amygd. trit.</i>	gr. vj.
<i>Olei tanacet. distil.</i>	gutt. j.
<i>M. f. pill. pond. gr. ij. fol. argent. obduc.</i>	

These eleven pills are the dose for a full-grown person. A child may take three, four, or five, according to its

its strength. Those who can take both pills and powders do best to take pills in the evening and powders in the morning; but in that case there should be no jalap in the pills; so that they will be only eight in number.

If we can neither prevail on children to take the powder or pills, we let them frequently take *confectio semin. santonici*, or we bestrew bread, or bread and butter, with honey and these kinds of seed, and order them to drink quicksilver-water, sometimes giving of the rhubarb elixir two mornings running. If we cannot at all prevail on them to take any thing, we may try on their stomach the cake I have already mentioned, and procure stools by milk clysters*.

When the pains return, at the next change of the moon, perhaps the child may be persuaded to take something else; therefore we take, for instance, three or four grains of *vitriolum martis*, and dissolve it in two spoonfuls of water, adding some honey. The child is to take it each morning on an empty stomach, and after that we give, on the two last mornings of the decreasing moon, either the elixir of rhubarb, or *elixir proprietatis Boerhaavii cum aceto*, in some mead or honey-water. This last remedy colours the excrements black, on account of the iron; but no one need to have any apprehensions or fear on that score. Or we may make small pills of *assa foetida*, *vitriolum martis*, and a little honey, gilding them, and giving two or three at a time once or twice in a day. The patient must now also purge the last day of the wane of the moon by the above-mentioned drops. By these remedies the guts are constantly filled with the bad smell and taste,

* Two sorts of seed, under the name of anthelmintic seed, are sold in our shops: the one sort is *semina zedoaria*, the other *sem. santonici*. This is very minute, and intermixed with so many stalks and pieces of leaves, that the dose of the seed itself becomes but very little. Therefore the *Archiaters V. Linne* thinks that one ought to substitute the seeds of *abrotanum campestre*. I hope our apothecaries will readily follow this good and reasonable advice.

which

which makes the abode of the worms insupportable to them, so that they must fly. The pills may be taken in stewed apples, or similar things: Confer *V. Swieten's* Comment. IV. p. 733. If one rather will purge by powders than by the drops, we prescribe twelve, fifteen, or twenty grains of the powder of jalap, rubbing it, as above directed, with an equal portion of sugar, and add to it a drop of *oleum cinnamomi*, dividing it into two equal parts. This gives a quick and copious opening.

Mr. *Bisset* recommends very much against worms, chiefly of this sort, the leaves of *helleborus foetidus* Linn. or *helleboraster max.* Ger. giving fifteen grains of dry leaves in powder to a full-grown person; or he prepares of their juice, together with sugar, a syrup, of which he gives about a drachm, more or less. See his Essay on Medical Constit. p. 235.

Dr. *Brown* has already, in the year 1757, in his Natural History of *Jamaica*, held the *spigelia anthelmia* Linn. to be an incomparable remedy against worms, even when they have caused a fever and convulsions. Two handfuls of the herb are boiled with two pints of water till one pint be evaporated: this being strained, the drink is made palatable with a little lemon-juice and sugar. Of this he gives the patient two, three, or four ounces every sixth or twelfth hour during three days. After that a purge is administered, which he assures us will certainly expel the worms. Mr. *Brown* informs us that his potion causes the patient to sleep as opium does; but that the patient awaking is quite refreshed, and his eyes sparkling. A physician in *Russia* has likewise found very good effects of this remedy. I have also heard Professor *Bergius* recommend it. The king's physician *Dalberg* praises it a great deal in a letter to me, mentioning a lady who was very much affected by worms and anxiety. By means of the *spigelia* and purges she was freed from thirteen *lumbrici* this last summer. He prescribes this herb in powder to twenty grains two or three times in a day, and as tea from one to two or three drachms during the same time. In this manner he lets the patient continue for a fortnight, giving
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him a laxative, together with the *spigelia*, every third or fourth day. He assures us that in this dose the remedy neither caused sleep nor any trouble whatsoever.

I have often prescribed a tincture of one ounce of *semen santon.* bruised, and one pint of *spiritus vini rectificati.* After having stood together for a few days, it is to be strained, and the most *spirituosum* to be evaporated. In this I dissolved a little pure *sal martis*, and with good effect gave a tea-spoonful of it at a time to children in the morning during the wane of the moon, and the two last days a purge was given prepared of jalap, as above-mentioned.

Professor *F. G. Fischer* recommends much an aqueous extract of green walnuts, which he says killed round worms within two minutes. He dissolves two drachms of the extract in four drachms of cinnamon water, and gives fifty drops of it to a child of two or three years of age. After six or eight days he prescribes a laxative mercurial.

Doctor *De Lille*, in his book of the throbbing of the heart, gives great encomiums to a mixture of *extract. hellebori nigri*, twenty grains; *vitrioli martis*, ten grains; dissolved in an ounce of *aqua cardui benedicti*; to which may be added a little violet-syrup, or honey, one drachm. The dose for a child is about a tea-spoonful, to be taken on an empty stomach.

Garlick is a good remedy for those who can bear it. One may, for instance, on an empty stomach, swallow two or three cloves, or eat them with bread and butter, or cut them in small pieces and take them in milk. Many children have likewise been cured of worms, by swallowing two, four, or six spoonfuls of the salt pickle of butter. By continuing the use of this remedy for several days running, it has caused them a looseness and carried off worms. The same effect will follow after having eaten plentifully of raw carrots: also by drinking birch-wine in the spring till it causes a looseness. Sucking of young bark of fir in the spring is attended with the same salutary effect.

Although

Although a number of worms should already be expelled by any of these remedies, one ought nevertheless to continue the use of them for some wanes of the moon running, in order that none of these animals or their eggs may remain in the body. Besides, our endeavour must be to restore strength to the stomach and bowels; which may be done by letting the child take thirty, forty, or sixty drops of *tinctura rhei amara Pharm. Edinb. f. vino*, for some weeks. When that did not prove sufficient, I prescribed the *vinum chalybeat. Lond.* to be used in the same dose for a few weeks.

If any one gets affected by worms during the time he has some inflammatory fever, I prescribe quicksilver water, and, instead of honey, make it palatable with *syrupus acetositis citri*; or he may drink tea with lemon-juice in it, or tea with marmalade of limes; or one may take two parts of oil of olives, one part of lemon-juice, and one part of pounded sugar, well mixed together, and take a tea-spoonful four or five times a day; or his drink may be soured with a little *tinctura violarum*. I also apply on his belly the above-mentioned cake of wormwood and ox-gall, &c. And as worms cannot bear camphire, and that remedy, together with vinegar, is very proper in hot fevers, the following drink will become effectual: Take camphire one drachm, pour on it fifteen drops of brandy, which, by rubbing together in a serpentine stone mortar, is easily reduced into a powder; to which add two ounces of sugar finely pounded, and dissolve it all in ten ounces of good vinegar. The dose is a spoonful, to be taken once or twice within the space of two hours.

The tape-worm is the most difficult to expel intirely; partly on account of its length, and the many bendings, turnings, or coils of the bowels; partly on account of the power this worm is endowed with of keeping himself fast to the intestines with the point of his smaller end, and with his suckers between each articulation. This is the cause of the patient's being so hard taken when one endeavours to expel this worm. It would easily be removed, if we knew any remedy
proper

proper to kill it without corroding or hurting the intestines; for it would then be carried off with the excrements, as no longer adhering to the guts. Such a remedy is still unknown. We have before taken notice how this worm moves about in a vessel when one pours warm water on it, but that in the same moment one uses cold water in the vessel it falls down to the bottom, and lies motionless as if dead: therefore I thought that it could be expelled by giving a purge, and letting the patient drink plenty of cold water just when the physic was going to operate; from this reason, that as the cold water had a power to benumb it, the worm would thereby be disabled from moving his small point, or from erecting and retracting his lateral or marginal suckers, and consequently unable to keep itself fast, so that the purge might carry it off without resistance. I communicated this opinion of mine to Assessor *Darelius*. He had then the care of the poor sick people who yearly use the mineral waters at *Sätra* by means of a charitable foundation. Therefore I desired this gentleman to try, at an opportunity given, if I had judged right. Two weeks after that he sent me a tape-worm, which he had expelled from a poor servant-woman in the above manner. It was thirty-four feet long, was whole, and its small end was likewise intire, and terminated with a little point, had four holes or *foramina* on the sides, which then were plainly seen with Mr. *Cuff*'s magnifying glass, and may still be distinguished by the naked eye, it being still preserved in the collection of the hospital at *Upsal*. Dr. *Darelius* expelled more worms after that from several other patients, and the purges he prescribed were no other than powder of jalap in the morning, and *tinctura catholica purgans Rothii* in the afternoon. Several other patients were cured in the same manner, both when Assessor *Lindhult*, and after him Professor *Sidren*, had the inspection of the same mineral waters. Were it only possible that the water could preserve its chillness in the stomach and bowels for an hour, or even half an hour, or if we could know exactly when the purge would have its full effect, and that we then could make plenty of cold water pass quick-

ly

ly from the stomach down to the intestinal tube, this remedy would never fail. But as it is not practicable, we are obliged to use this method repeatedly, and I am convinced it will prove effectual to proceed as follows.

When the patient who has the tape-worm is arrived at the mineral waters, and has rested for twenty-four hours after his journey, he may begin as usually by taking a purge, and then drink of the mineral water for a se'nnight. As he probably then is accustomed to bear the cold water, he must early in the morning take a purge, for instance half a drachm or two scruples of root of *jalap*, or two or three half ounces of *Sel de Seignette*. When he finds it is going to operate, he must drink a glass of cold mineral water at a time, every third, fourth or fifth minute, without minding whether the dose amounts to one or two gallons, for the quantity cannot be inconvenient, as it is quickly carried off by the stools. One ought not to drink it too fast, as drinking too much at a time prevents its passing quickly down from the stomach into the bowels. If then the tape worm be voided perfect with its small end, the cure is performed; but if not, or only parts are carried off, we repeat the purge next morning in the same manner, and if necessary besides, in the afternoon, take sixty or one hundred drops of *tinctura catholica purgans Rothii*, well mixed with a spoonful *syrupus spinæ cervinæ*. This will hardly ever fail of expelling it, but in such a case the patient is to rest for a couple of days, and drink only his usual dose of water in the mornings. Then he begins with the purge for two mornings running again, as before was mentioned, and so further during the whole course of using the mineral water.

A gentlewoman who had the tape worm, was pleased to ask my advice, and at my desire to give a succinct account of her disease, which partly as confirming what is above mentioned, partly as giving several useful observations on the subject, I take the liberty to insert literally as follows:

“ My parents have told me that I had been troubled by worms in childhood, but I myself do not
“ recollect

“ recollect any distemper sooner than in the year 1740;
 “ being then twenty years old. You know, Sir, that
 “ it was then much in fashion to drink bitter water;
 “ I drank it likewise, I do not know why, if not for
 “ freckles. Three or four weeks after I was attacked
 “ by an inflammatory fever, attended with frequent
 “ convulsions; the fever was cured, but the convul-
 “ sions returned at times through the whole year. I
 “ did not then in the least suspect or think of any tape
 “ worm, nor do I know what remedies I used. But
 “ in the year 1741, in the spring, yourself ordered me
 “ milk whey and expressed juice of *Beccabunga* and
 “ *Cochlearia*. This I used for five or six weeks, and
 “ it really did me a great deal of good, nay quite re-
 “ vived me for a few years. In the year 1747, I
 “ chose to drink the mineral waters of the park with-
 “ out having the least reason to it by any disease. I
 “ must likewise confess that I drank it without keep-
 “ ing order or diet. Four weeks after that I happened
 “ to drink a glass of *Moselle* wine, which was a little
 “ flat, and very much disagreed with me, so that I
 “ was immediately taken ill after it, and within an
 “ hour swooned away. In the night I was affected
 “ with violent pinchings about the navel, and a hi-
 “ deous pain higher up under the orifice of the sto-
 “ mach, which went away and returned alternately
 “ during five days. I then determined of my own
 “ accord to take a purge, and in consequence of what
 “ you had told me concerning the *essentia catholica pur-*
 “ *gans Rothii*, I mixed a double dose of it with a syrup,
 “ and took it on a day when the fits were most severe.
 “ After half an hour the medicine operated very vio-
 “ lently, and at last carried off ten feet of a tape worm,
 “ which was the first I ever had seen, and which you
 “ know, I sent to you. After that the pinchings
 “ ceased, so that I got some rest, but much weakness
 “ followed.

“ In 1748, I drank the mineral water of *Norr-*
 “ *malm* for ten weeks; I voided frequently pieces of
 “ a tape worm, but never unless I had taken a dose
 “ the above mentioned purging essence, which now
 “ did not cause so much pain as the first time, perhaps
 “ because

“ because the cold water had weakened the worm.
“ After having taken this or any other physic, I am
“ very much subject to reachings; I prevent them by
“ eating or drinking something cold. On the days I
“ took a purge during the course of the mineral wa-
“ ters, I drank of it the whole forenoon a great deal
“ more than the ordinary dose, continuing as long as
“ the physic operated, which I found to do good. In
“ this summer I got rid of forty feet of the worm;
“ therefore I used this purge for a long time after
“ whenever the worms plagued me, but at last
“ it had no further effect on them; no more had the
“ *pulvis cornachinus*. You advised me then, Sir, to
“ take ten or twelve drops of *oleum animale dippelii* in
“ the evening, and some purge the next morning. This
“ I did now and then for a couple of years, and al-
“ ways with that good effect, that a part of the worm
“ was expelled at each time, when I had taken *oleum*
“ *animale* beforehand, otherwise not. At last the
“ *oleum animale* became so nauseous to me, that I was
“ quite tired with it.

“ In the year 1753, I resolved to persecute the worm
“ seriously at the mineral waters of *Norrmalm*; I took
“ every night a dose of *semina cinnæ*, which during
“ the first eight days was mixed with *flores sulphuris*,
“ but I was obliged in the sequel to leave the sulphur,
“ because it caused heat and uneasiness at night;
“ nevertheless I found it to be a good anthelmintic, as
“ it disturbed the worms. I took a dose of physic every
“ third day, sometimes the *cornachine* powder, some-
“ times *sel de seignette*, of which last I found the best
“ effect. I had learned by the former year's experi-
“ ence, to take a moderate dose; for it is remarkable
“ that when I took it too frequently or very much,
“ the worms did not go off. It was always necessary
“ to drink water for a couple of days first, in order to
“ weaken or perhaps to wash the worm lower down in
“ the intestines. Therefore a little after having taken,
“ as I mentioned, a laxative every third day, I drank the
“ cold water from six to seven quarts. This never
“ failed to carry off a part of the worm. On the days
“ I did not take any purge, I only drank three quarts.

“ With

“ With this I continued for five weeks, and had during that time got rid of one hundred and sixty feet of the worm; the largest piece that was expelled at once was forty feet long. I believe that a part of the worm was voided besides of the appearance of a slime, as the marks of the worm were to be seen in it. Nevertheless I was very much weakened by this cure, so that I grew very thin though I made four meals a day, and a long time passed before I recovered.

“ In 1754, I made use of the same mineral water and remedies, but I took physic only once a week, which always expelled some yards of the worm, but I neglected then to measure it. After this I found myself tolerably healthy for some years, but as I recollected you had told me once that I could not be free from the worm, if the small end of it was not expelled likewise, therefore I resolved to drink some mineral waters again in 1758. But I then went into the country, and used a spring water, which according to some experiments, was said to resemble very nearly that of *Norrmalm*. As this made my body bound, I sometimes drank two or three glasses of bitter water, and a couple of times I took of the before-mentioned purges, but no worm was now voided; whether this was owing to the water, or it not being drank cold enough, or my not taking any *sem. cinnæ*, I cannot tell; but in the autumn the worm, which had hitherto for a long time been for the most part quiet, began now to plague me almost every day more or less. It consisted in my being affected in the forenoons by an oppression under the orifice of the stomach, and pressure over the stomach itself, by which I am so hard taken, that a cold sweat is spread over the face, and I am nearly swooning, though it does not proceed so far. This is however of no long duration, but the returns are frequent; nevertheless it continued once a fortnight in that very autumn, so that it likewise awaked me in the nights. I have now taken the resolution to use the same remedy as in 1753, when I get an opportunity, hoping by that to eradicate the worm.

“ At your desire Sir, I will add some particulars :
“ In the morning when I get out of bed, I am obliged
“ carefully to avoid being cold over the back, other-
“ wise I immediately would feel a cutting as it were
“ round the navel, so that I must contract the body,
“ not being able to keep it streight. Then there is
“ besides a faint rumbling noise over the back; this
“ having continued for an hour or more, a *diarrhœa*
“ ensues, by which it is over for that time, but may
“ return several times in a day, and at each time it is
“ attended with the very same symptoms. Sometimes
“ it continues for several days together alternating in
“ the above manner; but I am now used to stop it in
“ the beginning, by going to bed again when there is
“ an opportunity to do it. I continue in bed for a
“ couple of hours till I am well warm, by which I
“ am secured for that day. The same symptom en-
“ sues after having eaten milk or something sweet.
“ The worms trouble me most in the forenoon; if I
“ have had no pains then, I am free for the rest
“ of the day. This made me think it owing to
“ my not having eaten; but I found that eating would
“ not help when the worm chose to be troublesome.
“ Nevertheless I have commonly avoided hunger, as
“ the worm then plagues me by his sucking; it like-
“ wise troubles me more at the end of the wane of the
“ moon, and at the beginning of the increasing moon,
“ and I have found equal effect from the remedies,
“ taking them on either of these times; it also plagues
“ me on the days which are troublesome to my sex.
“ When I eat no flesh for supper, but only other loose
“ food, I am awaked in the night by a violent sucking
“ under the breast, and in that case I frequently have
“ been near swooning away; and notwithstanding the
“ stomach has been quite empty, I have been unable
“ to eat, but cured myself by a glass of fresh small
“ beer. I have found it adviseable to eat no milk.
“ Once when I avoided milk for six years time,
“ it affected me much if I at any time tasted of
“ it. During the years I thought myself free from
“ the worm, I began to eat milk again without the
“ least inconvenience, till the year 1759, when the

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“ worm

“ worm began to be troublesome again; I apprehend
 “ its having gained new strength and growth by the
 “ milk. All kinds of dry fish, especially when they
 “ have been soaked in lye, disagree with my stomach,
 “ and I have happened to grow indisposed even by the
 “ smell. All rich food, sugar, or confections, make
 “ me indisposed; sweet wines excite nausea, also
 “ bread made with wort. But tea, coffee, salt and
 “ smoaked food, nay all sorts of leeks and onions,
 “ have not at all disagreed with me, which perhaps
 “ you will think singular. Bread soaked either in
 “ soup, or sweetened in small beer, or in tea, dis-
 “ agrees with me, so that I am obliged always to
 “ eat it dry.

“ Though I drank a dose of bitter water in
 “ the year 1750, it never expelled any part of the
 “ worm, nor have I observed any thing like cucumber
 “ seed to go from me; but one year I voided a vast
 “ many very small worms with red heads (or *ascarides*);
 “ these were carried off by clysters, but not by the
 “ purges. My stomach does neither swell nor con-
 “ tract itself inwards to the back, but it grows hard
 “ when the worm keeps itself higher up, or when by
 “ any fault in diet or otherwise I have excited a fit;
 “ then I am obliged to loosen my cloathes round the
 “ breast and the body, nay even to take the necklace
 “ off. All purges pain me much, and cause pinch-
 “ ings and gripes, which I think arises from the
 “ uneasiness of the worm. They generally cause
 “ nausea, which however will seldom burst out into a
 “ vomiting; but if it has ensued, it ceases as soon
 “ as the purge begins to operate. The worms were
 “ one time near going off by the way of the throat,
 “ but I prevented it with a draught of cold water.
 “ *Semin. Cinnæ* does not affect me at all, it rather
 “ gives me rest. Perhaps the worms fly from it and
 “ descend lower down.

“ You likewise asked me to tell the circumstances
 “ of its going off: I never got rid of any part of it
 “ without the assistance of a purge; this being taken,
 “ I can feel the worm about the orifice of the stomach,
 “ and then I am affected likewise by the above men-
 “ tioned

“ tioned oppressions. But a little nearer towards the
 “ time it is going off, I can feel it to proceed down-
 “ wards gradually; and in the same proportion I am
 “ taken with pains in the lower part of the *abdomen*,
 “ and feel a chilliness downwards all along the back.
 “ I think I have distinguished by the pain it causes,
 “ how the worm resists as it were its going downwards,
 “ and how it endeavours to keep and suck itself fast,
 “ which chiefly causes great pain. But the relief
 “ that follows at the instant the worm goes out of the
 “ body is equally great, and then there is a sensation
 “ of cold in the *anus*. That part of the worm which
 “ first comes out, is not smooth, but appears to be
 “ corroded, and is by no means so fresh as that which
 “ is torn off afterwards, which generally is done just
 “ in the articulation. One must, though gently, lay
 “ hold on that part of the worm which first comes
 “ out, in order to prevent its retracting and return-
 “ ing into the body again, and that one might not
 “ lose the opportunity of putting out a part of the
 “ worm; for though several stools should still ensue,
 “ no more of it will appear that day. At last, when
 “ no more can be extracted, I feel a stoppage in the
 “ back, and a snapping noise is heard when it bursts
 “ off.”

The conclusions that are to be made from hence are obvious. I only want to mention this worm to have been of that species which has sucking vessels on the sides, and the broadest I ever saw.

The larger the pieces that are voided of the worm, the less pain will be caused by the remaining part, and I know patients to have been undisturbed for years together, after having voided several yards.

I have likewise learnt by experience, that the worm cannot bear salt or smoaked beef, nor any ham, salted salmon, sour krout, nor any food seasoned with onions or leeks, or horse-radish, nor bread made with wort, nor sour wines; nor can it bear garlic, *assa foetida*, *sem. santonici*, *flores sulphuris*, *preparata* of iron, or extract of wormwood, but it then descends lower down in the intestines. If one drink and eat such things only for some days, the worm would likewise be weakened by

hunger; then taking *anthelmintics* besides, and after that a purge, the worm will spend all its strength by its motions, and by keeping itself fast, so that the purge being repeated the next day, we have a greater chance of expelling it. Still greater would the chance be, if the patient had strength enough to take the second purge on the same day, in the afternoon, for then the worm would have had no time to recover.

On this foundation the patient must chuse, 1st, the beginning or the end of the wane of the moon; 2d, for a few days before, only live on the above mentioned food and drink; 3d, on the same days he is to take every second or third hour, ten of the following pills.

℞ *Extract. Tanaceti,*
Affæ Fœtidæ,
Sem. Santon, ana ʒß. *et gr. vi.*
Vitrioli Martis, - *gr. xii.*
Mellis Sinceri, - *q. s.*
M. f. pilulæ pond, gr. i. fol. argent obd. Dr. Sc.

With these pills one continues till the oppression under the breast is relieved, and instead of that comes on an illness in the lower part of the belly, and a chilliness downwards; for that signifies the worm's descending. Then our endeavour must, 4th, be to drive it out: for this purpose we prescribe, for instance, to a child eight or nine years old, according to its strength, from twelve, fifteen, to twenty grains of the root of jalap previously well powdered with sugar, to be taken at once; the following day one must take a similar dose, or rather a few grains more, if the former was found too weak, drinking a glass of cold water after each stool. A full grown person can bear twice as great a dose.

Dr. *Herrenschwand's* powder has, for these many years, been regarded as an infallible remedy against the tape worm; he has at last discovered it to be prepared stronger or weaker of the following ingredients: *radix filicis*, from 15, 20, to 30 grains; *gummi guttæ* from 1 to 5 grains; *gratiola* from 5 to 12 grains; three
such

such powders ought to be kept ready. The day before they are to be taken, he gives the patient *mercurius dulcis* and *diagrydium sulphuratum*, of each ten grains. The following day in the morning he gives the first powder, which commonly causes a vomiting, and effects a stool besides. The second powder he gives after two hours, which causes a strong opening, and thereby the whole worm is generally carried off. But if not, then the third powder is to be taken two hours after. It happens sometimes that the worm does not go off sooner than the next day. Between each opening he gives the patient some thin soup to drink. He has always been able to expel the first sort of tape-worm whole and intire, but the other sort, or *secunda species Plateri*, only by pieces. He says, in a letter to me, that he never prescribes these powders before he has tried if the worm be still remaining: this he does by giving an ounce of a syrup prepared of *flores persicariæ*; for, if the worm remains, something as small as white corns will be found in the intestines. Every one may find that the composition is good. The *radix filicis* has at all times been recommended against the tape-worm. If that has a power of killing it, or prevents its holding fast, the *gummi gutta* and *gratiola* will be very well calculated for expelling it; for both of them purge quickly and violently. And it is natural to think that the remedy given the day before, and then the three powders taken one after another in one day, must weaken the worm so much that it must yield at last.

When the circumstances are managed in the above manner, it will almost be indifferent what purges we employ, provided they take effect quickly and strongly. Therefore Dr. Nitret was able to expel eighteen whole tape-worms from that woman I mentioned before. With the help of a little *spiritus vini* he made five pills of *scammonii veri* twelve grains, *resinæ jalappæ* six grains, and *turpethi mineral*: two grains. Three of these pills were given on the tenth of September in the morning, and the rest an hour after. These expelled seven whole tape-worms, all still alive; the next day nine, and a dead one in the evening. But

as she was not yet recovered, he gave her again such another dose of pills on the fourth of *October*, adding half a grain of *turpeth. miner.* to them. On the sixth of *October* she voided another worm: but continuing still indisposed, he let her repeat the same pills, which expelled dead cucumber worms (*vermes cucurbitini*) and a great number of living *ascarides*: so that at last the cure was performed.

Baron *Van Swieten* had heretofore prescribed these pills for a young man, with an intent to cure the venereal disease, and they happened to expel a whole tape-worm. He afterwards prescribed the same remedy against this worm, and that frequently with success: but, as it affects the patient violently, he only gives it twice in a month. If it be repeated three times, the worm will commonly follow. See his Comment, Vol. IV. p. 737.

The late Dr. *Hasselquist*, in his Travels to *Palestine*, mentions that the tape-worm is very common in *Ægypt*, and that the fourth part of the inhabitants of *Cairo* are affected by it, especially the *Jews* and the common people. The best remedy they know of is *petroleum*, of which they take twenty or thirty drops at a time in water, three of the last days running in the wane of the moon, and on the fourth a purge. If this should not carry off the worm, the patient waits till the end of the next wane, when he repeats the remedy. This has perhaps given the country physician (*Land Arzt*) the hint to his method. He relates, p. 423. that a man used, for a fortnight together without effect, several remedies after his prescription against the tape-worm, and voided only small pieces. At last the country physician ordered *petroleum* and *oleum terebinthi*, half a drachm of each, to be taken in three doses. But the patient, thinking that it might be too little, and being tired with remedies, swallowed all at once with such good effect, that the whole worm was expelled together. Soon after he advised a woman, who had the tape-worm, to take thirty-five drops of it in a morning; and, in case that had not the desired effect, that she should take forty drops towards noon: upon which she immediately voided eighteen feet of a dead worm.

When

When only a part of the worm comes out, one must gently pull on it till it stops. Then the patient must lie down on a narrow bed, and tie a weight to the worm, which will weigh it down but not tear it off. This is to hang out of the bed, and the patient to lean on his right side. If he then has patience, he will get rid of the whole worm, or at least a great part of it, especially if he makes the worm pass through a wooden tube, which antecedently has been anointed with oil, and applied a little way up in the *anus*, in order that the *musculus sphincter ani* may not squeeze off the worm, which would otherwise easily happen.

A little while ago I was told that a man in *Calmar* was so hard taken by the tape worm, that he in his anxiety endeavoured to kill himself on several occasions, but being well watched he was always prevented. At last somebody gave him three powders which expelled a tape worm, and thereby his pains and anxieties were cured. The composition of these powders were discovered to me in consideration of a little sum of money, and is here communicated as follows:

Take fine pounded and sifted sea coals, one drachm and a half, and an equal quantity of fine grains of gunpowder, but not pounded, and seven pepper corns made into a fine powder, mix to the former, and divide the whole in three parts, giving one each morning in brandy three days running when the worm is troublesome. One must swallow one or two spoonfuls of brandy after it, but not eat or drink any thing. If these powders do not effect great motions in the lower part of the belly, the dose must be increased next time. If the worm does not then go off, one must take forty grains of powder of jalap root in water, on the fourth or fifth morning.

I will still mention another method by which a gentleman got rid of that species of tape worm which has suckers on the sides. He has now ever since the year 1748, not had the least signs of worms. The cure consisted in that he, 1st, took from two to three cloves of garlic at a time, twice or four times in a week, swallowing them down on an empty stomach, sometimes in tea and sometimes in cold water; 2^d, he took a

strong exercise on horseback once or twice in the week, or he undertook some long journey; 3d, he took now and then half a wine glass full of *essentia* or *testamentum hærneri* mixed with an equal portion of white claret. The account of the patient himself is inserted in the Transactions of the Royal Swedish Academy of Sciences for the year 1760; and I thought the following copy of it likewise deserved a place here.

“ In the year 1747, when in the autumn I com-
 “ pleted forty-four years, I began to observe an un-
 “ easiness and rumbling in the bowels, especially in
 “ the left side. And as I thereby was distended by
 “ wind, which caused oppressions under the breast,
 “ it was always attended with some anxiety and wear-
 “ iness. This I ascribed to some fault of the stomach,
 “ endeavouring to cure it with extract of wormwood,
 “ which I myself made very strong, partly by wine,
 “ and partly by brandy: this had its good effect, so
 “ that the oppressions and distention disappeared with
 “ a motion in the left side, which in the beginning I
 “ thought to be wind. I observed at this time small
 “ white pieces resembling cucumber seeds sometimes
 “ to go off with the stools, but I did not know if it
 “ had any signification or not. In 1748, I got a
 “ violent *diarrhœa*, I do not know by what accident;
 “ then it was the tape worm appeared for the first time.
 “ I was quite disconcerted, thinking it to be a part of
 “ the intestines, nevertheless I pulled softly on it,
 “ continuing, as it did not cause any pains but rather
 “ relief, till at last it burst off four feet long; this
 “ piece lived still and moved. I did not care any
 “ thing more about the matter, as I found myself bet-
 “ ter, and always had a good appetite, thinking myself
 “ now free from the worm. But I soon learned the
 “ contrary after having had a strong exercise on horse-
 “ back, for the worm appeared, and I pulled out a
 “ long string of it till it burst; this piece lived like-
 “ wise, and made several swingings on being washed
 “ in milk warm water. After this time I became
 “ anxious how to get rid of this disagreeable guest
 “ which always plagued me at least a few days each
 “ month. On my side I entertained him with essences
 “ of

“ of wormwood, and never eat myself either milk nor
 “ sweets, because I observed this to cause uneasiness
 “ in the left side. This same year I was advised by a
 “ friend to use garlic in the mornings on an empty
 “ stomach. I begun immediately in the summer, and
 “ swallowed two or three cloves at a time, cut in small
 “ pieces, two, three or four times in a week, which
 “ I washed down sometimes with tea, sometimes with
 “ cold water. As a purge I used the *elixir* (or *testa-*
 “ *mentum*) *hiærnerii*, mixed with white claret, of
 “ which I took a wine glass at a time, which procured
 “ two or three stools. In the month of *September* I
 “ went to *Famtlund* on account of my office, and dur-
 “ ing the journey, I used the garlic, and sometimes the
 “ mentioned elixir, which by a stool one time carried
 “ off a tape worm without its being torn. I examined
 “ this narrowly, and did not find it to have the least
 “ motion. After that I found myself very well both
 “ during my stay in *Famtlund*, and after the return to
 “ *Stockholm* first in *October*. In the beginning of *No-*
 “ *vember* my office required my presence in *Gottenburg*,
 “ and once during the journey having made a good
 “ breakfast and driven a couple of miles, I felt a vio-
 “ lent pressure in the lower part of the *abdomen*, a
 “ violent opening followed, and I voided a large lump
 “ of the tape worm; notwithstanding several experi-
 “ ments with it, I could not discover in it the least
 “ sign of motion or life. Ever since that time I never
 “ felt any signs or symptoms of the tape worm. Before
 “ I got rid of it, I always felt an unusual sucking in
 “ the stomach, and creeping in the left side if I got
 “ my victuals ready a little later than usual. I like-
 “ wise had always a good appetite during this time,
 “ and did not grow lean neither.”

In the same transactions for the year 1747 it is like-
 wise mentioned what an excellent effect the above-
 mentioned elixir had against a tape-worm on a boy in
Abo.

That garlick is a very powerful remedy against the
 tape-worm, and that it at last kills it, I have given
 instances of in the Transactions of the Royal Academy
 of

of Sciences for the year 1760, p. 186. and the following. Which deserve a place here also.

A lady, twenty-five years old, who during the whole year of 1755 was affected by anxiety and a sort of despair, frequent shedding of tears, convulsions, and frequent returns of fainting, was at last relieved by the use of *Spa*-water from the *Pouhonner* spring, and grew tolerably fresh by degrees, though she had been very pale, and still continued lean. She repeated the use of this water apparently with some good effect. In the year 1759 she grew sickly again, and used various things, in the place where she then lived, with good effect, so that a piece of tape-worm appeared. It was of that sort which has suckers on the sides. Nevertheless she was severely affected sometimes.

At the beginning of the year 1760 she consulted me about her disease. I advised her to swallow one or two cloves of garlick, and to drink *Spa*-water again the next summer. She continued using garlick every morning till the month of *July*, when she began to drink the aforesaid water. After having drank of it for ten days, she undertook a journey of seventy-five English miles, rested one day, and began to drink the water again every morning, though it was with much difficulty that it would continue on her stomach. In this place she got strawberries, which always purged her the day after, so that the third morning, after having begun with the water again, she got violent stools, with gripes, and a severe head-ach, and, before she had well finished her bottle, the whole worm in a lump was carried off from her, together with his small end, which terminated in such a point as I have described; but, having no magnifying-glass at hand, I could not see the four small holes. The joints of this worm were very short. The lady afterwards continued the course of her mineral water, which caused no more nausea: her appetite also, which had been lost for a long time, returned now; and a fortnight after, when I had the honour to wait on the lady again, she had regained her fresh hue, and seemed likewise to grow fat.

In consequence of this I hope she has no more worms, having, ever since this, enjoyed a good state of health. Immediately after the worm's being voided, it was put into a bowl with milk-warm water in it, but no other part of it moved than the smaller end and a few inches in the middle. On pouring a little warmer water on it, a reptile motion was observed in the same parts, but the others were dead. Then I poured cold water on it, which deprived the other parts of their motion also; but they began to move again, upon a repetition of warm water.

From hence I conclude that the greater part of the worm was dead, and, in consequence of another case, I have reason to think that the garlick had killed it, and that this sort of worms would intirely be killed by this remedy, if one continues the use of it for a sufficient time. The lady had used it for six months, and thereby the greatest part of the worm was killed, being thirty-two feet long. For notwithstanding the smaller end might be more tough than the rest, it is reasonable to think that it would also have been killed by continuing to use the garlick for another half year, in case it had been wanted, and not been expelled before that. The shaking during the journey had probably driven it together in one lump; in which case it touches a smaller surface of the intestines, and with a less number of sucking-vessels; and consequently is less able to cling fast. The expulsion of it here was still more easily effected by the greater part of it being dead. Strawberries, eaten in the afternoon during the course of a mineral water, always purge the following day in the forenoon, and that very violently sometimes, and with so severe gripes, that one is obliged to quiet it with some cinnamon brandy. Here the strawberries took the same effect as a purge, and expelled the worm, of which the still living part was most probably so benumbed by the cold water that it could not resist.

The drops of rhubarb which I have so frequently mentioned may be prepared according to Assessor *Darelius's* Pharmacopœia for the parishes, p. 239. but when they are to be given against worms one may prepare them as follows:

℞ Rad.

R	<i>Rad rhei alex.</i>	ʒiij.
	<i>Passul. maj. exac.</i>	ʒj.
	<i>Flaved. cort. aurant.</i>	ʒβ.
	<i>Rad. liquerit.</i>	ʒij.
	<i>Cardamom. min</i>	ʒiv.
	<i>Hydrom vet.</i>	ʒij.
	<i>Concis. contus. mixt. digere per quadriduum col.</i>	
	<i>express. adde</i>	
	<i>Extract tanaceti</i>	ʒβ.
	<i>Sacchar. alb.</i>	ʒiij.
Dr.		

C H A P. XXIII.

O N T H E R I C K E T S.

TH E rickets are known to affect a child already in a high degree, when its head and the veins of the neck are large, a flaccid pale tumour spreads over its face, but the rest of the body grows lean, the flesh is loose and flabby, the abdomen swells, especially on the right side, and the bones are tumefied at the joints: the disease is in a less degree according as the above symptoms are fewer; but when the flesh besides is so flaccid that the child cannot walk, then the rickets are at their utmost height, and called *raebitis completa*.

This disease seems likewise to be new. It appeared first in *England* in the counties of *Dorset* and *Somerset*, during the interval of the years 1612 and 1620, and was first described by *Dr. Glisson* in the year 1650. It is not mentioned in the *English* bills of mortality before the year 1634. From *England* it came over to *France*, and some time after to *Holland*. We do not know at what time it first appeared in *Sweden*. It has not got any *Swedish* name, unless it be called the *rod* in some places, though with others that name signifies the *atrophia infantum*. Some of the vulgar have that foolish notion, that such rickety children are sily given them,

them, in exchange for their own, by some diabolical beings, in a human shape when visible, which they suppose to dwell within the mountains. The *French* call this disease *nouevre*, and such children as have it, *enfans noués*. The *Germans*, as well as the *Swedes*, call it the *English disease*.

At present there is no place in *Europe* which is exempted from the rickets; nevertheless it is more common in low, marshy, and moist countries; therefore such unhappy children are most obvious in *England*, *Holland*, at *Paris*, and especially at *Strafsburg*: also a greater number, in proportion, are found to be affected by the rickets at the fort of *Strafsburg*, which is situated lower than the town itself. Dr. *J. P. Buchner*, who experienced this to his great surprize, besides others, mentions eleven children, born of the same parents, having this disease in a greater or less degree. I shall, in the sequel, make use of the many valuable observations this gentleman had then opportunities of making.

It is uncertain if a child be ever brought into the world with this disease; nevertheless such an instance is related by *L. G. Klein*, in *Nova Acta Acad. Nat. Cur.* V. I. p. 146. I once visited the child of a poor peasant, whose parents told me that it was born rickety: but there is never any dependence on narratives from people who are so ignorant. Most likely the disease makes its first appearance at the teething. If the body then begins to grow lean, the skin and flesh flabby, the abdomen swells, particularly on the right side; the head enlarges, the face grows pale and tumified, with large veins on the neck, and the bones increase at the joints; we know that the disease is already severe; for these symptoms will increase every day, if their progress be not opposed by all possible means. The forehead will begin to be prominent, and the whole cranium to enlarge by ample futures; the skin grows thick and wrinkled, especially at the wrists; the teeth turn yellow, grow black, and fall out by piece-meal; and the new ones, coming out but very slowly and with difficulty, will also soon grow carious, if the rickets are not stopped in time. The *thorax* is compressed on the sides, and the *sternum* rises up
sharp

sharp and prominent, sometimes more on the one side than on the other; the ribs grow broad and knotty, chiefly at the extremities, where they join to their cartilages. The *claviculæ* grow very crooked, but especially the *spina dorsi*, which makes several curvatures, backwards, forwards, and to the right and left. Several bones grow flat and compressed on both sides, and crooked, as for instance the *os femoris*, *tibia* and *fibula*, *radius* and *ulna*; the *ossa pelvis* are pressed inwards as it were, and obliquely, whereby this cavity grows narrow; part of the bones do not attain the proportional length, and, what is still more singular, some of them, that before were hard, again grow soft and flexible; inso-much that we have instances of those who thereby were made shorter than they had been before; or they grow soft in one place, while they become brittle in another, and that to such a degree that the least touch will fracture them. But providentially these latter circumstances seldom happen. The muscles become gradually so weak and flaccid that the patients cannot support themselves and walk. They also get affected by a slight consumptive fever, which especially is observed in the night-time, and which exhausts their little remainder of strength. Some have a snoring in the cavity of the breast, and a humid cough, but they swallow the slime they hawk up. Others again are only affected by a dry coughing; which latter appeared at the beginning of the disease of the children of *Th. Moores*. An asthma also comes on, which at last grows so difficult, that they would be suffocated if they were not relieved by suspending them on their arms in the bed. Sometimes they are puffed up on a sudden in such a manner as if air was let in between the skin and flesh. The water begins to go by drops; or the eyes run, and the sight is diminished. At last convulsions come on, which close the scene of this hideous disease. And it is remarkable, that the body does not grow cold and stiff immediately after they are dead. Their blood is very slimy and watery, and also acrid; and though this acrimony cannot be seen, it is nevertheless plainly to be discovered by its effects, and the cause by which it is produced. The *viscera*,
especially

especially the liver and bladder, are much enlarged; the glands of the mesentery are likewise large, and indurated; no gall is found in the gall-bladder; the voice is deeper than what their age generally would allow: the wit of some far exceeds their years; others again are very stupid. Dr. *Buchner* has observed these latter to be more numerous than the former. The stupid ones will bear very strong medicines, but the witty ones not; for the brain of these is found firm, but that of the stupid, soft and watery.

They are commonly very sleepy, and obliged for the most part to breathe through their mouth; they have generally a strong appetite, and are much subject to hæmorrhages, convulsions, and epilepsy. Dr. *Buchner* pretends that they several times get a natural small-pox, which however I never found, and should wish to know for certain if it has always been a true and genuine small-pox. Few attain to any height of stature; nevertheless I have seen two that were tolerably large, and their backs not crooked. Sweetmeats, as sugar, raisins, also apples and pears, commonly make them sick, and affected with shivering, heat, and much vomiting, which may last for three or four days together. This is probably owing to the worms that they commonly harbour. It is not yet decided whether a greater number of boys or girls be affected with this disease. Full-grown persons very seldom get the rickets; nevertheless both the Doctors *Du Verney* and *Burgrav* give us instances of this. Providentially this disease is not contagious, and, as far as it is hitherto known, not hereditary. Young ladies, who either are or have been affected with this disease, ought to consider well the danger they run in marrying: for, if their *pelvis* has grown too narrow, they will either have difficult deliveries, or their children or they themselves die in the delivery.

The disease varies in its degree according to different subjects, so that some have only a touch of it, and, by correcting their diet, changing place, and using good remedies, they may live a pretty long time, enjoying a tolerable state of health; though their body generally retains the hurt or maim it has received by the disease.

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The cause of the rickets is a relaxation of the solid parts; which may, for instance, arise, 1. From being born of weak and sickly parents, or of those who have passed their time in laziness and superfluous living, abused tea, sugar, or fat food; or who have had the venereal disease, being either not thoroughly cured of it, or enervated by salivations. The fate of such is, that their wives often miscarry, or are brought to bed of dead children, or of such as will one time, more or less, be affected by the rickets. 2. Being born of parents who, on account of their great poverty, have lived on too weak food. By this we can account for this disease being to be met with among the richer and the very poorest people, and seldom among those of a middling fortune. 3. From being born of parents of a great age. 4. From being educated in a low, damp, and marshy place. 5. From being suckled by a mother or nurse who has either too old or too thick milk, or in too great abundance, so that it changes into bad blood; or when the milk is in too small quantity, or too weak, so that the child does not receive sufficient nourishment; or when we give it food which is too coarse, and difficult to digest; or when the child has been exhausted by some inflammatory disease or severe ague. In either of these cases the consequence is, that the child grows weak, gets an acidity and disposition to the rickets. 6. From being suckled by a nurse who has had the venereal disease, and is not well cured of it; or who has the scurvy, a scrophulous or cancerous tumor, or some secret sorrow, or that is pregnant, or uses strong liquors. *Boerhaave* makes mention of a mother who had eight of her children in perfect health, all of them being suckled by herself; but the ninth, being suckled by a nurse, got the rickets. 7. From confining the child in damp rooms, where they wash and dry wet cloaths; suffering the child to lay on damp cloaths, neglecting to unswaddle it as soon as it has wetted itself; or letting it remain for a long time on an easy chair, or elsewhere, with naked knees and thighs; also from giving it always moist food, much sweet, often meal-pap, fruit, and drink during the night, which has

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contracted a founess. All this intercepts the necessary perspiration, increases the moisture which is attracted by the pores, creates acidity, and causes a relaxed habit. 8. From repelling scabs by unguents, and the like; or from neglecting the cure of the hooping-cough or ague, so that the child has been afflicted by it for a long time.

The greater the number of these causes that concur in a child, the more it will be disposed to the rickets; and the longer these causes remain, the less chance will a child have to escape the disease; and *e contra*.

Hence we may prognosticate whether a child will be subject to the rickets, or not; and consequently have time to take such measures as will prevent it. For instance: If a father be conscious of having been affected by the venereal disease for a long time, and, as commonly happens, used several things against it without order and regimen, and consequently without curing it radically, and has at last been obliged to salivate twice or thrice; and if besides he has a sickly wife, who, after being brought to bed of a living child, puts it out to be suckled by a nurse who has old milk, and is affected by the scurvy; he may depend upon it, that his child will either die or get the rickets. Therefore a person ought carefully to provide a good nurse for the child, and further to remove all that might promote the disease, and besides employ all possible means to prevent it. The *English* apprehend this disease to attack a child when it learns to speak, and before it can walk. But it ought to be observed, that the more one speaks to a child the sooner it will learn to talk; and the less it be carried on the arms, but is allowed to lie on the floor and endeavour to creep, the sooner also it will learn to walk. The later a child cuts its teeth, the more we ought to fear its getting the rickets; yea though it has before been hearty and healthy, and both learnt to walk and stand, nevertheless we have great reason to apprehend the rickets breaking out at the dentition, whether it is performed with or without startings, if we find that the complexion is very flaccid and relaxed, the stomach enlarged, and its breast somewhat elevated. This ought chiefly to be taken

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notice

notice of from the ninth to the twenty-fourth month of its age.

The change which the child goes through at the breeding of its teeth causes the disease then to break out. The *spina dorsæ* does not grow crooked till the child has already begun to walk. The head grows larger in proportion than the other parts of the body, because the futures are relaxed. The body cannot be kept straight, on account of the weight of the head, and the flaccidity of the muscles. The skin of the body is wrinkled, because the fat is consumed, and the flesh lax; which last is pale also, and not red as in healthy people, because the blood is thin and watery. The abdomen is large, high, and distended, on account of the intestines being larger in proportion, and the stomach and bowels being distended with wind.

Their asthma arises from the cavity of the breast being too narrow for the lungs; partly because it is compressed on the sides, partly because the bulk of the intestines prevents the *diaphragma* descending as much as is required at the inspiration. But the greatest fault is most likely owing to the weakness and relaxation of the muscles which serve for inspiration, and to the water which at last collects in the cavity of the breast and the *cardia*: for instance, if the water lodges in the right cavity of the breast, the patient cannot lie on the left side; and if in the *cardia* he chuses to lean forwards. The asthma prevents a free passage of the blood from the head and face, and this causes the large size of the jugular veins and the tumefaction of the face. Their strong appetite arises from acidity in the stomach, and the acidity from want of gall; which scarcity of gall comes from there being no fat, especially in the *omentum*. That they in reality are affected by acidity is plainly discovered by their sour breath, sour belchings, and by a want of gall. And there is no doubt but that the acidity produces the softening of the bones; for we know, by several experiments, that bones may be softened and dissolved, not only by mineral acids, but also by vinegar, and by whey prepared by rennet. The hump on the back comes from the *spina dorsæ* being crooked, and there
pro-

prominent. This also makes the neck to look shorter, and the head to appear as if it were sunk betwixt the shoulders. The body is a great deal shortened by the *spina dorſi* growing crooked, and that is the reason why the arms and the legs appear to be too long. The body is oblique when the *spina dorſi* is incurvated at the ſides; the thighs and legs are more crooked than the arms, becauſe the weight of the body muſt be ſupported by the former. The lean conſtitution by no means ariſes from any preſſure of the nerves at their exit from the *ſpina dorſi*: of which we may be convinced by the obſervations of *Vaſſalva*, *Von Haller*, and *F. H. a Brunn*. Such patients like to ſit and lie down, moſtly on account of the weakneſs of the muſcles, and alſo becauſe the reſpiration is then more eaſy to them. For the abdominal muſcles are leſs tenſe in that poſition, and conſequently leſs reſiſt the dilatation of the *thorax* and the lungs when they draw the breath. For the ſame reaſon they lie with their knees retracted.

The rickets are generally curable whilſt ſtill in the beginning. But very good attendance and nurſing of the child is required, and all that might promote the diſeaſe muſt carefully be removed: for there is ſcarce any cure to be expected, if negligence, backwardneſs, and want of reſolution be found in thoſe whom it concerns; if the room be not kept clean, the ſeaſon very rainy, and there be no opportunity of nurſing and educating the child in a dryer and more elevated place.

In caſe the diſeaſe has already arrived to ſome height, and the child be no longer able to ſit upright or walk, there will ſeldom any cure ſucceed. Thoſe who get afflicted with a ſcab during the diſeaſe are more eaſily cured than others. Any one who already has a touch of this diſeaſe, and receives a ſevere hurt, falling, or fracturing a bone, will be in great danger by the diſeaſe increaſing and ſooner arriving at its height. The ſeventh and the fifteenth year are of the greateſt importance in the diſeaſe, for it is chiefly at that time that the rickets are cured or grow worſe.

The summer is the most beneficial season, especially if it be dry and warm: but the autumn and the winter are severe to such patients. However, being then confined to bed, they are often enabled to walk again when the summer comes on; and this circumstance they have in common with old people, and those who are touched with apoplexy. No kind of hæmorrhage will prove beneficial to them: and at their hawking up and spitting of blood there is seldom any blood-vessel burst; the blood is let out by the *vasa rorifera relaxata*, when it is driven thither by some disorder.

Their bodies sometimes swelling of a sudden, signifies no alteration in the disease, for after a vomiting the swelling will often subside again within a couple of days. But if it does not disappear, but only changes place from one side to the other, for instance, from the right arm and foot to the left, if the eye on the same side with the swelling be running, a fever attend though it should be but a slight one, the face be collapsed and grow wrinkled, a tenesmus and other spasmodic distempers increase; then they approach nearer their deliverance, which only is effected by death, now soon coming on and making an end of them and their sufferings. A greater change of their former constitution respecting the natural evacuations, as from costiveness to looseness, from free discharge of the urine into strangury, and *vice versa*, likewise shews their miserable life to be nearer its term. When the face begins to be collapsed a great deal, they will scarce be able to hold it out longer than a fortnight more. But when the sight grows dim, and the feet lose their feeling, then three or four days more is nearly the utmost they have to live. The same is the case when the breath begins to stink much.

I have indeed found this disease among the children of the common people in *Sweden*, but it would be worth a stricter inquiry if it does not chiefly appear near the post roads, and the larger country seats, where the venereal disease is more commonly spread.

A whole year is sometimes required for the cure; which is not surprising at all, as the morbid matter is contracted by a long time, and as in this cure we
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are to expect as much, if not more, from diet than from the remedies. We may very easily make a strong body weak; but it is difficult, and requires a long time, to procure strength to a weak and tender body. People who cannot afford to be at a great expence for their children must content themselves with two remedies. The first corrects the acidity, and is prepared of pot-ashes half an ounce, which is to be dissolved in a pint of good spring water, and kept in a glass phial. Of this we give the child in the mornings, according to its age, from eighteen or twenty to an hundred drops in a glass of water. It is not necessary to administer it every day, but it may be taken for three mornings running, and then omitted as many days; and so alternately. The other is also an ant-acid remedy, but chiefly promotes the digestion, prepares good chyle and good blood, keeps the pores and orifices of the lacteal vessels in the intestines open, prevents slime and resolves obstructions in the mesentery, and, by means of its gentle irritations, promotes the *motus peristalticus* of the bowels and the natural stools. This is to be prepared of *sapo Venet.* ten grains, boiled ox-gall one grain, and *radicis ari præparati* five grains, all mixed together and made into eight pills of two grains weight each, and gilded, or, what is more useful, bestrewed with a little fine cinnamon-powder. Four of these pills are to be taken at dinner, and four during the supper. The intention is to have them as a substitute for the natural gall. One may fetch enough of them at a time from the shops to last three months, preserving them in a well-corked glass phial in the cellar.

The *English* are accustomed to bathe their children in cold water, or to let cold water drop down on them from some height through a funnel. Both these methods are also used by the *Swedes*, but very seldom. A young lady bathed three summers, one after another, in such baths, and recovered intirely from the rickets. Similar cures are also performed at the mineral waters in *Sweden*, espècially at *Loka*, by the cold water being directed to be poured over the patient through a funnel (called *douche* by the *French*) and

applying the mud. Of this I myself saw a great cure effected, in the year 1760, on a rickety child which could neither walk nor stand, and was carried thither: but within a fortnight gained such strength that it could both jump and dance *. The great cures that are performed at *Loka* are perhaps chiefly owing to the coldness of the mud applied. Nothing braces up and restores strength to weak muscles so much as cold water, used either as a bath, or by means of the *douche* or funnel. Those who cannot bear either, may chafe their bodies, when they go to bed, all over with a sponge dipped in cold water.

Poorer children cannot afford to be very nice in their diet. Nevertheless their parents ought to keep the room clean, and of a moderate warmth, often smoaking it with the rosin of juniper, and keep the child within doors when the weather is moist. Its cloaths ought to be kept thoroughly dry, it ought not to eat any sour food or drink, and its body should be chafed all over, several times in a day, with a piece of flannel, smoaked at each time with rosin of juniper.

A *French* physician gives great encomiums to the madder, or the root of *rubia tinctorum*, as a good remedy against the rickets. This is very cheap; and one may take half an ounce of it at a time, adding to it ten grains of orange-peel, and fifteen grains of bruised fennel-seeds; all which being cut small, boil it in a glazed pot with six pints of fresh water till four only remain. When cold, and settled at the bottom, decant it, and reserve the clear part in glass phials, to be used as daily drink. As the Doctor † claims much experience on this head, I need not mention the observations Professor *Böhmer* has made concerning this root: see the *Encyclopedie*, Tom. VII. p. 479. It is probable that the root of *herba Britannica* would

* A fine oration, by Professor *Bergius*, on the cold baths and mud at *Loka*, was published at *Stockholm*, 1764, in 8vo.

† *L. I. B. Cosniers Quæstio Medica, An rachitidi rubia tinctorum?* See *Nouvelle Econom.* T. XXXI. p. 104.

be very proper in this disease, if it was prepared and used as was above prescribed of the madder (*rubia tinctorum*).

The rich, as being able to afford a greater expence and attendance, may attain their end sooner: 1. In correcting the acidity by half an ounce of *sal tartari*, which is to be dissolved in a pint of fresh and cold water, and kept in a glass phial. Of this one gives to the child, according to its age, from twenty to an hundred drops in a glass of cold water on mornings and afternoons. They may be taken likewise three or four days running, leaving off and beginning again, alternately, as many days, till we observe no more signs of flaccidity, no sour breath, and no more sweat that smells sour. 2. If these drops give no stools, which however often happens by means of the alkali being combined with the acidity, we may give the child, now and then, something of the rhubarb tincture known in the shops under the name of *anima rhei*, letting it take one, two, or three spoonfuls at a time, according to its age. 3. At the end of each dinner and supper it must take five or six pills, of two grains weight each, composed of a firmer *offa Helmontiana* nine grains, dry ox-gall one grain, and *radix ari* * as much as is required to make it into pills, which are to be gilded, and preserved in a glass phial. We may fetch enough of them at once from the shops to serve for a month or two. These are, on account of the above-mentioned *offa*, the nearest in resemblance to human gall; for it consists of a fine oil and an *alkali volatile*. 4. When we find that the drops, No. 1. are not so often required, then we may begin to give the child from twenty or thirty to forty grains of the jesuit's bark in a day, chiefly in powder, making more or less of the bark into a paste with a little water, according as it will be more convenient to swallow, and wrapped up in a wafer. I have myself often accustomed children to take the bark, or any thing else, in wafers,

* This ought not to be pounded before it is to be used, for the old powder of it has no virtue.

by first putting sugar in the wafers for several days, sweetening it on the outside, and giving it them to swallow. *Sal essentielle chinchinæ* is also very good. I once prescribed of it for nine months together, ten grains each day, made into pills for a child who had the rickets, besides which it was chafed morning and night with a piece of flannel smoaked with mastick, and likewise almost every day drawn about the room in a little waggon. It recovered hereby its strength so far as to walk, and has now not the least sign of its former disease.

If we should not like the bark, we may prescribe a frequent use of *Spa* water out of the *Raubonner* spring, and for want of that we may use an artificial *Spa* water according to professor *Monro's* prescription in the third Vol. of *Essais et Obs. de Medecine de la Societé d'Edinburg*, p. 66, or one may prescribe the *globulus martis* (*Boule de Mars*) which is to be sown in a piece of muslin, and by a thread suspended every morning in half a pint of cold spring water, till it becomes the colour of bohea tea; this the child is to drink every morning, the *globulus martis* being hung in the window till the day following. 5. If the child besides uses cold water externally in any of the methods above-mentioned, together with a good diet, then there is nothing neglected of the most powerful remedies known against this disease.

As to the diet, the following is to be observed: 1st, if possibly there be an opportunity, the child must be transferred from a marshy and low to a more elevated place, and which is not situated close to some water. If it can be avoided, we must inhabit none of the lower apartments but the upper story of the house, and keep the child within doors when it is rainy weather, and then smoak the room with mastick, rosin of juniper, and the like. We ought likewise to take care that the chamber be kept clean and moderately warm, and also keep a little fire in it during the summer, in order to dry and purify the air from vapours that arise from those who live in it. The chamber being washed and cleansed, the child must live in another till the former be well dried again. 2d, The child ought every day frequently

frequently to be drawn in a little waggon, sometimes in the room itself, sometimes in the open air, according to circumstances. It may for convenience sake be left to sit in this waggon during the day time. Its whole body ought several times in a day to be freely chafed with a piece of flannel previously fumigated with mastick. 3d. In case the child be very sleepy, one must prevent it from sleeping too much; for this purpose the room ought to be light, and near a frequented noisy place. The child should not rest on a feather bed but on a mattrafs of hair or straw. 4th, Its cloathes, especially linen and stockings, ought frequently to be changed and kept well dry; the colour of its cloathes ought either to be white or red, provided it can bear that colour. It is remarkable, one of the girls Dr. *Buchner* mentions, got convulsions as often as she saw any thing of a red colour. 5th, The child ought as much as possible to live on dry food, and not to eat as much as it chuses. We must not give it tea, warm water, or watry soups, nor meal-pap, nor any thing similar with meal, nor warm and soft bread; all fat food will be hurtful to it, also all that is sour or easily liable to acidity. For this reason it must neither get fat meat, fat soups, cheese, butter, oil, nor fruit, nor any thing sweet, milk or whey. Boiled fish and boiled meat are likewise unwholesome to such children. 6th, Their drink is to be water tempered with a little wine which is not sour, or they may drink a little small beer which is strongly hopped. For their bread we chuse good and tender biscuits; for the rest they may eat strong broths from which the fat has been skimmed off, fryed eggs, eggs and ale, ale and bread, eggs that are not boiled hard, roasted birds, lamb, veal, and beef, fryed fish of such sorts as have scales, hachees, jellies of calves feet, fryed liver of fish, veal, hens, pigeons, ducks, geese, and other fattened birds, by the *French* cooks called *foies gras*. One may always allow their dishes to be seasoned with some spices, as cinnamon, nutmeg and mace.

C H A P. XXIV.

ON THE HYDROCEPHALUS:

Or, Collection of Water in the inside or outside of the Cranium in Children.

CHILDREN are in a very deplorable situation when their heads are larger than usually in proportion to the other parts of their body, and keep quickly increasing in size, whilst the other parts are almost stopt in their growth and pine away. Happily this disease is rare in *Sweden*, nevertheless it sometimes appears, and some of the children enumerated in the bills of mortality as dead of unknown diseases, are carried off by the beginning of a *hydrocephalus*, as it lately happened in a high family.

A child born with this disease is likely to have contracted it by some external violence mostly affecting its head, which easily might happen when the mother during her pregnancy receives a hurt on the abdomen, or when by means of her stays or narrow dress, or by sitting for a long time in the same position, or by a tedious costiveness, the head of the foetus has happened to be pinched and pressed for some time; or it may arise from more hidden causes, especially secret distempers of the parents. Though the special cause cannot possibly be settled to any certainty, I however mention these as general causes to which the unusual shapes of children are owing, and which mothers ought for that reason carefully to avoid. Sudden fright occasioned by something disagreeable, which happens unexpectedly to be seen or heard of by the mother, seems hardly to be capable of effecting such a deformity as this, though it otherwise in fact becomes hurtful to the foetus. The delivery will be very difficult and laborious, if this deformity of the head has already arrived to some height within the womb of its mother, of which a remarkable instance is given by Doctor *Jacob Hiseen* in his *Narrative to Colleg. Medicum* for
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the year 1765, p. 302. The disease is however in this circumstance less dreadful, as it soon brings on death.

But we find, by the greatest number of known instances, that this unhappy deformity is generally not discovered till a few weeks or months after the child's birth. We have also good reasons to believe that even in this case the disorder has already begun during the pregnancy. Perhaps likewise at the delivery itself, the head of the fœtus having been squeezed for some time in a more narrow passage, which though one child may sustain without any bad consequence, another may not, on account of a different position and the mechanism of its body. Other circumstances coming to this have likewise been looked upon as a cause of this disorder, and that with the greater probability, in proportion as they have been dangerous, and the distemper broken out later; a rheumatism of the head and scab have for this reason been suspected, though they often are obvious without being attended with this consequence. The *hydrocephalus* in children of a more advanced age, has now and then seemed to follow from a blow or a hurt by a fall, or on another occasion to come after a severe fever. The period of life has likewise been very short in these cases; nevertheless there have been some such big headed children who, to our great surprize, have lived in this piteous condition from three to four, nay to ten and fifteen years: one is said to have arrived to its twentieth year of age; and a few years ago, in a parish near *Upsal*, died a woman forty-five years of age, who ever since the sixth month of her nativity, had been confined to bed with a monstrous large head, in such misery as it is commonly attended with. This case is described in the Dissertation of Doctor *Ekmark*, *de hydrocephalo interno annorum XLV*.

The cranium itself is generally dilated when the head increases to such a monstrous size, for the bones are easily felt under the skin, which then on pressing on it, does not give way. The whole cranium is almost always equally dilated, but however more so forwards and upwards, that is to say where no external resistance is; therefore the forehead is both broad and high, and being both prominent over the eyes and the other parts

of the face, those hereby appear to be so much more narrow and short. The *ossa cranii* are distended one from another before they have time to fasten together by their futures, so that the interspace betwixt them grows gradually, and may be felt in the manner as the fontanelle of young children. But if the child in this deplorable disease continues for some years, the bones of the cranium will then grow out, and at last meet one another, or the interstice be filled up by smaller bones gradually growing and joining the former together, so that the division no longer subsists, and after that the increase is less rapid. Hence we find it is only in younger subjects that the signs can be taken from the distance of the *ossa cranii*; nevertheless it deserves all attention; as the disorder then begins, and one may have the more time, and hope to cure it. The cranium increases generally at the same time in thickness and firmness, though one instance is written down of its being transparent, so that one was able to see the interior state of the head on holding it against the day or candle light.

As soon as this evil begins, the child cannot bear to be kept upright, but grows immediately uneasy in that situation, gets a coughing, vomitings and oppressions, which all cease again as soon as it is laid down. Though one before may have been able to keep it awake for a long time, it will now be continually sleepy; such indispositions deserve the nicest attention even in regard to a little older children; and when the child is still young, one ought carefully to feel and observe the state of the fontanelle, if it be increasing in length and breadth. The growth of the body goes on very slowly during this disease, the limbs will be but small, slender and lean; and within a short time the child will no longer be able to support its heavy head, much less to erect its whole body, nay though that should not grow quite paralytic, it will however be out of its power to move; and the child being therefore continually confined to bed, grows more deformed. Those who have continued in this deplorable situation, have seldom learnt to speak distinctly, and seldom shewn a good understanding, have often had some fault in the external senses, been liable to pukings, and some have
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been affected with frequent convulsions. In short, their life has been wretched and miserable in some shape or other; and it is but a poor consolation, what is told of a few patients, that some of these symptoms have been quite absent or less intolerable; for the single circumstance of not being able to move one's head is alone sufficient to make life miserable.

By opening those after death, who sooner or later have been carried off by this disease, we have sufficiently learned that the *cranium* in this manner is distended by water, which has been collected thither from its most tender years, continuing to increase till the bones acquired more firmness, and thereby prevented its more rapid progress. It is therefore with great propriety that one has called this evil *hydrocephalus internus*, or internal dropsy of the head. This collection of water lodges commonly in the cavities or the ventricles of the brain. Authors have set it down as a great peculiarity, that the water has been collected within the brain in particular capsules. Once or twice it has been found above or upon the brain, between that and the finer *tunica* next to it, likewise between the said *tunica* and the firmer exterior one, which also is said to have been separated from the interior vault of the *cranium*, and consequently to have given room to water: but in these very rare cases, the water has besides been found in the ventricles of the brain, where it probably first has been collected, and from thence found an issue. The water has more often been clear, now and then mixed with blood or purulent matter at the bottom; or it has been stinking. The quantity of water has been from three pints to a gallon, nay an instance is related of a tender child, having above three gallons; the quantity of water has in general been greater in tender children than in older patients. The least of these watry collections is alone sufficient to press the whole brain, and its nerves; the upper part of the brain, which otherwise has the thickness of two or three fingers, has therefore in this case been found thin as the back of a common table knife, nay as a cartridge paper, without the least sign of the *anfractus gyriformes*, or those turnings and windings resembling

resembling that of the intestines, which a sound brain otherwise is endowed with. When the water has lain upon the brain, then it has been compressed to a very small compass, and besides been hardened. Sometimes it has been very much softened to a confuse mass, or consumed to the beginning of the *medulla spinalis*.

This collection of water does not begin sometimes till the child is two or three years old; the increase is then more slow, and the afflux ceases after a time. In such a case the head is enlarged something more than usually, and a part of the above enumerated bad symptoms begin without immediately suspecting it for the *hydrocephalus*. This is likewise the case with a great number of children who get the rickets; they are frequently stupid, pale, of a puffed up countenance in the face, and leucophlegmatic, in many circumstances resembling those before described big-headed children; they likewise get sometimes affected with a plain *hydrocephalus*, (see p. 269 in the preceding chapter). The morbid disposition which in the rickets is universal, and causes likewise the ossious substance to swell, contributes likewise in that case to the increasing of the head.

Such an unhappy collection of humours in the brain often enough happens to full-grown persons, but without any dilatation of the cranium, which then has sufficient firmness to resist; therefore the water in those is never found in such quantity; nevertheless, as the force of the water presses the whole brain and its nerves, the consequences will be equally dangerous, such as a very great sleepiness (*carus*) craziness, palsy, apoplexy, and a sudden death*.

* Doctor J. G. Zimmerman mentions that one of his countrymen, who was a prodigy in nature, in respect to his learning, grew at last as stupid as a beast, only by about a pint of water being collected in his brain and its membranes. Dr. Itb, who immediately found in what the disease consisted, restored the patient to his understanding twice, only by such remedies which evacuated the water. But at last the disease would no longer yield to remedies. See *Von der Erfahrung* ii. p. 545.

Children are sometimes, though happily very seldom, found to be born with two other deformities besides that of the watery collection within the brains. The first consists in a soft tumor, sometimes resembling an excrescence which has had its seat in either the side or the back of the head; its magnitude being various, from that of an egg to the size of a head, nay sometimes bigger. Such a tumor has sometimes contained within its surface, larger or smaller pieces of the brain, in the cavity of which there has been water communicating with either of the ventricles of the brain through a smaller or larger aperture of the tender bone of the cranium, where the tumor has been annexed. Far from doing any good by incision; it has accelerated the death of the patient. From all this it is plainly to be perceived, that the water already collected within the ventricles of the brain, has pressed out a part of that *viscus* through some less firm place of the cartilaginous membranes, betwixt which the bones of the cranium are gradually formed. This fault, though it mostly has soon terminated with the loss of life, nevertheless being of a smaller size, has now and then been successfully cured by the endeavours of the celebrated *French* surgeon *Mr. le Dran*; this has given some reason to hope of curing an uniformly distended *hydrocephalus internus* when still in its beginning.

The other deformity does not differ from that above-mentioned in respect to its particular kind, but to the place it occupies. On some part * of the *spina dorsa*, chiefly in the loins, sometimes nearer the fundament, but seldom on other parts of the back, there arises a swelling, which, by giving way to pressure, discovers itself to contain a tumor: the parts below this tumidity are lame, and the legs generally besides a little twisted or ill-shaped. This tumidity, when accompanying the *hydrocephalus*, on being opened, has lessened the bulk of the head, which increased again on shutting up the aperture. Incisions here likewise have

* Examples of this may be read in the Transactions of the *Swedish* Academy of Sciences, sent in by Professor *Acrell* for the year 1748.

accelerated death. This connexion may easily be accounted for by anatomy: for instance, the water may have been collected first in any one of the ventricles of the brain; then, going by the usual open ways down into the dorsal canal around the *medulla spinalis*, it has pressed out the thick membrane, and thereby formed this tumor; the *vertebræ* in the neighbourhood have then, more or less in number, been found cloven at their hindmost or spinal production, which is cartilaginous in infants; or they have been quite defectuous. This fault has been occasioned either by the pressure of the water alone, or, it being originally in the formation of the bones, the water would the more easily prevent its coming to a perfection. Therefore this deformity is called *spina bifida*, and apparently would, when nearer the fundament, be as curable as the *hydrocephalus*; but not so higher up, where, on account of the vertebral productions, a simple pressure will not put matters to rights. There is likewise a possibility of the water sometimes beginning lower down, and then rising higher up.

We have spoken before of the *hydrocephalus internus*, which has its origin and seat within the *cranium*; but there is also an external *hydrocephalus* or *hydrops* of the head, which arises from an aqueous humor being collected between the *cranium* and its exterior integuments. These give various room to the water, according to their situation one within the other. The face also will swell in that *hydrops* of full-grown persons which, next under the skin, is spread over the whole body. A similar aqueous tumor will likewise attend the *erysipelas* of the head, small-pox, nay often the tooth-ach, and rheumatisms of the head. But we shall find, at least in most of these cases, that the hairy part of the head does not swell very much; and when it happens to be distended with water it is properly called an external *hydrops* of the head, whether it be confined between the *calotte aponerotique* and the *pericranium*, or between this last and the *cranium* itself, in which case the swelling must necessarily be lower, or less elevated, and less yielding to a pressure. Several old and very experienced physicians have never met with

this kind; from which we may conclude with certainty that it must be very rare. It is found now and then to be complicated with the internal dropsy of the head, and then plainly to have been a consequence of the same. But the few examples which are enumerated of the simple external dropsy of the head sufficiently shew, that an advanced age is equally subject to it as the most tender.

Dropsy arises in the head in the same manner as in other parts of the body: the ventricles of the brain, as well as all other cavities of the solid parts, either larger or smaller, are kept smooth by a subtle aqueous vapour which continually perspires from the blood-vessels. It is easy to discover, that, though this vapour be ever so subtle, and imperceptible within a short time, nevertheless it would, not being carried off for the space of some days or months, be collected in a quantity, so as at last to disorder and flow over the place: but an all-wise Providence has prevented the disorder which would arise from thence, by making a number of lymphatic vessels which gradually absorb this vapour after it has performed its function relative to the place, and then the said vessels carry it into the blood again; the superfluous and corrupted parts of it being deposited and carried off by certain means provided for that purpose. Now the due proportion being disturbed, so that the aforesaid vapour be more copiously affluent than its conveyance off, it will collect together in a perceptible water; and this is generally the case with the dropsy, in what place soever it has its seat; therefore the nearest cause (*causa proxima*) may be a fault either in the tubes that carry the vapour to and from the place, or it may consist in the quality of the vapour itself: the worst is if the whole together be faulty, which commonly will be the case when the dropsy has lasted for some time.

The vapours may be too copious when the internal vessels of exhalation are relaxed and dilated so that they perspire more than a due quantity, especially if the blood be at the same time too thin, which several important causes may effect; as, for instance, an interrupted perspiration of the skin; a great absorption

in a moist air; too much drink and humid food; but chiefly both circumstances taken together; and in a foetus it will happen no otherwise than by the blood-vessels being squeezed, whereby the circulation must become slower, nay nearly stagnate, so that the pores of the blood-vessels will not only be distended, but the blood within the body must be affected in the same manner as is daily observed in a portion of blood, kept undisturbed on a plate, after venæsection; that is to say, it will resolve itself into a *serum*. The vapour itself may besides grow too viscid, and thicker than to be capable of absorption by the very minute and subtile orifices of the absorbing vessels; or these last may lose their power of absorbing; a greater number of them may be squeezed together; perhaps the absorbing vessels themselves may burst in some place: however we have seldom reason to suspect this last cause; but the before enumerated faults of the said vessels happen by far more frequently, and will likewise remain as long as the distended parts continue in their weakness: for when the skin and consequently the interior parts do not correspond one to another tolerably in due proportion, the orifices will neither be kept rightly open, nor close enough to the vapour which they are to absorb; and besides there will be an interspace left for the vapour to collect together. These circumstances therefore should not pass unnoticed in any kind of dropsy.

For, in order to the cure of the dropsy, it is in general required, partly to carry off the collection of aqueous humor as soon as possible, partly to prevent whatever might cause another collection. The first of these we chiefly effect by remedies which increase either the stools or the urine, the superfluous humor being carried off by the above-mentioned evacuation. Nevertheless this is the longest way. On some occasions it is performed by vesicatories, proper incisions, and other apertures, which immediately give issue to such a humor. But these operations require various attendance and nicety; and, above all, we must then strengthen, and by proper bandage support, the parts which were so unnaturally distended. According to
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this general method we may likewise endeavour to cure children who are affected with a dropfy in the head. They must frequently take the electuary of manna, with rhubarb or jalap in it; or the *electuarium lenitivum*, diluted with *syrupus rosarum solutivus* to the consistence of a thick juice. If the child be something older, we may add to the former a few grains of *radix scillæ*, which, preferably to many other remedies, quickly carries off aqueous humors, either by urine or stool, or sometimes both ways. However we ought to prevent reachings, which the above-mentioned root of *scilla* will easily excite: for, though a vomiting be salutary to children in most cases, as well as in this; when gentle, it would however at this time especially do much harm by its many and violent shakings; which certainly could not help increasing the pressure of the before too much distended and affected parts.

If the water, as it has happened in some rare cases, lodges in the outside of the *cranium*, it is most easily and with greater safety evacuated by a few longitudinal incisions down to the back of the head, which must be kept open by lint and digestives as long as necessary, the head being, during the time, frequently fomented with lime-water, in which there is mixed some wine or brandy, especially spirit of camphire. Blistering with *cāntharides* will sometimes do the same service.

But if the water lodges within the *cranium*, then we must not make any incisions on the swelling; for that would hasten death. As to vesicatories, they are nevertheless recommended in this case; particularly by Baron *Van Swieten*, who has found them to have a very salutary effect in disorders which appeared to him as resembling the internal *hydrocephalus*. With nine parts of the *emplast. e meliloto* there was mixed one part of *emplast. vesicatorium cantharidum*: with this he covered the child's head, after having only snipped off the hair with a pair of scissars. The plaster was taken off two or three times in a day, in order to chafe the head; which after that came into a most profuse sweating; and some repelled eruptions, by which the eyes, breast, and the whole nervous system had already suffered, quickly came out again.

But during this time we must endeavour to effect, above all, that the head may subside or be contracted in the same proportion as the water decreases. It is plain, however, that we shall meet with greater difficulty in performing this than in contracting any of the softer parts in a similar case; for these do not so soon lose their own *tonus* or elasticity; but the *cranium*, being hardened more and more whilst it is dilated, cannot contract itself to a lesser bulk than what the interstice left between its bones will allow. Therefore all endeavours must be vain, if the head be so much dilated that, though the bones are pressed close together, yet there be still a longer interstice or room left under the *cranium*, between that and the brain, than what is required for this last; for though the water occupying this place should not increase more, it will however press and injure the brain. Nor can one, since the disease is arrived to so great a height, have any further hopes that internal remedies would sufficiently carry off the water, and cause the brain to grow in proportion at the same time, and get the better of the remainder by its own strength: it is therefore only in the beginning of the disease that this last-mentioned and most principal cure will take place. However we have reason to expect its succeeding then, by the instances mentioned of the before-described partial aqueous collections on the outside of the head being happily cured when smaller, and repressed in a rational manner. This has been done by a thick compress dipped in brandy, or in a mixture of lime-water with brandy or the like, which has been applied on the tumor, and kept there only by the usual cap of the child closing neatly about the head, so that the pressure is moderate.

What Mr. *Vogel* has found to happen in this case is remarkable, that is to say, that children have fallen into a very profound sleep which has lasted for twenty-four hours together. This circumstance however did not deter him from continuing what he had begun; but, by tickling the children every third hour, causing them to suck during the sleep itself, besides keeping their bodies open by glysters, they were perfectly cured.

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The same method seems to be very practicable, not only in curing aqueous tumors on the back which children are born with, when these swellings are of a smaller size, and situated lower, and nearer to the fundament, but likewise when the whole head is dilated by its internal dropsy. Nevertheless I cannot too often repeat how vastly important it is to undertake the cure when the evil is still in its first stage of existence: and that all, and chiefly the following, signs of the disorder should very carefully be taken notice of; for instance: The child's uneasiness in a straight and erect attitude: it's sleepiness; and that the bones of the *cranium* separate more and more. Perhaps, if we paid a greater attention to this, we should find that this disease occurs more frequently than we are apt to conclude from those rare instances when it has proved mortal till it has arrived to a high and deplorable degree.

C H A P. XXV.

On a difficult Disease of the THROAT, with a preternatural Membrane in the Windpipe.

THIS disease is in general so little known, that I have not been able to learn any vulgar name for it from any country, except that the *Scotch* call it *croup* (*morbus strangulatorius, suffocatio stridula*). It is also rare to find authors mentioning any thing of this disease. The reason must be, that parents neglect to consult physicians immediately, because it seems to be only a slight illness at first; and the children themselves not knowing how to express what they suffer, it comes to its height, proves incurable, and unexpectedly mortal. Or the parents have not understood how to take notice of and to describe the beginning and increase of it; so that the physician cannot learn (*decurfus morbi*) the run of the disease;

and besides, it frequently happens that he is not suffered to open the corpse.

Some parents however have been so sensible as to allow such an opening, whereby the disorder is at last more known. Assessor *Strandberg* was the first who acquainted me with the nature of it, which he had learnt by opening the patients after their death. Several other *Swedish* physicians after that found it out, and their observations were collected by Dr. *Wilke* in a Dissertation defended at *Upsal*, 1764, under the inspection of Professor *Aurivillius*.

This kind of sore throat has not only been spread at *Stockholm*, but likewise about *Upsal*, especially in the *Rasbo* parish, where, during the years 1761 and 1762, in many houses it carried off all the children. Some of them died on the second day, but the greatest number on the fourth and fifth days. They vomited up a quantity of slime and pieces of a membrane. Neighbouring children also, who visited the patients, got infected with the disease soon after.

It likewise carried off a great number of children in the parish of *Fundbo*; and Dr. *Blom* mentions that it has been ravaging in *Hedmora* and *Saether*. It has also been spread in *Scotland*; which I find in a pamphlet published by Dr. *Francis Home* at *Edinburgh* in the year 1765, called, *An Inquiry into the Nature Cause, and Cure, of the Croup*. In which is related what the Doctor himself has experienced of it, and what others have communicated on the subject. It is by this pamphlet, and the before-mentioned Dissertation, I am chiefly enabled to give the following account.

The disease consists in a soft, thick, and whitish membrane, which is formed, during a fever, in the wind-pipe, immediately below its beginning (*larynx*), and sometimes descends into its ramifications (*bronchiæ*). It is not adherent to the inside of the wind-pipe, but is quite loose, so that after death we may easily extract it in form of a hollow tube. Betwixt this and the inner natural coating of the wind-pipe there is formed a matter somewhat resembling pus, and which is likewise to be met with in the *bronchiæ*
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and the lungs. It will sink in water. No fibres are to be seen in this new præternatural membrane, nor does it dissolve on being put into a mixture of tepid water with milk. Notwithstanding this, there is not the least hurt to be found in the lungs, nor the least mark of any ulceration in the internal membrane of the windpipe.

When children are affected with this disease, they lose their usual cheerfulness, are something hot, and some of them cough: they complain of a slight obtuse pain in the wind-pipe somewhat below its orifice; and opposite the same place, on the outside of the throat, there is a little swelling to be observed in some patients, which akes a little on pressing it with the finger: the face begins to look red, and is puffed up: nothing extraordinary is to be seen on inspecting the *fauces*, and there is seldom any difficulty of swallowing, but the breath is laborious: a fever comes on, with a hard and very quick pulse; the thirst becomes pressing; the patient coughs sometimes. All this increases hastily, and on a sudden the pulse lowers, and grows very rapid, but weak; the breathing becomes more difficult, frequent, and shorter; the pain disappears, the coughing ceases, and death comes on unexpectedly. Some patients are obliged to keep in bed; others again are better at times, and able to walk about. A child, who was walking and playing in a room, died as its mother was going to take it up in her lap. It is peculiar in this disease that children enjoy their understanding till the last moment, and that their voice is particularly hoarse and sharp, somewhat resembling that of a young cock: indeed it is impossible to give an exact description of that voice; but a person who has once heard it will always know it again. This sound, which is a certain and infallible sign of the disease, is only to be observed in some of the patients, when they cry, cough, or call out.

It is easy therefore to distinguish this from the other diseases of children which are accompanied with a cough, hoarseness, or catarrh. It seems likewise to be different from another sore throat which once was almost forgotten, but now not long ago carried off

a great many children in *England*, *France*, and even in *Sweden*, and was called a malignant fore throat, *Mal de gorge gangreneux*, (*synanche pharyngea epidemica*) because there was a swelling plainly to be observed in the *fauces*, which turned white, ulcerated, and terminated in a gangrene, unless speedy relief was procured. See the *Essays of knowing and curing the Epidemical Diseases of Sweden*, by Professor *Bergius*, for the year 1755, p. 36,—38.

The disorder we have undertaken to treat of in this chapter, and which consists of the before mentioned præternatural membrane in the wind-pipe, is never found to affect any person above twelve years of age.

Doctor *Home* is of opinion, that it chiefly affects children, who live near the sea, and sometimes those who inhabit low and marshy places. But it has made its appearance in several places of *Sweden*, which have no such situation, and as I have before mentioned, it has been spread in *Hedmora* and *Sæther*, both far distant from the sea.

Physic being a science which has the life of mankind for its object, it will not bear any vain hypothesis, but ought chiefly to be practised according to experience and facts; therefore the best way of acquiring a light into this matter will be to enumerate the causes from the before mentioned writings.

The first case. A child having died by this disease in the year 1755, the corps was opened by Professor *Martin*, in the presence of Assessor *Strandberg* and *Darelius*. A membrane almost quite loose, was found in the wind-pipe, and extracted as if it had been a hollow tube. It was thick, and of a whitish grey in the inside, but on the outside at the top it had a reddish colour. The lower parts of it in the *bronchia*, were more and more pale, the lowermost part of all being quite white, and nearly resembling the skin in the middle of an egg. It was plainly to be perceived, that it was a præternatural membrane by no means belonging to that of the wind-pipe or its ramifications. The lungs were not inflamed, nor any way disordered.

The second case. A girl fifteen months old, living a mile distant from the sea, in the evening seemed something

something indisposed, being a little more hot than usual. Doctor *Home*, who went to see her in the morning, found her breath laborious, the pulse hard, and beating one hundred and thirty-five times in a minute. He ordered five ounces of blood to be drawn off immediately; her voice then grew sharp, and resembled that of a cock; the breathing frequent and deep; her forehead and inside of her hands very hot; both hands and feet swelled, but without any redness. The pulse now being hard, she was bled again, which gave her much ease; she was made to drink and breathe the vapours of warm water mixed with a little vinegar: this had a good effect, and promoted the expectoration. The body was unbound with the *magnesia alba*; in the evening a blister was applied round her neck; the third day she was something better, but the voice the same as before, the pulse hard, and the breath deep. In the evening four leeches were applied under the chin just where the wind-pipe begins, and they having left off sucking, the place was fomented with warm water, so that blood continued to drip for four hours; the child was well the next morning.

Case the third. A girl eighteen months old, having till the present enjoyed good health, was affected with the same disease. She lived near a large lake, a mile distant from the sea; leeches were immediately applied, which sucked five ounces of blood, and she took an emetic. After that Doctor *Home* saw her, and found her voice had not that peculiar sounding, only when she coughed or would strain her voice. The breathing was short, the pulse weak but rapid, so as to beat one hundred and thirty times in a minute; she had a dry and hollow cough, no difficulty of swallowing, but it was painful for her to move the neck: the urine put in a glass seemed clear, and deposited no sediment at the bottom. The Doctor made her breathe the vapours of warm water with vinegar in it, and a blister was wrapped round her neck: towards night she seemed something better, and the neck began to be a little softer; the night was good, and on the third day she regained her natural voice, except when she coughed; for then she had the before mentioned sound. The nose began to run, and there were small clouds (*nubeculæ*)

beculæ) to be seen in the urine. Another emetic was administered. On the fourth day the voice was not yet found as it should be; the urine now deposited a sediment for three or four days, upon which she was quite restored. It is remarkable, that this child had been affected with the same disease, but it was then very gentle.

Case the fourth. A child two years old, who half a year before had had the small-pox, was on a sudden affected with this disease, which immediately was attended with the mentioned strange sound; leeches were applied, as also a blister behind the ears and on the upper part of the throat. Dr. *Home* saw the child on the fourth day, its breathing being difficult, it had oppressions, the strange sounding voice, and a tumour on the throat; the pulse beat one hundred and forty times in a minute; every circumstance seemed threatening. The before mentioned vapours, fomentations, and several leeches were applied; the day following, the child seemed more easy, chearful, and its voice natural; on the sixth day, the pulse was better, the voice quite natural, and the tumour resolved.

Case the fifth. The oft mentioned Doctor *Home* went to see a boy who was seven years of age, being now on the fourth day since he fell sick, living on the bridge at *Leith*. The child had the preceding winter been affected with a violent cough, having had the measles six weeks before that. He had often taken purges, and was tolerably healthy, only coughing a little till he grew sick, had a fever, with heat, thirst, and the strange sounding of the voice which discovered the disease. On the fourth day he had a quick pulse, something hard, but without any great strength. He could swallow without difficulty, but complained of a pain in the wind-pipe when he should speak, or when the Doctor pressed on it with the finger. The face seemed to be puffed up, the thirst was great, and the breathing laborious. He spit sometimes, and a frothy saliva was often to be seen on the lips. There was a white and thick sediment in the urine, the head and the senses were in good order. A bleeding was immediately performed, leeches were applied the night following, and a blister round the neck. The next day

the pulse was much weaker, and beating one hundred and seventy-five times in a minute, the breathing grew quicker, and the child died the following night, enjoying its sound understanding to the very last.

The corpse was opened, but there appeared no sign of any inflammation in the fauces, but the wind-pipe being opened, the Doctor was amazed to find in its upper part a strange white, soft and thick membrane, which for the most part was loose, and covering a matter resembling pus; the inferior parts of it looked red, nevertheless they were not properly speaking inflamed. The *bronchia* being likewise inspected, there was found something similar, but the membrane was thinner and purulent; there was likewise contained a quantity of pus, which was easily squeezed out, and the lungs seemed to be without the least injury.

Case the sixth. Two days after, the same Doctor was called to the sister of the late mentioned boy; she was five years old, and had the night before complained of an obtuse pain in the throat; she had already been bled, and taken a mixture of *spiritus mindereri* with *theriaca*, and a blister was applied round the neck. She had lain in a continual sweating after having begun to take of the mentioned mixture. When Doctor *Home* came to see her, she had then got the strange sounding voice, and so difficult a breathing, that the shoulders were much elevated; the face was swelled and red, the deglutition easy, the pulse quick and strong, her senses perfectly sound. The Doctor immediately ordered leeches to be applied to the throat, and it being after that fomented, he made her breathe in the vapour of warm water with vinegar, which seemed to afford some relief. In the evening she grew worse again, and could not bear to lie long in the same position: the Doctor prescribed an emetic of the *syrupus scilliticus*; she threw up a great quantity of viscid slime, she took after that purified nitre with camphire; the day following her pulse was found to beat one hundred and fifty-two strokes in a minute, and she seemed to grow weaker; the tonsils were now a little swelled and covered with slime. She had a difficulty to swallow, and frequent endeavours to reach; she asked often
for

for something to drink, but drank only a little at a time; the tongue was white and foul, the breathing very difficult; she eat a few spoonfuls of *panada* with wine; a lenient clyster was injected, and a fomentation of garlick was applied to the feet; all grew worse in the afternoon; three stools were effected by the clyster; the breathing grew more laborious and quicker, she was very uneasy, tossing her body much, the pulse grew weaker and intermitted sometimes; she died in the evening, her understanding remaining sound to the last. What she spit without coughing looked clear, but that which she had coughed up was thick and yellow as pus.

The corpse being opened by Mr. *Gibson*, the tonsils at the root of the tongue were swelled and covered with slime, and their orifices (*ductus excretorii*) much dilated; the tonsils were likewise larger than usual, but there was neither any sign of inflammation to be observed on them or the circumjacent parts. Around the orifice of the wind-pipe (*glottis*) all was covered with a thick and glutinous slime; the wind-pipe being opened, there was no inflammation to be seen, but uppermost, chiefly on the side of the *œsophagus*, there was a membrane, the half of which seemed to be dissolved; there was likewise a matter which resembled pus; a few small glands in the opening of the wind-pipe appeared likewise to be swelled; there was a similar matter lower down in the wind-pipe, but no præternatural membranes: at the division of the wind-pipe there was to be seen a large quantity of glutinous and white matter, coming out when one pressed a little on the lungs, these being apparently full of it, though they otherwise were sound; the stomach was very soft in the inside, and lined with a quantity of slime.

Case the seventh, A child seven years old, and in perfect health till the present, had now for four days complained of a difficult breathing and of an obtuse pain in the upper part of the wind-pipe, and had a squeaking voice; his quick pulse and difficulty of breathing, had already induced a surgeon to take from him twelve ounces of blood, and to give the *gummi amoniacum*, together with salt of hartshorn. When

Doct^r *Home* in the evening saw the child, he found the pulse very quick and weak, and the breathing very frequent: the patient still felt the pain above in the wind-pipe; no inflammation could be observed in the fauces; the urine deposited a thick sediment, such as it does when an internal suppuration has no outlet; the voice was weak, and the squeaking ceased. As the Doct^r found its death to be near at hand, he desired the surgeon afterwards to open the corpse, and to examine the wind-pipe minutely. This having been performed accordingly, the surgeon related, that no sign of inflammation was observed in the lungs, but that he had found a quantity of matter resembling pus immediately below the orifice of the wind-pipe, but he had not observed any strange membrane, nor whether the *bronchia* were filled with pus.

Case the eighth. A boy four years of age, was affected with a coughing and frequent breathing, and as the disease seemed to resemble the croup, leeches were immediately applied, and the next day a vesicatory; the patient seemed after that to be better, and was able to walk about in the room for that week, only coughing a little. Doct^r *Home*, who saw him the next Sunday for the first time, found him hoarser than usually in this disease, the pulse was very quick, the breathing short, and that he found some difficulty in swallowing, together with a coughing that was dry. The Doct^r supposed then the disease to be combined with the *squinzy*, and applied leeches, fomentations, and other things, as usual in such a case. On the Monday the breathing was better, and the other symptoms seemed to decrease; the Tuesday all grew worse again, and the patient died.

The corpse being opened, there was found such a membrane as we often above have mentioned. It being now white, very firm and thick, and below it there was a purulent matter which was yellowish and not yet dry. The natural membranes of the wind-pipe were entire, though red and much inflamed. In some of the *vesiculæ pulmonales* there was to be seen a matter similar to that above mentioned of the wind-pipe.

Case

Case the ninth. A girl four years of age began to cough a little on the 20th of *October* 1763; she was nevertheless exposed to the open air the next day. In the evening she had a more violent coughing and a catarrh of the nose. Mr. *Wood*, who as a physician attended the family, happened to see her by chance as she was playing, and observing her to have some difficulty of breathing, he felt the pulse and found it to be quick, therefore he bled her, though she otherwise seemed very well; the 21st she was worse; a vesicatory was applied round the neck, and another between the shoulders: a clyster was likewise injected: the 24th, Doctor *Home* saw her; the breathing was found short, and the pulse beating one hundred and eighty strokes in a minute; the urine deposited a thick sediment; she was said to have spit up a matter which her relations looked upon as pus. The Doctor judged by her breathing, that more of this remained; she eat and drank without any difficulty. Doctor *Home* gave her an emetic of *scilla*, but that was of no benefit; the 25th, matters were in the same situation. The Doctor observed a little pus in the spittle which she coughed up; the breathing was now very short and laborious; vapours from a little vinegar were ordered to be drawn in by the breath, in order to excite coughing, but that had no effect, and the girl died in the evening.

Her body being opened, the inside of the wind-pipe was found to be lined with an unnatural membrane the space of three inches below the beginning of it; the membrane was loose, and taken out like a hollow tube. The natural membranes of the wind-pipe were not affected at all; the lungs were fresh; but in the left lobe of them there was a quantity of matter which was yellow and thick, and sunk in water; the præternatural membrane was tough, and did not dissolve though the Doctor purposely kept it for two days in a mixture of tepid water with milk; no fibres were to be seen in it.

Doctor *Home* himself has been present, and written the eight cases of the before mentioned; but the four following were communicated to him by others, of which we here give only a short abstract.

Case,

Case the tenth. Mr. *Wardrobe* speaks of a child who died of this disease on the fourth day, and that the swelling it had on the outside of the wind-pipe was rather *œdematous* than inflamed.

Case the eleventh. Mr. *Balfour* speaks of a child under his care who was affected with a coughing for eight days together before the disease broke out; and that, after much blood being drawn off at the neck by leeches, he bled the patient besides, and found the blood to have a *crusta inflammatoria*. The body being opened, he thought there was a suppuration in the wind-pipe; but, on examining it more narrowly, he found it to be only a *mucus*, which had acquired the same colour as that of *pus*, and the same appearance and firmness as a membrane. He mentions likewise that this membrane was thicker in the middle, so that it seemed quite to shut up the wind-pipe, consequently to choak the patient.

Case the twelfth. Mr. *Wood* mentions a child sixteen months old dying on the seventh day by the croup. The corpse being opened, he found, in the wind-pipe and *bronchia*, a great quantity of slime, which was frothy and somewhat viscid; and that it was continued, together with the unnatural membrane, down into the smallest ramifications of the *bronchia*, resembling *pus*. He mentions likewise that the lungs were a little red on their outside.

Case the thirteenth. In this last is mentioned a girl of nine years of age, who on the third day of this disease got a violent coughing for some hours together, and coughed up a piece of the membrane which was black. Dr. *Home* supposes this is owing to the membrane being dry, as in the other patient it had been white and soft. This child died likewise.

I have already mentioned something of the mortality of this epidemy in *Sweden*, but, in order to shew plainly in what shape and nature it has appeared there, I will insert some of the cases which were communicated by the physician of the province of *Upland*, Dr. *Halenius*, and enumerated in the mentioned dissertation by Dr. *Wilkes*. The first of these therefore is here

Case.

Case the fourteenth. A youth, five years old, of a healthy constitution, in the afternoon of the 19th of *January*, 1762, grew sleepy and feverish, and affected with a catarrh at the nose, but no cough: the two following days he sometimes walked about, sometimes lay down, but always had a heat, grew more sleepy, vomited, had a catarrh and sneezing, and a small running at the eyes. On the fourth day all was in the same state; but towards night there came on a difficult deglutition and a more perceptible fever. The patient could not sleep well till towards the morning. The fifth day we found the fever abated, but the difficulty of swallowing increased. On the tongue appeared now a white, firm, but soft membrane, and a great quantity of slime, which partly was vomited up, partly otherwise flowed out, and was the cause that no sleep could be gotten before midnight. On the sixth day he swallowed with greater ease; but the copious slime made the breathing, now otherwise easy, to sound like a continual hissing or rattling. The fever was scarce perceptible. The patient had got sleep in the evening, but this was disturbed in the night by slime and frequent coughing. On the seventh day he was hoarse towards noon, and the coughing dry and deep, which became more dry in the evening, and troublesome till some viscid slime was hawked up. The patient had now an easy deglutition, but fell into a profound sleep, and got a quicker pulse. Immediately after midnight the coughing ceased almost intirely, upon which followed a great restlessness. On the eighth day, early in the morning, the breathing grew more difficult and quicker, the pulse beating from 140 to 150 strokes in a minute. Nothing would now avail in exciting the cough again, or promoting the expectoration: therefore the restlessness and rapid breathing increased, which deprived the parents of this their beloved child. The patient used, during the whole disease, gentle purges, emetics, refrigerants, and expectorating remedies, gargarisms and syringes in the throat, applications of oil of olives with salt of hartshorn; but the event was nevertheless fatal. The corpse was opened, and in
the

the windpipe was found such an unnatural membrane as we have already described.

Case the fifteenth. The sister of the above mentioned child was seven years old, and quite well during the disease of her brother; therefore, nobody suspecting she would share the same fate, no preservative was used. On the fourth of *February*, in the morning, she began to complain of a severe head-ach, was sleepy, red in the face, had a perceptible fever, and was confined to her bed. She puked once, fell into a gentle sweat the following night, and slept well. The next day she was something better in the forenoon; but after that, especially towards night, she began to complain of an head-ach and tooth-ach, and a stronger heat. The tongue began now to grow white: the patient bled sometimes by the nose, but very little. The breathing was already hissing, whether the air was drawn in by the nose or the mouth: the night was uneasy. On the third day in the morning she had some *nausea*: the tongue was whiter: below, in the corners of the nose, was a slight eruption with white points, but red at the skin: on the upper lip were likewise discovered two such pointed dots of the eruption. The fever was scarce perceptible on this day, but towards the evening it was as strong as before: the deglutition grew more difficult as it advanced nearer towards night. On the fourth day the fever was again lessened: she now neither complained of any head-ach nor any considerable difficulty of swallowing; but she could not easily hawk up the slime: a dark crust was observed in the mouth, and on the *uvula* and *velum palati*: the tongue whiter: the fever increased again towards night. She was freed of much slime by syringing the throat, but sleep, which used to give her some relief, was nevertheless prevented by the viscidty of the slime and its afflux, besides a troublesome sneezing, which was caused by a humour distilling from the nose. On the fifth day matters were nearly in the same state. The crust in the mouth something thicker, and spread to the sides. Towards night she sneezed oftener, which deprived her mostly of sleep: the cough was less violent. The slime was

loose, but nevertheless not hawked up. On the sixth day she seemed tolerably well, and got rid of much slime by syringing. Towards night she was weak, and so sleepy that she scarce could keep her eyes open, but the slime prevented any rest. The crust on the *velum palati* was still adherent, though a part of it had loosened. On the seventh day, at ten o'clock, she looked chearful again; but she coughed, and sneezed, a thin liquor being distilled from the nostrils: no rest was procured before midnight, partly on account of the breathing being difficult and hissing, partly because the slime was in such a quantity, and so viscid that it was feared it would stifle her, especially on account of her being so uneasy and weak, that she did not spit it out. On the eighth day she was chearful again, sometimes hawking up the slime with ease, and at last, after frequent syringings, several crusts, of the size of a half-crown piece: these were viscid and thick, whitish-grey on one side, and with bloody streaks on the other. In the afternoon the pulse was quick, but weak; the strength abated, and the expectoration did not go on well; the coughing was deep and hoarse, the voice was altered, the slime grew thicker, and the breathing more rapid. After a change of anxiety and much uneasiness she fell into a profound sleep. The weakness increased, the cough diminished, and ceased intirely after midnight. What she drank caused pukings, and returned through the nose: the deglutition was nevertheless easy. On the ninth day, early in the morning, she hawked up a little of the above-mentioned crusts. The anxiety, weakness, and the quick pulse and breathing increased gradually. An offensive smell from her throat was perceptible even at some distance. The urine was clear, and resembled small-beer, but deposited a white thick sediment at the bottom. The breath was drawn by the mouth and exhaled through the nose. At last she was suffocated as it were, and died at three o'clock in the afternoon.

Case the sixteenth. Mr. *Gibson* speaks of a child who got the better of this disease, after having hawked up a great quantity of matter and large pieces of a membrane.

Case the seventeenth. Mr. *Raef* has made mention to Dr. *Home* of a boy between five and six years of age, who, on the fifth of *August*, 1764, got affected with a catarrh at the nose and a hoarseness. On the eighth day the breathing grew difficult, the voice cracked, together with a fever. As the child was in a gentle moisture or sweating, he prescribed a mixture with *spiritus Mindereri*. On the ninth the pulse was quicker, but the child did not hawk up any thing. Blood was drawn off, a clyster injected, and a blister applied to the neck. On the eleventh of the same month he was told that the child by a violent coughing hawked up a piece of two inches size, which resembled a membrane, and was white and viscid. In the evening it could plainly be perceived, that the slime hawked up was mixed with *pus*. The child did not recover its voice till after three months. It is uncertain whether it was this disease which affected the boy mentioned by Dr. *Starr*, in the *Philosophical Transactions*, No. 495. Art. VI. He was ten years and a half old when he fell sick, and several times coughed up some of the membrane, but died at last. The Doctor does not mention any alteration in the voice, but that the patient retained his perfect understanding till the last, and without having been delirious.

Case the eighteenth. This disorder of the wind-pipe was spread at *Fahlun* in the year 1761. Mr. *I. F. Schulz*, surgeon of the mines, has sent me an account of it; but I will here only relate the cases in which there was something extraordinary. For instance, a girl, eight years of age, complained of something in the throat, but discovered this her illness to a woman-servant only, so that her parents did not know any thing of it. Four or five days after she eat a soup of heps with a very good appetite. On the same day, at eight o'clock in the evening, the child got affected on a sudden with a difficult breathing, especially on drawing its breath, and the voice sounding as we have often mentioned. *Rob. Sambuci* with a camphire powder was given to her, an emollient fomentation was applied round the neck, rhubarb was

prescribed, a blistering and the vapours of an emollient decoction of herbs were used. The next morning she took the *sal cornu cervi*, and in the afternoon both the *oxymel simplex* and *scilliticum*: but all was to no purpose, and without procuring any relief. However the deglutition was quite easy. It is remarkable too that there was no sign of a fever; though the pulse was irregular, and often intermittent. The girl died on the following day at four o'clock in the morning: so that the difficult part of the disease only lasted thirty-two hours.

Some small streaks of blood were observed on the outside of the breast, but no swelling neither there nor on the neck. The lungs were found without injury; only behind, towards the back-bone, they were found something dark, and filled with clotted blood. No sign of any inflammation could be perceived either in the lungs or the windpipe; but this last was lined with a præternatural membrane, which in some places was more adherent than what usually has been found in others. In the upper part of the windpipe was some *pus*, which however had no bad smell.

Case the nineteenth. A girl, six years of age, who had a good voice for singing, grew hoarse without any apparent cause; but seemed otherwise very well. A few days after, on the thirteenth of *November*, 1761, in the evening, she was suddenly taken ill by a difficult breathing, attended with a strange sound, as heretofore described. Four ounces of blood were immediately taken from the arm, but this afforded no relief. Also *oxymel scilliticum*, purges, clysters, and vapours of emollient herbs, were prescribed, but without effect. No fever was observed: the pulse intermitted something: the urine was in small quantity, and like water. She swallowed some tea and thin soups in the mornings; but in the afternoons and evenings she would not use any thin food, but chewed and swallowed dried prunes and raisins. She had no anxiety in the day-time, amusing herself with toys; but she was rather uneasy at night, sleeping very little at a time. However, notwithstanding that she often hawked up small membranes and a quantity of matter, she

she did not recover, but died on the twenty-first of *November*, being suddenly and unexpectedly stifled by the disease, as she was sitting upon the knees of the woman-servant.

The corpse was opened, nothing unusual being found on the surface of it. The lungs were found; but the membrane so often mentioned was found in the windpipe, and was very loose: a frothy and pale yellowish matter was observed in the upper part of the windpipe and *bronchia*.

Case the twentieth. The sister of the above mentioned girl was four years of age, and lived in the country during the illness of the former, but was sent to town at her burial. She remained a few days in town, dressed in the cloaths of the deceased, and went into the country again. The following day she grew sick, had a gentle puking, and was obliged to lie in bed. She vomited again, and amongst that which she threw up there was some blood mixed. The disease was otherwise quite similar to that described in the last-mentioned case. She could not be prevailed on to use any thing; but she died, after having been sick forty-four hours.

The corpse being opened, a similar præternatural membrane was found in the windpipe, and a quantity of thin matter both there and in the *bronchia*.

Dr. *Home* has observed in those bodies which have died of this disease, and been opened afterwards, that if the unnatural membrane has not been seen elsewhere in the windpipe, it has however always been found on that side of it which is next to the *œsophagus* or gullet, where the cartilages are defective, or do not continue their circles, and in which place the greatest number of glands have their seat.

By what has hitherto been related, this disease will easily be distinguished and known. Consequently, if a child grows indisposed, complains of any illness in the throat, or of an obtuse pain in the throat, and seems to have some difficulty in breathing, then we must inquire, 1. If this disease be spread at present? 2. If the air is or has been cold and moist? 3. If the child has lately had a tedious catarrh, after an antecedent hooping-cough, small-pox, or the measles?

If it has any heat and thirst, and whether the face looks puffed up?

If these signs be found, then there is already some reason to apprehend the *croup*. But, in order to be quite certain, we ought, 1. To examine whether there be any tumour on the anterior part of the neck. 2. We must feel and gently touch on it, well observing whether that place be more tender. 3. If the child can swallow without difficulty. 4. If the breathing is laborious and quick. 5. If the pulse be quick, hard, and strong, in the beginning of the disease; but, after a few days, grows soft, weak, and rapid. 6. If there be any cough; if that is quick and suffocating when it comes on. And, 7. If the voice be hoarse, sharp or acute, and broken, especially when the child cries, coughs, or calls out.

They will likewise enable us to distinguish this disease from others which bear some resemblance to it; for instance, from the squinzey (*cynanche*) in which the superior part of the windpipe is inflamed. For, 1. The squinzey is not a disease peculiar to children. 2. It is attended with a very difficult deglutition. 3. In that disease a heat is felt in the throat, which sometimes increases with such an acute pain, that the patients sometimes grow desperate and attempt their own life. 4. There is no sign of any tumour on the outside of the neck.

As far as we can judge from the foregoing observations, this disease is a rheumatism or catarrh of the windpipe. For there being a quantity of slime continually discharged from the small orifices of the glands, especially on the side where the cartilages are defective, this is congealed into a membrane on coming in contact with the air; but this membrane, when formed, is prevented from cementing with the windpipe by the continual succession of mucus and slime discharged from those glands. This appears the more probable, as no sign of ulceration has been found on the natural membranes of the windpipe*.

It

* In the putrid ulcerous fore-throat (which the *French* call *mal de gorge gangreneux*) it frequently happens that the

It is not so extraordinary a circumstance that similar membranes are formed by slime. An instance of such a membrane in the windpipe is related in the *Phil. Trans.* abridged, Vol. III. p. 60. Mr. *V. Haller* mentions several in his *Elem. Physiol.* T. XIV. p. 149. Similar membranes have been formed in the guts and carried off by stools, which happened to the learned *Lipsius*, Professor of History at *Leyden*: this gentleman being anxious, and apprehending it to be a piece of the bowels, till his friend Dr. *Heurnius* undeceived him. Several other such cases are attested by Dr. *V. Haller*, l. c. T. VII. p. 157. Compare this with what Mr. *Warren* says of the *polypus* in the *bronchia*, in the *Medical Transactions* of the College of Physicians at *London*, Vol. I. Such a rheumatism, or catarrh, sometimes happens to the bladder, so that the slime in the urine either congeals or grows hard, or this may happen to it after being discharged in a glass, so that it does not run out though we turn it upside down. I myself have seen an instance of this. Mr. *Lieutaud* calls it a catarrh in the bladder.

This catarrh of the windpipe is caused, no doubt, by a cold and moist air; but I know not why it chiefly attacks the windpipe. Dr. *Home* is of opinion that it arises from the vapour of the sea. But I cannot think so, as the disease appears likewise in places far distant from the sea.

As the windpipe is filled with much slime and an unnatural membrane, it is not at all surprising that the patient gets a difficult breathing and a strange-sounding voice; for the air cannot so easily pass thro' a narrower passage; and the blood is always much interrupted in going down from the head when we have an asthma, or any difficulty of breathing; and this causes the face to appear puffed up and swelled.

interior membrane of the windpipe and gullet, naturally belonging to them, is thrown up either by coughing or reaching. See the *Journal de Medecine*, 1768, September, p. 202. the abridgment of Mr. MARTEAU DE GRAND-VILLIERS *Description des Maux de Gorge Epidemiques & Gangreneux.*

That the disease is contagious, appears from the twentieth case, and from what happened in the parish of *Rasbo*.

The third case shews that a person can have this disease more than once.

By the above observations we also learn, that on the first days the pulse is commonly quick, hard, and strong; the face red; and that leeches and bleedings have then been of service. We find likewise that the windpipe often is inflamed in the inside, and that the blood has an inflammatory crust (see the eleventh case). From hence it follows, that the disease is of the inflammatory kind, and requires evacuations. But, when the disease has been of some days duration, the pulse is quick, soft, and weak, the uneasiness increases, the strength disappears, the slime or *mucus* likewise increases, and takes the appearance of *pus*, which, filling the *bronchia*, makes the breathing and the circulation of the blood through the lungs more difficult. Dr. *Home* calls the first of these periods the *stadium inflammatorium*, and the second *stadium purulentum*. During the first of these we may still have some hopes, but in the latter hardly any at all. Evacuations are hurtful in the last. The only thing we then wish for is that the patient may cough up a great quantity of matter and the membrane also, though even that has seldom cured it. See, among others, the 13th, 16th, 17th, and 19th cases.

Hence we find of what importance it is to distinguish well these two stadia or periods, both in respect to our forming a judgment whether the patient is likely to recover or not, as well as to the choice of remedies. The distinction is sometimes very difficult, and in that case Dr. *Home* advises to take notice of the urine; for, if that deposits a white sediment like *pus*, it is a sign of the patient's being in the second stadium, and consequently in great danger, when all evacuations are hurtful, and accelerate death. We ought chiefly to be attentive to all these signs when the disease begins gently, and comes on as it were by stealth, or begins as an intermittent fever; for, if we are not then on our guard to oppose this evil, the patient will

not recover, and dies when we least expect it: see the 15th case. Parents ought likewise to learn by this, how necessary it is immediately, in the beginning of a disease, to ask good advice of those who know how to give it.

The best and most effectual remedy we can have against this disease is bleeding: but that ought to be performed immediately, and in a sufficient quantity, so that the pulse abates. If the pulse should increase again after some hours, we ought to bleed again, as we see from the second case: but if the second stadium is already begun, no bleeding ought to be performed, as it was by mistake in the fifth case.

After bleeding we ought to apply leeches on the fore part of the neck, just where the windpipe passes. They are here of the same service as in a pleurisy, when they are applied where the pain is felt, or in inflamed eyes when applied around them.

Further, we ought to prepare a tea of elder flowers, adding to it a little vinegar *, and dip a sponge in it, which we are to hold under the nose, or lay it on a napkin on the breast, so that the patient can breathe in the vapour of it. By this we hope partly to dissolve the slime, and partly to promote its being hawked up.

Blisters will diminish the catarrh of the windpipe, and drive it out to the skin; consequently we ought to apply one to the nape of the neck, or on the sides of it. It will not do to apply it on the forepart, where the leeches have been sucking. We know very well what an incomparable effect blistering has in a rheumatism, tooth-ach, in the common sore-throat, and in all colds or rheumatisms in what place soever; so that there is reason to expect a good effect from it in this disease likewise. But bleeding and leeches

* Last year Professor *Bergius* found the vapour of vinegar to have an excellent effect in this disease, and therefore causes the patient to smell to a napkin dipped in vinegar; besides which he orders the pillow and the curtains of the bed to be sprinkled with vinegar.

ought, without dispute, to have been used beforehand.

If this cure should be thought too rough, we may wrap the neck in a moderately warm emollient poultice, to which is added some mustard seeds; this we suffer to remain on the neck till the skin grows a little reddish, with small elevated points. After that we may leave the mustard seeds out, and continue with the emollient poultice, which is to be changed for a warmer one as often as it grows cold. Such poultices may be prepared for instance of three ounces of mallow leaves boiled in water to a proper consistence, adding to it two drachms of bruised mustard seeds at the end of the boiling, in case it is to act as a sinapism.

It is necessary to keep the body unbound with clysters, or giving every day the *electarium lenitivum*, or a few tea spoonfuls of the *pulpa cassiæ recent. extracta*, or of *magnesia alba*, *Edinb.* mixed with sugar; or we may prepare a clear milk whey (*petit lait*) and dissolve a little manna sugar in it, and give it the child to drink.

By the sixth, seventh, and eighteenth case, we find that sudorifics have been tried, probably in order to drive the humours to the surface. But nothing has been gained thereby; nor does it seem that emetics have done any good.

Time and experience must determine whether *bronchotomy* will be of service, if for instance it is tried in great necessity; likewise if the coughing up of the membrane can be promoted by smoaking cayen pepper (*capsicum*) in the room where the patient lies.

In the narrative of the *collegium medicum* to the parliament at *Stockholm*, during the diet 1769, I find some of the physicians of the provinces have seen and described this disease, especially Assessor *Wahlborn*, p. 58, Doctor *Blom*, p. 9, and Doctor *Engstrom*, p. 300; their cases deserve to be read. We want to learn why the windpipe is but very little tender, or little irritable, in this disease; and to know the time when the membrane in fact is formed?

C H A P. XXVI.

OF THE ITCH OR SCAB.

THE children of the rich, are seldom affected by the scab; but this disorder is more common among the lower or poorer sort of people. The former have sufficient attendance: the room where the child lives is kept clean, the nurse has cloaths and linen to shift it with, and to keep herself neat; she is likewise obliged to shift the child often, and get dressings sufficient for that purpose. The poor can neither afford so much shifting nor attendance; they are taken up with many other occupations, so that they have not time to wash and clean so often as it is required; therefore I cannot help thinking but that a fluttish and nasty manner of life is the cause which gives occasion to the scab. The second cause I look upon to be a contagion, not by the air, but by contact, any one infected touching a sound person, or only his cloathes being touched or worn by him*. A person who only has some pimples, will infect a child only by keeping it on his arms for a little while. If its washer-woman or her assistant have the itch, they will easily convey the contagion to the child. The infectious matter itself is neither vapour nor any hereditary or accidental acrimony, salt or acidity in the blood, but consists in a number of living animalcules or small insects, (*Acarus Siro* Linn. *Syst. Nat.* Edit. xii.

* Many in *America*, especially the black slaves, are troubled by sort of eruption with sores and small fungosities resembling strawberries. This disease is called *Frambæsia Americana*, and is propagated partly by immediate contact, partly by some flies, which after having settled on a sore of an infected person, go and settle on any little pimple of a sound person. See *La Noffol. Method. de Mr. Sauvages*, T. iii. p. 11. p. m. 429.

T. hp. xi. p. 1025), which insinuate themselves into the body under the thin skin, and there propagating, gnawing and creeping, excite an irritation or itching; this again causes a flux of humours to that place, which raises the thinner skin in pimples, and these being scratched, and the thinner humour evaporated, it will dry up in crusts. This opinion is received not for the sake of any idle amusement of reasoning, but it is founded on experience. *August Hauptman, Bonomo, Schwiebe*, and several other men of veracity, have repeatedly, during different seasons, and on people of different sexes and ages who had the scab, found such *animalcula* on their skin in the wrinkles of it, and chiefly in the edges about the pimples. These little insects have been put to a minute examination by magnifying glasses, been drawn, and found to lay eggs, increase surprisngly fast, and to an innumerable quantity; they are likewise observed to keep alive for several days, though taken out from the body. Hence we find,

1st. Why the scab is so contagious? Because these *animalcula*, in a contact, are easily conveyed from one person to the other.

2d. Why uncleanliness promotes the scab? Because all nastiness is agreeable to these *animalcula*.

3d. Why children are more subject to scab than full-grown persons? Because the skin of children is more soft and full of pores, so that the *animalcula* more easily can get under their thin skin.

4th. Why the eruption first appears on the hands? Because with them are persons or cloathes first touched where these *animalcula* may have settled; for if the scab was owing to a salt or acrimony in the blood, the eruption would first appear in the parts where the perspiration is strongest.

5th. Why it is necessary and conducive to wash our hands often, nay likewise in the evenings? Because we then wash away the *animalcula* which may still sit in the wrinkles of the skin, and not yet have crept in under it; and as we touch more things in the day time, and the hands then are exposed to get more dirty than during the night, it is more adviseable to wash
the

the hands in the evenings, than only to do it in the morning.

6th. Why the scab is repelled by cold, and breaks out again when we are heated by any great exercise? Because these living *animalcula* fly both from cold and heat.

7th. Why itching chiefly comes on at certain hours? Because these *animalcula* stir and feed at certain hours, chiefly in the evening, and are at rest during the interval.

8th. Why the scab increases and changes place? Because the little animals increase very fast, and change their place of abode.

9th. Why the scab is not a necessary disease? Because we are not born with these *animalcules*, but they are communicated by infection. The same is the case with the small-pox, measles, hooping-cough, and the venereal contagion, which are not necessary evils to any person, but can be avoided if we keep clear of the contagion.

10th. Why the itching and scab disappear when we apply remedies of oil, sulphur, quick-silver, lead, onions, *radix helenii*, tobacco, lye of salt of tartar and the like? Because such remedies commonly kill insects, and the *animalcules* fly further into the body in order to avoid it; therefore one may easily find how dangerous it is to apply external remedies alone.

11th. Why the scab so easily returns? Because the contagion is so easily caught. Besides, we know not how long these insects live in our cloaths, and these being put on before they are quite killed, the disease is thereby contracted again; the *animalcula* which settled at the surface of the skin may be killed, but there may be others hiding themselves deeper into the body, which creep out to the surface of it after some time.

12th. Why a child got the scab immediately on the place where its nurse powdered it with flour; this Archiater *V. Linne* once observed; see his *Amoenit. Acad.* vol. v. p. 95. The reason of this was, that the same kind of insects live in flour.

13th. Why the itching and scab grows worse by scratching ourselves? Because besides the pain it causes,

causes, the *animalcules* being stirred, are put in greater activity, irritate and creep about, and consequently convey the scab to other parts of the body.

14th. Why a single scabby person can infect a whole army? Because these insects breed and increase exceedingly fast, and thrive very well in dirty places, as for instance in a camp, where it is almost impossible to preserve cleanliness.

15th. Why those who are confined in large hospitals and prisons, are generally infected by the itch? Because all sorts of people are received there, part of whom may carry the infection with them; besides we cannot keep sufficiently clean where a number of people live together; not to mention their want of necessaries to shift themselves with.

16th. Why the scab is more easily cured in the summer season than in the winter? The cold weather drives the *animalcula* farther into the body; but the mild summer allures them to approach the surface, so that they are more easily killed by the remedies coming in a nearer contact with them; besides they are more easily expelled to the surface after the stronger exercise one usually takes in the summer, for this causes a heat in the body, so that the insects to avoid the stronger heat go out to the surface.

17th. Why old women and quacks drive away the scab sooner than physicians? Because the former begin directly with unguents and external applications, not knowing the dangerous consequences of causing the scab to strike in.

I have tried a great many remedies against the scab, and at last found that nothing is more effectual and more to be depended on, than what at all times has been recommended against this disease, I mean sulphur or brimstone used internally and externally at the same time. It is very well known that sulphur kills insects. And it is peculiar, that a piece of brimstone which otherwise does not smell, will by means of the warmth of our body give a very strong scent, so that the sweat of itself smells sulphurous after having taken any of it. Therefore gold and silver worn on the body during that
time

time will get a swarthy cast. The insects fly from and die of the smell of it; and this is the reason it is such a specific in the itch. Therefore in order to cure a child who has the itch, we must take care,

1st. To keep the room neat and clean, and to shift the child often, keeping its cloaths well washed and clean, and that the mother and nurse also be clean, besides ordering that none who are scabby, be allowed to handle or come near the child.

2d. That the room be kept moderately warm.

3d. To give the child in warm cows milk, or that of the nurse, from two to ten grains of *flores sulphuris* very well sifted, or more according to its age, two or three times in a day. If it purges, as it sometimes does, we must give a smaller dose of it.

4th. In case this is given internally alone, and it does not make the scab disappear within eight days, then we prepare an ointment of *flores sulphuris* with cream, anointing the child with it only around the joints of the hands and feet every morning till the scab is quite gone. But in order that it may not strike in, we continue giving of sulphur internally during the same time. I order the ointment to be performed in the morning, because the *flores sulphuris* are taken internally likewise in the day-time, so that the insects may be attacked on all sides at the same time and die. We may give a gentle purge in the beginning of the cure, in case the stomach and bowels are foul, otherwise there will be no occasion for it; for the scab has never as yet been cured by laxatives only, unless they have operated slowly, so as to enter into the blood, and contain something that kills insects.

If the child be still tender, and in its infantile state, so that we do not chuse to give it remedies, then it will be sufficient if the nurse take *flores sulphuris* in warm milk, as much as will cover two or three points of a knife each day. I have myself known that to cure the itch. When the eruption has been very copious, for instance on the feet, then I have ordered cabbage leaves to be applied on it with great advantage. This makes the sores to discharge a great quantity of humour in the beginning, but they dry and heal up very soon after that; the hands are very soon cleared by washing them

them often during a couple of days in a strong decoction of juniper.

The itch, from a venereal cause by inheritance of one's parents who have had that disease, or the venereal itch communicated by the nurse, will be treated of in the next chapter.

C H A P. XXVII.

Of the Cure of Children born with the VENEREAL DISEASE, or infected with it by Nurses.

THE venereal disease (*Lues Venerea*) came first into *Europe* in the year 1494. It was brought over by the *Spaniards* from the island of *St. Domingo* (*Hispaniola*), at the discovery of the new world, under the command of *Christopher Columbus*; but nevertheless it is not mentioned till the following year in the *French* campaign, when the *French* king *Charles VIII.* with an army of 80,000 men went to *Naples*, his troops suffering very much by their connections with the infected women who had already contracted the contagion from the *Spanish* soldiers. From *Italy*, *France* and *Spain*, it afterwards advanced to the other parts of *Europe*, as also to those parts of *Africa* and *Asia*, which are next to the *Mediterranean*, and at last to *Turkey*, *Persia* and *Japan*.

This disease was in the beginning very violent, and the poison must then have been much stronger than at present, as it then killed a great many; but afterwards it has decreased in its violence by degrees, and ever since the year 1610, has not got any additional symptoms, as before happened. It now commonly first affects some of the external parts before it enters the blood, and more especially those which are covered with a thin skin, as the lips, the inside of the mouth, and other parts which have such a covering *. Should the disease

* Mr. *Faber* (*Traité des Maladies Veneriennes* T. i. p. 12) mentions the following cases. A man who had caries and holes

disease decrease in the same proportion as it has hitherto done, in respect to the violence and number of the symptoms, it must at last be very easy to cure, or intirely cease.

The disease is chiefly contracted by connections with an infected person, and we may depend upon it that the greatest number thus receive the contagion, although it does not always shew itself immediately by any external symptoms; because the poison is sometimes so weak, that it cannot cause any pain, inflammation, ulcer, or discharge of matter in those parts which first ought to suffer; but it enters the blood nevertheless, conceals itself there for several years, till at last it is revived again, and breaks out either in a plain or disguised venereal disease. It may be also very innocently contracted, for instance, when a friend uses our bed; if he then is infected, sweating much during the night, or having eruptions, we may easily be thus unfortunate. The honest *Fabr. Hildanus* gives us an instance of this in his *Cent. v. Obs. 97*. We are in the same danger in using cloths or sheets lately used by infected persons. Mr. *Sawage* (*Nosol. Tom. iii. p. 84*) gives us an instance of a surgeon in *Montpellier*, who
became

holes in the *ossa palati*, got likewise a *fistula lacrymalis* on each side of the nose: Several able gentlemen tried to cure him; but to no purpose: The great surgeon Mr. *Petit* got him at last to confess that he had had communication with infected women, though to his knowlege he never was in the least injured by it; nevertheless the poison was gone into the body. Mr. *Petit* cured him intirely with mercurial ointments to the amazement of all. Mr. *Faber* himself was consulted by a lady thirty-one years of age, and married at her eighteenth; seven years after that, she got affected with a severe inflammation in the throat, with fever and delirium; being relieved from this, a tumor remained, which was resolved in three months time. After that she enjoyed a tolerable good health for about a year; but for the three years next following, she was very sickly, and affected either by colds, or some disorder in the head, breast or stomach. At last she got a *diarrhœa* which continued for a couple of months; and first left off when another

became infected by laying under his head a dirty pillow of a salivated person. The same *Hildanus* speaks of a young servant woman, who got the pox by using the stockings of a boy infected with this disease. We see therefore how easily the venereal disease may be propagated even to such as are innocent. Dr. *Linderstolpe*, late physician to his Majesty, in a Treatise on Venereal Diseases, p. 35, says that a young gentleman, only by a kiss, infected his own sister. The great experienced *Forestus*, relates of a man who infected his own wife with the *French* disease; she again propagated the disorder to her child in the womb; that being born, infected its nurse, who gave it to two of her own children. Several years ago a reputable merchant in *Stockholm*, his wife, three children, a servant woman, and two apprentices of the shop, were infected by a nurse imprudently chosen. *Antonius Gallus* tells us, that a midwife got the foul disease by relieving an infected woman. *Burgesius* mentions an infected midwife, who transplanted the same disorder into thirty-five families. A *Dutch* physician, *Antonius Everhaers*, in a small pamphlet printed in the year 1661, gives an instance of a chaste woman, who brought the disease on several lying-in-women by sucking out their breasts, she not knowing herself to be infected. We may likewise read of such similar instances in a treatise on the *hypochondria* by the learned Dr. *Bilgver*, p. 71, —75.

When the parents have a venereal disease, it is very natural that the children they beget will be born with the same. But as the poison (*virus venereum*) at the

ther disagreeable discharge appeared, which however was accompanied with no other pains than cuttings in the womb. Her husband enjoyed perfect health, but had been before his marriage several times affected with the fashionable disease, which had been ill cured and stopped by astringents. He had for the present no other disorder than now and then a herpes (*dartres*), which discharged a humour resembling that which he had seen flowing from another place. Mr. *Faber* did not want more light; he let them both use mercurial ointments.

time of conception may either be active, vigilant acute; or inactive, blunt, and dead as it were, its effect on the child will also be different. If the poison is active at that time, the child in the womb will generally lose its life; therefore we find such unhappy mothers often miscarry or are brought to bed with dead children; and in case they be brought into the world still alive, they nevertheless will be found with sores and other evident signs of the venereal disease. Should the poison at such a time be less active, the child may be born with a healthy appearance, but after some time, its body will break out with sores and boils. But when the poison at the time of conception, lies dormant; either naturally, or by some remedies which the parents have used, and by which it has not been quite extirpated but only weakened, the children will scarce ever get any venereal disease. The contagion has then undergone a change, and causes the rickets, or *scrophulæ* (*des ecroules*) or other distempers, that we hardly would expect to arise from such a cause. Such children grow tender and weak, as also their offspring, from generation to generation. In such a manner a whole nation may degenerate and be corrupted *. From the above-mentioned we perceive why children born by such parents sometimes are affected with some of these symptoms, sometimes keep up a healthy appearance. In the latter circumstance the child has had the good fortune to be begotten and born, when the contagion in the parents is very much weakened, though not quite extinct, by means of a very good diet, or of some remedies; therefore it may at another time again be kindled by an irregular diet or some other means, and like a feed, reco-

* One would hardly believe, that lecherous women could cause more pains and destruction than powder and ball! This however king Philip V. experienced when the *Portuguese* army encamped near *Madrid*; half of his men were infected by whores, who with that intention, and of their own impulse, paid visits to the enemy: see *Supplement aux Essais Historiques sur Paris*, p. 75.

ver and multiply in such a manner, that a child born at such a time, will be brought into the world dead, or with the above-mentioned foul disorder. This is the reason that of several children of the same parents, which are in this unhappy condition, some enjoy a perfect health, whilst both the body and senses of the others are affected. From hence we likewise learn, how necessary it is that a man who intends to marry, should never contract any such disease; and in case he has been infected with it, to take care intirely to extirpate it, otherwise he will certainly make a virtuous wife and her offspring unhappy. As it is a matter so great consequence, therefore he ought to consult with one of the ablest and most experienced physicians, and to discover all that he knows concerning it. If he has had a shanker, which by applying external remedies, has been repelled and disappeared, without any tumor in one or both of the groins having been the consequence, which might have been brought to a supuration and perfectly cleansed, then he may be certain that he is still infected. Also if he has got a *gonorrhœa* which has been but badly managed, the discharge being of too long a duration or too soon ceased, either by itself or by any attack of a fever, or too early stopped by strong purges, *balsamus capiviæ*, or astringent injections, or if he has indurated glands in the groins and down to the thighs, then he likewise may be sure of being infected with the venereal virus in his body, and though he should have a healthy appearance, he nevertheless wants a thorough cure; and it would be unconscionable of any physician not to tell him plainly his bad state of health*. The following instance may be explained by what above is said.

A young

* It is through ignorance that such a patient consults people who do not thoroughly understand the matter. Those give him palliatives, by which the external symptoms disappear, and then they think all is well, though the poison is repelled into the blood, and sooner or later will break out either with plain marks, or altered, and appearing under quite

A young gentleman being affected with the venereal disease, went through the salivation, and thought himself very well cured. He married, and got with his wife two sound children. Being a widower he entered the second matrimony with a healthy wife. With her he got two daughters, who likewise thrived very well. At last the wife was frequently attacked by spitting of blood (*hæmoptysis*) without any manifest cause, she naturally having no weak lungs. She was afterwards brought to bed of several sons, but all were maimed and rickety, and one of them affected with the epilepsy. Here the salivation had suffocated the poison for a time and weakened it, so that the first wife and her two children did not suffer any thing by it; neither the second wife and her first children. But when the weakened poison by some means again recovered strength, his wife became affected with the *hæmoptysis*, and the children which were brought into the world after that, were born with such diseases as frequently are consequences of the venereal disease, and which killed them one after the other. A child may likewise fall into such a misfortune by sucking a nurse who has the pox, in this case it must be infected with the same disease. Under such a misfortune the child is however happy when the evil is soon discovered, as it may then be cured by sucking the nurse during the time she is put under a thorough cure. It is still more difficult to cure it when it has left off sucking, as the disease then has taken deeper root. By this we find how dangerous it is to chuse a nurse at random before she is properly examined. From hence it will likewise appear how useful an institution the office of nurses in *Stockholm* is, if those who want it chuse to ask its assistance. But from what is above mentioned, we likewise perceive that it is not a sufficient precaution narrowly to examine the body of the nurse who is to be

quite different diseases, which however have their origin from the same spring, and now are not so easy to cure, as they would have been before time and palliatives have altered the natural quality of the contagion.

chosen. We should likewise strictly inquire into her former conduct and way of living: Whether she has served in such places where she might easily have been infected? The venereal contagion may lie hidden for a long while in some people, especially those who are fat. Her own child ought also to be looked at: for by the children one often happens to discover the former way of living of their parents.

In the same manner in which a nurse can infect a child, a child also born with the venereal disease may infect its nurse: and here one thing is to be observed, which seldom fails, namely, that the parts which are touched first by the contagion will always suffer first. Therefore when a child is infected by the nurse, it then gets corroding sores in its mouth, but chiefly in the *fauces*; and the glands of the jaws and in the throat swell and grow hard. If the nurse has gotten the contagion from the child, she will first get the corroding sores on her breasts, and the glands in her armpits grow swelled and indurated.

But should the contagion be brought on by lying with an infected person, or by wearing his cloaths, it will first break out in the surface of the body, in pimples, boils, tumors, swellings, and sores.

This contagion will sooner or easier infect children than those who are rather advanced in years. Probably because their skin is thinner and more subtle, and consequently the pores more open. I would therefore prescribe that a child never should handle a spoon, knife, fork, or cup, which an infected person has used, as this might be of some consequence to a child. But few full-grown persons have contracted the pox in this manner, and much less by the air and the breath of the sick. The contagion will soon break out in a child, if the venereal poison of the parents, especially that of the mother, was any thing active at the time of conception. But if the parents have taken some remedy which palliates the disorder, it is uncertain how soon it will appear. A girl, eleven years of age, was inoculated for the small-pox with success, and looked both healthy and handsome. After some months, an hereditary syphilitic disorder
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broke out, with swelled and suppurating glands on the neck, venereal scab, *caries* in the *os palati*, tumors in the nose, and corroding ulcers in the face. A girl, two years of age, got the infection by a woman-servant, who chewed her victuals, the latter being found afterwards to have large ulcers on the body, and other infallible signs of the pox. The disease did not break out on the child till nine years after that, and appeared first as a scurf (*tinea*). *Spiritus mercurialis* was used during four months, (but with what accuracy I cannot tell) and seemed to cure her. Nevertheless the scurf re-appeared the next year, though more gentle: besides which she got corroding sores in the throat, was often hoarse, and her speech passed as it were through the nose. Two sisters got infected by a nurse, who some time after, having quitted the service of their parents, lost her nose by this disease. Nevertheless the evil did not break out on the children before they were about thirty years of age; except that the one had the scurf in its eighth year.

Whether the venereal contagion be owing to insects, or to any corrosive acidity, or to some putrefaction, I venture not to decide. We only know that it commonly causes redness, heat, tension, pain, as also corroding ulcers in that part of the human body where it is fixed. We likewise know that it coagulates the lymphatic part of the blood, and chiefly fastens itself to the *glandulæ sebaceæ*. It is likewise to be observed, that venereal ulcers do not leave any mark (*cicatrix*) after them. We know besides that this poison is not volatile, and consequently cannot be spread round with the air: but when it infects any one, it is done by contact. *Vide Astruc de Morbis Venereis, p. 125.*

It is extraordinary that this disease may lay concealed, and that sometimes for several years together, though we know for certain that the poison is in the body, and that it has infected others: A particular instance of this is given us by Mr. Goulard, in his *Oeuvres de Chirurgie, T. II. p. 19.* He was consulted by a woman who was affected with pimples and sores all over the body. After having examined her, he likewise spoke with her husband, who had a healthy

and fat appearance. This man confessed that about fifteen years ago he had a tumor in one of his groins, and a shanker. Mr. *Goulard* judged from thence that the eruptions of the woman were venereal: the event shewed that he was not mistaken; for, in the same proportion as a cure with the mercurial unguent was continued, her disorders decreased, and at last disappeared. He endeavoured to persuade her husband to go through the same cure, in order that he might not infect his wife again; but he would not hearken to it. The wife got the contagion a second time, which then attacking her lungs killed her. The man would not be persuaded to use any remedy, as he found himself healthy in every respect; and he continued in the same state for more than twenty-five years after the loss of his wife.

As the venereal contagion may lay concealed in the body for a long time before it breaks out in any visible disease, so sometimes it easily disguises itself under the appearance of other diseases which seem not to have the least connection with the venereal. If we peruse those authors who have given an account of the disorders which they had to cure, we shall find how very frequently the venereal contagion has been disguised and hidden under each; as, inflammation of the eyes, sores on the edge of the eye-brows, blindness, pain in the ears (*otalgia*), sores in the nose, sore throats, thrush, hoarseness, cough, pains in the sides, spitting of blood, asthma, consumption, severe reachings of a long duration, diarrhœa; not to mention hurts in the joints which children commonly get from such hereditary disorders, dysentery or the bloody-flux, *lumbago*, *fluor albus*, hectic fevers, yellow fevers, cold fevers, as tertians and quartans; weakness in the articulations, rheumatism, gout, convulsions, and epilepsy.

The patient may have had any of these diseases before he got infected; but by the contagion they are made worse. We suspect them to be venereal, and that they are to be cured with mercury, if the patient before has been affected with shankers and gonorrhœa which have been ill cured, or if he has had communication with suspected and infected women. In case

neither the sick person nor his friends chuse to confess any thing of that kind, we find it very difficult to discover, nay even to guess, whether the disease be venereal *.

But what confession can we expect from a virtuous woman, who is conscious of no evil intercourse †? Still less from a child, which inherits it from its parent or its nurse. Besides, many a one forgets a venereal disorder that he had many years ago, or does not believe it can have any consequence after so long a time. Perhaps he has requested and received immediate and apparent relief of him he consulted, without understanding whether the cure was radical, or

* Dr. *Bierchen* told me that a youth, twenty years of age, consulted him. This patient had the left eye-brow relaxed and fallen down, the mouth drawn obliquely towards the right side, and the cheeks somewhat swelled; all which he pretended to arise from cold. He likewise said that he got affected with this all at once, together with a sore throat; but that this latter now was better. Mr. *Bierchen* would not have suspected this to be a venereal effect, had he not felt that the glands under the chin were swelled and grown together. On looking down his throat he likewise observed an ulcer in his nose and on its *septum*. He was now perfectly convinced of the true cause. And at last the patient confessed that he had neglected a gonorrhœa. The Doctor ordered *spiritus mercurialis* for him to use both internally and externally; by which means the cheek, the mouth, and the eyebrow, came into their places again within a fortnight.

† A virtuous lady suffered very much and for a long time by the *fluor albus*, as she herself thought it to be. It was accompanied with violent pains in the womb and abdomen; it was of a bad colour, and sometimes had so great a stench that she could not converse in any company. Her conduct had been so regular as never to be blamed, or she in the least suspected. Her husband had an healthy appearance. No lights could be gotten from him respecting this affair. At last one of her physicians found out that her husband had gone through a mercurial cure the year before. The cause was then plain. The physician however discovered nothing to her; but freed her intirely from all her pains by the mercurial spirit of Baron *Van Swieten*.

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only palliative. In such circumstances a great deal depends on the ability and industry of the physician to search into and find out the truth, and accordingly to direct his cure. For let him use what remedies he pleases, even the choicest, it will be to no purpose, if he does not discover the cause, and remove it with mercury.

A gentleman, fifty years old, had already, for six years back, begun to grow lean and lose his strength, but was otherwise in a perfect state of health. The learned physicians *Stahl* and *Hoffman* had for years together endeavoured to cure him. He went to *Paris*, and during two years used the prescriptions there. At last he consulted the physicians of *Montpellier*, and in a course of eight months used several of their remedies, but all to no purpose. Professor *Fizes* at last fell on that speculation, that some venereal disease might lay concealed under this, and, notwithstanding the patient insisted on it that neither he, nor his parents, nor his nurse, had had any such disorder, he ordered him to use both the milk cure and mercurial ointments at the same time; which had so good an effect, that his jolly appearance and strength were again restored. *Vide Mr. Boissien De Sauvages Nosol Method. T. III. P. II. p. 383.* An officer, who was severely wounded by a shot in the arm, was obliged to have it cut off, when, after being healed, he got affected with convulsions, by which his head was drawn to the right side, and his jaw convulsed in such a manner that he was obliged to keep linen between his teeth. Another amputation was made on the stump of the arm, but without any benefit. Many other things were tried, but to no purpose. At last *Dr. Aimar* got notice, that the gentleman had long ago had a venereal complaint, which had been ill managed. He persuaded him to make use of the venereal ointment, by which the disease was happily cured. *Riverii Obs. 10. Commun.* Assessor *Strandberg*, in his latter speech before the Royal Academy of Sciences, p. 33. gives an account of a man, who for a long time had been plagued with a *lumbago*, which he at last got the better of by the mercurial ointment. He might have been relieved sooner, if he had
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had confessed the true cause at the beginning. In the same speech, p. 32. he mentions a youth, who certainly would have lost both his sight and hearing, if he had not been prevailed on at last to confess that he had been infected with the venereal disorder.

I have here given these instances in order to shew what injury a patient does to his physician, and what hurt he may receive himself, in not discovering his circumstances to the person he has consulted, when it is in his power to do so. The case is different with an innocent mother, and a child. Then a physician must try every possible means to find out the circumstances of their disease.

As for a child, seldom any certain signs will appear on it, unless the disease of the mother began with chancrous sores. We suspect it however to be infected, if it gets a quantity of pimples in the mouth, accompanied with white sores appearing as lard, and these being especially on the tonsils (*tonsillæ, uvula, velum palati*) and in the *fauces*; also dilating themselves from one spot to another, disappearing in one place and appearing in another*; and if it has hard or swelled glands under the lower jaw, or on the neck, and a stinking breath. We likewise take notice if it has herpetic eruptions (*dartres*), scurf †, any running in
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* Scorbutic ulcers always begin first on the gums.

† That scurf of children sometimes is an indication of their parents having been infected with the venereal disease, and not well cured, I judge from what the physician of the admiralty, Dr. *Kæbler*, has told me; that, among 400 children affected with scurf, and which were taken care of in the hospital of *Naples*, there were 283 whose fathers or mothers name stood on the list of those who had gone through a course of mercurial ointment in the venereal hospital. It certainly arises from a venereal cause in such children whose parents have not been well cured of the venereal disorder, or themselves infected by caps or combs of other children. The cure is likewise the same as for the venereal disease. The sores on the head are soonest healed up by being washed with *spiritus mercurialis*; but
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the eyes or behind the ears. In that case the nurse is to be suspected. If she then is found to have some signs of the venereal disease, it is no longer a matter of doubt that she has infected the child. This we are to discover,

1. By inquiries into the nurse's conduct, either of the clergy in the parish, or of her own acquaintance, or of her former master or mistress where she has been in service, either in town or country, in publick-houses or inns? Also if any one was infected with the venereal disorder at the place she lived in before, or if she lived among dissolute persons? All which circumstances are a ground of suspicion. But our apprehensions will be better founded,

2. If her face and hands have a yellowish pale complexion, her eyes being sunk in her head, with a bluish ring under them; and if she grows leaner from day to day: also if she is frequently plagued with catarrhs or colds, talking as it were through the nose, and frequently being hoarse without any apparent cause: if she finds a difficulty in swallowing; if she spits a great deal, or throws up a quantity of stinking and purulent matter; if what she swallows returns through the nose, or is shaken up again by a cough; if she has corroding ulcers in the throat of a lardy appearance; if she finds it difficult to inflect her articulation; and if her hair falls off from all parts of the body. Besides we observe,

3. If in the night-time she has a sound sleep; or if she then complains of a head-ach, pain in the back and bones, which cease in the day-time; or are less violent in the night on lying upon something hard,

they soon return, if no other mercurial remedy is used besides. It would also be dangerous to use this spirit externally only. Those who in their youth have been affected with scurf, and not well cured, will often, on growing older, be afflicted with difficult scrophulous disorders, and other strange and often incurable diseases; because the venereal *virus* remains, though altered in its nature.

as a bench, than in a soft and warm bed. It ought also to be looked after,

4. Whether she has any tumors in her groins or armpits, under her chin, or behind her ears; if there be any indurations or *exostoses* on her skull, arms, or legs; or if in the forehead, and chiefly close to the hair, she is affected with any wet or dry and scaly sores, or something similar to roses, or rather spots of a yellowish tinge, resembling freckles, on her neck, breast, and belly; or if on her body be found small creeping ulcers, or larger, in which there is an appearance something like a lump of cheese; or if she has deep notches in her hands or under her feet. At last is to be examined,

5. Whether she has, on her privy parts, any excrescences resembling onions; or if there be any fleshy warts or chancrous sores; which latter are either small or large, flat or deep, but commonly circular, their edges being of a pale reddish, more or less indurated, and sometimes without any hardness at all: the inside is whitish, but, being very corrosive, they appear rather black. They are of quite a different nature from cancerous ulcers. They also begin in a quite different manner; first arising as red spots, which itch, but suddenly grow painful, these spots breaking out afterwards as white pimples, which grow flat and then ulcerated: sometimes they appear as warts, suppurating with a whitish ulcer: the purulent matter which is discharged from these sores looks yellow on the linen. We are likewise obliged to know,

6. Whether she is affected with notches round her *anus*, which discharge a purulent matter; or if there be excrescences of various appearance, sometimes looking like onions, at other times resembling figs, mulberries, and fringes; being relaxed in some persons, in others again hard and callous.

All the above-enumerated signs do not appear in all persons. One may be affected with a greater, another with a lesser number of symptoms which indicate the disease to be venereal: for instance, those who have ulcers which discharge much purulent matter, or who spit a quantity of slime and matter, are
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at that time seldom or not at all plagued with any pains in the night-time.

When a child has inherited the disease from its parents, it will discover itself by some of the above-mentioned symptoms, and by the nipples of the nurse, which then grow red and swelled, as also the ring round about them; small bladders break out, fall in, and turn into ulcers: the milk will not flow, notwithstanding the child is sucking, because the openings of the nipples are pressed together by the swelling. Besides, such unhappy children are brought into the world with a very lean and tender constitution, they get no rest during the nights, and are affected with bad eruptions either immediately at their birth or some time after.

However we cannot be fully assured of the child's state, before we have found out that its parents are infected. There is great reason to suspect something of that kind, if the mother has frequently miscarried, without our being able otherwise to account for it; or if she has been brought to bed of living children that have looked very miserable and half rotten, and soon died. We judge of the contagion of the parents by the same sign as we did before concerning that of a nurse; but, when genteel people are under such circumstances, it requires some prudence and precaution to make the proper inquiries with delicacy.

Venereal ulcers in the mouth are likewise called chancrous by physicians, which must be nicely distinguished from cancerous. I now perceive, that they are not so easily distinguished from each other as I thought formerly. The venereal ulcers and indurations, which have taken place on the lips, tongue, or breasts, and there taken deep root, are especially very difficult to know from the cancerous; unless one has had a great deal of experience in these sorts of diseases. It is commonly said that cancerous ulcers bleed a great deal, and the venereal not; but some of the venereal ones also bleed much at times. The scurf bleeds violently, when the crusts are taken off. All the venereal ulcers which are not of that lardy appearance, but red and dry, bleed likewise, especially when the linen scraps fastened

fastened on it are taken off. All venereal sores are not lardy; but some red, others corroding, blackish, and sphacelous. These latter are often confounded with the cancerous, especially when they fix on other places than the privy parts. It is also very difficult to distinguish them by the callosity in the ulcer and its edges, as the distinction depends upon the greater or less degree. However, the conclusion will always be, that cancerous ulcers are hard in comparison with others; and that whoever shall be able to know one from the other, with any certainty, must have had much experience in treating both. We shall often be able to clear up some doubts arising from this, if we can discover the cause, by considering the circumstances which have gone before, and those which at present appear. This is the more necessary towards a cure when the place affected cannot be seen; for instance, when the ulcer is in the orifice of the womb: since, if it be cancerous, it is scarce to be cured; but, if it be venereal, there are hopes of curing it with mercury.

A girl, twelve years of age, was carried to *Stockholm*, in hopes to be cured of a sore in the mouth, which by several was judged to be a cancer. It was something less than a half-crown piece, appeared dirty, and discharged a matter: its edges were not hard; but unequal, rough, and elevated. On the outside of the mouth nothing was to be seen but a white tumor, and the glands on the neck and under the ears were much swelled. Dr. *Bierchen*, who immediately found that this was not a cancerous but a venereal ulcer, cured her within six weeks with a solution of *mercurius sublimatus corrosivus*. From four to six grains of the sublimate were dissolved in an ounce of spirit of wine, and lints dipped in this were applied to the sore in the mouth, which thereby was healed up, its edges were melted away, and the external tumor disappeared: afterwards internal medicines, prepared of quicksilver, were given to her, in order intirely to eradicate the venereal contagion. Wherever such ulcers are found on the body, it is quite necessary to know how to distinguish them from cancers. The following

following distinctions were communicated to me by Dr. *Bierchen*, who has acquired great skill and experience in this disease; and who has, to my own knowledge, by these distinctions been able to relieve many whose circumstances have been difficult and equivocal. Cancers appear in two shapes; either corroding, the edges of which are hard and reflected; or growing and spongy (*fungosæ*). The former have a very great hardness, which may be felt, both on the edges and middle. This hardness does not give way to any pressure with the finger, nor is it as if you pressed on any elastic body, but as it were on a stone; which character it has in common with the worst sorts of *scirrhi*. This sort of ulcers are generally circular, being of a dark red colour, with the edges lighter, which are often covered with a skin not ulcerated. The other sort, or the spongy, growing, and luxuriant cancer, looks quite different from the former. One would judge that they were soft by their appearance; nevertheless, on feeling them, they are found hard, though not to that degree as the former: they have no apparent edges, but are puffed out both on the sides and in height, and at the bottom; they are as it were strangulated by the skin below, which however, on having taken away the sponge, is sometimes found to be hard, with an elevated edge in the one or the other place. The appearance of this sort of cancerous fores is dark red and knotty; they mostly discharge a yellow matter, but sometimes only a thin and bad matter (*sanies*), and sometimes a mixture of both.

The yellow matter or *pus* comes from the circumjacent *cellulosa*, which, by the admission of the air and the continual irritation, has been brought to a full suppuration, and mixes its *pus* with the *sanies* of the cancer; for this distemper never gives a yellow *pus*.

The venereal poison frequently lies concealed in a very fat person during his whole life-time; but nevertheless his wife may thereby become infected, and his children get a pitiful inheritance.

A concealed venereal disease will commonly soon break out and grow severe, if the patient thus affected take any strong and unusual exercise, use a great deal of strong liquors, eats coarse food and especially pork. Therefore we find that this disease attacks the common people more violently, is more corrosive with them, and very often lethiferous.

In case a disease has been of a long duration, not yielding to all otherwise proper remedies, then we have reason to suspect something venereal concealed under it; our suspicions increase if medicines of quick-silver have procured some relief. Therefore when I have been unable to tell whether the disease has been venereal or not, I have prescribed a little of *solutio mercurialis*, which in the former case procured a quick relief. The preparation of this solution will afterwards be given in this chapter.

A venereal disease which is the consequence of an ill cured *gonorrhœa* is in effect more gentle, but more difficult to cure than that which first begins with shankers; this latter will commonly attack sooner and with violence, and obliges the patient immediatly to undergo a radical cure.

Whoever has been affected with any external accidents of that kind, and they break out again after some time without any other cause, may depend upon it that the poison is still in the body, though he thought himself well cured, and that he still wants a thorough cure.

When a woman of a healthy and jolly appearance; after being married grows lean and sick, being affected with one unusual distemper after the other; rheumatisms in the neck, pains and swellings in the articulations, or indurations where the glands are, strangury; or a disagreeable flowing with excoriation and pain near the *meatus urinarius*, then her husband ought to examine his own conscience, and immediately confess himself to an experienced physician and ask his advice. If the husband then is found to be infected, he ought immediatly together with his wife to undergo a thorough cure, and not to defer it from one day to another; as the poison in the mean time may affect some part necessary to life, and either of them or both die.

Scorbutic ulcers differ from those of the venereal kind in the circumference of the former being bluish, and spotted with small white points. On touching their crusts they are found soft and spongy, and in their bottom is generally a spongy flesh, which resembles a piece of a calf's liver. If it be taken away, it soon grows again; powder of burnt allum will soonest remove it. We cannot make any mistake if other symptoms of the scurvy accompany it; as for instance in the cold scurvy, we shall find the face pale and puffed up; the patient complains of being tired and out of breath after the least exercise; his gums are soft and spongy and bleed easily; spots which are red, bluish, black, or of a lead colour, are scattered on the body, especially on the thighs, but never in the face, the knees grow weak, &c.

In the year 1745, Mr. *Boltenhagen* (now happy) and myself went to see a new born child which was affected with many sores on its body of a tardy appearance. The child was continually squeaking, and the parents were impatient to have it relieved; the appearance and colour of the sores made us suspect them to be venereal; nothing certain, but only suspicions could be formed about the state of the parents. In order to clear up this, Mr. *Boltenhagen*, who was a man both of experience and presence of mind, immediately strewed a little fine pounded *mercurius dulcis* in one of the larger sores, and covered it with a plaster, hinting to me, in case the ulcer be venereal, this appearance of a lump of cheese will melt away by to-morrow; if not venereal, the ulcer will grow worse. It happened as he foretold, the cheese-like lump was melted away, the mother was salivated suckling her child during the time, and both were saved.

New born children are more easily cured when they suck than when they have left off; nevertheless children who are born with the venereal disease are cured with more difficulty than those who have been infected by the nurse. The sooner the disease breaks out, and its nature is known, with the greater certainty may it be cured; but if it has lain concealed for fifteen or twenty years, it will be difficult to remove. It requires then
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sometimes a continual use of mercurial medicines for a whole year, nay sometimes for two years together, in order to be cured, and besides a great stock of patience both in the sick and the physician.

The venereal disease is in general curable if it is not suffered to grow too inveterate; for the shorter time it has been in the body, the more easily will it be removed. The cure is more difficult when the bones are already affected.

However this disease is seldom quite eradicated; because the patient grows tired, and breaks off the cure as soon as the pains have ceased, and the body appears clean. From thence it happens that they get relapses, or grow indisposed for all their life-time, and for the future affected with some sort of eruptions, especially a *herpes*. Another cause is, that young people are not willing to discover their bad circumstances to their parents, and consequently cannot use a thorough cure, being obliged to content themselves with palliatives till they are quite ruined, and sometimes incurable. A gentleman had contracted a *herpes* from such a cause; against which he used mercury both in *France* and *Stockholm*. The disorder caused an intolerable itching in the night time, and disappeared at last on a sudden and unexpectedly, when he cut an issue in one of his legs; the *solutio mercurialis* was not then in use. When the *herpes* sits on one spot only, it may be scratched or scarified with a pin, and thereby brought to a suppuration and healed up as another ulcer.

The oftner a venereal disease is contracted, the more difficult it will be to remove, and the longer one keeps playing with it by decoctions and such palliatives, the deeper root will it take, and be worse to cure.

Those who are affected with hard excrescences (*tophi*) on the head, or ulcers in the throat, ought especially to make haste to ask for relief; because in the former case the skull will soon grow carious, even quite through, which easily causes convulsions and epilepsy. In the latter the face is in danger to become deformed by the falling in of the nose.

Persons who are affected with the scurvy to any degree will suffer a great deal if they use mercurial re-

medies before they are cured of that disease, or at least upon their recovery from it*.

The king's evil or *scrophulæ*, if from a venereal cause, will yield to mercury if they are not of too long standing, but the cure must be continued for a long time. The yellow fever (*icterus*), habitual vomits, *diarrhœa* and convulsions, are curable only by this remedy when they arise from such a cause. But children who are affected with an epilepsy from the same origin, will seldom recover. When the poison has fixed on the lungs, and already made them ulcerated, no remedy will hardly ever cure it.

Those who are affected with *hypochondria* or the *hyp*, and contract a venereal disease, will always suspect themselves to be still infected, though they be ever so well cured.

If those who have the venereal disease, or are not well cured of it, fall into a fever, they will generally lose their life.

The more the disease keeps to the surface with eruptions and sores, the less pain is felt in the body. Therefore we find a vesicatory to give some relief when applied on the place where the pain is fixed; but as soon as the skin is healed up again, the pain will return equally violent.

I will now advance to the cure itself, and first mention how to relieve a woman who is found to be infected

* Dr. Lind gives us a remarkable instance of this, which he has gotten from Dr. Grainger. A soldier who had the scurvy and venereal disease at the same time, was on an evening anointed with an unguent which contained a drachm of quick-silver; this threw him next morning into a salivation, which kept increasing till the tenth day, at which time the inside of the mouth, the lips, and the cheeks were swelled to a surprising height: he spit every day a quantity of stinking pieces of the gums; the teeth were for the greater part lost out of his mouth, and were larger than before; the urine had a bad smell, was thick and almost black; he fainted frequently, and being in such a wretched condition, could scarce be saved, nor was he able to do any duty till three months after.

with a venereal disease during the time she is big with child, which consequently must likewise be infected. In such unfortunate circumstances there is no time to lose, but a quick relief is required; for if the cure be deferred till she is delivered, the foetus will in the mean time die, and at last be brought into the world half rotten, or with little life. The mother is during that time subject to miscarry, or the contagion may cause such tumors, schirri, excrescences, and exostoses, that she cannot be delivered at all, and consequently either the foetus or herself, or both of them, may lose their life. Professor *Deydier* has given us an instance of this in his *Dissertation Sur les Maladies Veneriennes*, p. 84, from which is plainly to be seen that both the mother and the foetus would have died if he had not immediately come to their relief with mercurial ointments, by which both were saved, notwithstanding the cure was undertaken so late, that it could not be finished sooner than three weeks before her lying in. Therefore such a patient ought immediately to be well prepared, and with great caution use the mercurial ointments. I will afterwards shew how the one and the other is to be put in practice. That it can be done without any considerable danger, I had myself an occasion to see, when a lady on the sixth month after conception, discovered to me that she was infected: the cure being happily performed, she was delivered of a healthy child, and after her husband had gone through the same cure, she has been brought to bed of several healthy children. *Hildanus* cured in the same manner a woman, her foetus, and another child of hers which she suckled during the time. Mr. *Desault* in his *Dissertation Sur les Maladies Veneriennes*, and Mr. *Goulard* in his *Oeuvres de Chirurgie*, have several such cases, as has also Mr. *Faber*.

When a child is born with this disease, and is still of a tolerable lively appearance, we have hopes to cure it by the mother's using the mercurial ointment, and the child sucking her during the time. If the mother be too weak, we are obliged to procure the child a nurse who will go through the same cure. It is adviseable to make her acquainted with all the circumstances be-

fore-hand, in order that the parents may avoid a disagreeable prosecution, as it once happened in *France*.

But as the mother's or nurse's breast and nipples commonly grow so sore and swelled on suckling such a child, that the milk will not flow; physicians have been obliged to think of another method, which perhaps is the safest; a goat must be well chafed and cleared of hair, and rubbed with the mercurial ointment in the same manner as it is done to people; the child must live on her milk during the time till it is cured. Mr. *D'Aumont*, professor in *Valence*, cured a child in this manner within thirty-five days, and Mr. *Lewret* is said to have cured several in this manner.

The same cure may likewise be used for a child which already is weaned; but if it be advanced to its tenth or twelfth year, it can then under great precaution and superinspection use the mercurial ointment in the same manner as a full grown person; or we may prescribe for it *Syrupus Mercurialis Plenckii*, a tea spoonful at a time once or twice a day. We shall speak more of this afterwards, and its preparation especially when intended for children*.

I know

* The preparation of this syrup is as follows: Take purified quick-silver half a drachm, *gummi arabicum* one drachm and a half; put to it *aqua fumarie* a spoonful: rub it in a strong mortar for a long time till the little globules of mercury intirely disappear; add to this syrup of violets four spoonfuls, and elder water one spoonful. Instead of the latter, *solutio mercurialis* would make it more efficacious. Assessor *Bierchen* uses instead of this a very palatable mixture of sublimate with quick-silver, prepared in the manner as follows: Two drachms of distilled quick-silver must be rubbed in a stone mortar, together with six grains of *mercurius sublimatus*; add to this ten or twelve drachms of the powder of *gummi arabicum*; pour on this by degrees eight ounces of clean spring water, continually rubbing it very well with the former during the time; at last mix to it two ounces of *althææ syrup.* and two ounces of cinnamon water, which latter according to the circumstances

I know very well that the generality chuse rather to employ *mercurius dulcis*, *panacea mercurialis*, and such similar remedies of quick-silver prepared by a mineral acid; I likewise believe several to have been cured by them. But to my knowlege those remedies cause very often violent pains in the stomach, severe *diarrhœas*, and a dreadful spitting, which have made the cure both dangerous and frequently ineffectual. I know that such remedies sooner shew their effect by the abatement of the symptoms, and for that reason only the conclusion is immediately made, that on account of the salivation they cause, they are preferable to the mercurial ointments which I often recommended, and which in fact are much safer and better, requiring only a little more time. For this is confirmed by daily experience and the observations of several physicians, which shew many relapses to follow after the use of the former, and that several persons who have repeated the salivation without any effect, at last recovered a perfect health by a long use of the mercurial ointments. If the salivation could be prevented when the *panacea* and *calomel* are used as long as the ointments, I believe it would equally cure. However, *calomel* may be taken in a pretty large quantity without causing any spitting, provided it be combined with *sulphur auratum* and camphire; perhaps in that case it is of the same service as the ointments. For I know that Assessor *Bierchen* with this radically cured a young gentleman who was affected with the *fluxus hepaticus* of a long duration, arising from a venereal cause. The ointments were first tried; but the Doctor was obliged to leave them off, as they immediately threw the patient into a salivation. He likewise cured another without any spitting, by the use of this composition and the mercurial ointments together.

stances may be prepared with or without spirit. For those who are nice in the taste, we may order distilled water of roses instead of the spring water. The mixture keeps better with a distilled water than with the common,

The same case exists with the fumigating of cinnabar as with the *mercurius dulcis* as above. It is true that an external accident, as, for instance, hard knots, or a difficult callosity, may be removed thereby, when the smoak, by means of a funnel, is directed to that part of the body which is affected. But a right venereal disease cannot be cured thereby with any safety and certainty. This is sufficiently proved by the journals which are purposely kept of such cures, and which the learned *Astruc* amply relates in his great work on venereal diseases, p. 181—208.

Salivation is much in use with us, but I wish that it were intirely rejected: for, 1. It is very painful. 2. Very dangerous. 3. Uncertain. 4. Inconvenient to many. 5. It has no crisis. 6. Not necessary.

That it is attended with great pains is easily found when we consider that a person who salivates first feels a great heat in his mouth, the glands on the neck and the mouth swell, the gums grow ulcerated, as likewise the tongue; the whole face swells, and the tongue sometimes to such an enormous size that it has not room enough in the mouth, but is in part driven out of the jaws, and when the patient happens to get a little rest he sometimes will squeeze it by contracting his mouth while asleep, and cause great pain. Therefore one is obliged to put something betwixt the last grinders, in order to prevent the mouth being shut. If he has heretofore lost a tooth, a part of the tongue will be pressed in there, and cause great pain: therefore such a place ought to be filled up with a piece of cork. When he speaks he rubs the ulcerated tongue against his teeth, which is very painful. The same happens if he drinks a little milk-warm broth. The evil is made worse by his being obliged to spit every moment, which likewise prevents him from sleeping. If he should fall asleep, one is often obliged to awake him, as otherwise he might easily be choaked by the great flow of his thick and tenacious spittle, especially if he sleeps on his back; besides which the teeth loosen and partly tumble out; and the patient is exhausted and grows lean without necessity or benefit. All this is likewise allowed by *Mr. Faber*. Compare *Van Swieten's Comment.*

ment. I. § 135. It would however be some comfort, if this strong spitting, with all the other plagues attending it, did not come on before the latter end of the cure; for then he might hope to be cured at once: but if the salivation comes on, as it sometimes does, after the third or fourth ointment, the quicksilver will run off, and the sick fall ill again after a while, and be obliged to undergo a new cure.

Nobody can deny but that the salivation is attended with danger. Do not fevers, and sometimes a diarrhœa, bloody-flux, spitting of blood, or other hæmorrhage, attend it? Frequently, after the cure is performed, and the ulcers in the mouth are healed up, the under jaw cannot be opened. The *French* call it *bridure*. Not to mention that the tongue is afterwards often found grown fast to the gums, and other accidents, which ought to terrify every one from using such a cure. I know very well that nobody at present will carry the spitting so far. But how are we able always to keep it within proper bounds, after it has once burst out?

That a strong salivation does not secure the patient from a relapse, is known by experience and proved by good reasons; for it is found, by experiments purposely made, that quicksilver soon goes off; and that the greatest part of it may be collected again in the vessel the patient has been spitting in; the rest is carried off with the urine, stools, and perspiration. And therefore it is observed likewise, that a gold head of a cane grows pale by being kept in the hand of a salivant for half an hour in the beginning of a cure, but not so at the latter end; and that a ducat does not alter its colour when put into the spittle itself during the middle and the following days of the cure; for the quicksilver is then already out of the body. That the spitting continues nevertheless, arises from the irritation which the ulcers in the mouth cause. Besides, the greater part of the mercury goes to the mouth, and consequently too little a portion is left to subdue the contagion which revels in the lower part of the body. It is also known, that when a strong salivation shall be effected, the unctions must be more frequent,
which

which always causes a fever. During this the smaller vessels will be contracted, which prevents the quicksilver from entering them; and consequently the contagion lying in these parts will not come in contact with, or be touched at all by, the mercury, but is left to kindle the disease again.

Every sensible person will allow that the salivation cannot easily be used for a woman with child, for a tender child, for a person who has weak lungs, or sensible nerves, or is already lean and exhausted; nor when the glands of his neck are much swelled, his throat and nose affected with ulcers, nor if he be subject to convulsions or epilepsy. All such however are cured with the ointments so directed that they do not cause salivation. Why then should not others be allowed to use the same benefit?

That the salivation has no crisis I conclude partly from this, that no genuine venereal disease has ever been cured by a salivation excited by nature; partly from experiments, that healthy people, anointed in the same manner as sick, have fallen into a similar salivation, attended with the same stench and pains. We never require any crisis when we give bark for an intermittent fever, chalybeat wine for a weak stomach, or scurvygrass (*cochlearia*), and sorrel (*rumex acetosa*), for the scurvy.

Besides, why should we put any one to an unnecessary salivation, when we know that many have been cured in whom no spitting at all could be excited? Since the year 1718 innumerable persons have been radically cured without salivation: and experience shews that those have not suffered any thing during the cure, nor been attacked by any dangerous accidents, neither enervated; but, on the contrary, got a jolly appearance during the cure, and afterwards been safe from relapses. The only inconvenience is, that they have been obliged to confine themselves to convenient food, and that with moderation; but they may walk round the room, and enjoy the company of their friends. Mr. *Chicoyneau*, who was professor at *Montpellier*, and afterwards first physician to the king of *France*, chiefly established the use of this gentle method

method of curing the venereal disease in the year 1718. Mr. *Haguenst*, professor in the same place, has since that, in 1732, made it more applicable to all circumstances. It is now probably received every where, as the sick are equally well cured in this manner at *Montpelier*, *Paris*, and *London*; as also in *Sweden*, only with this difference, that a little longer preparation is required before the cure; and that the patient cannot venture to expose himself so soon to the open air after he is cured; which is owing to our climate*.

A radical cure depends on the following circumstances †: 1. That so much quicksilver enters the body as is wanted to destroy the poison. 2. That it run through all even the smallest vessels in our body. 3. That it touch and come in contact with every drop of blood and juices in the body. And, 4. That this happen not only once but several times.

Therefore the quicksilver ought to remain for some time in the body, to be carried every where; and not immediately to be evacuated, as happens when it is combined with purges, it then only running through the guts. It ought neither to be expelled by a sudorific decoction, nor by salivation, as it then runs hastily off with the spittle. For that reason,

1. A sufficient quantity of the mercurial unguent ought to be rubbed in; which quantity cannot be ascertained, because it should vary according to the age of the sick, their growth, size, and other circumstances: about seven, eight, or nine ounces are generally expended. The longer the interval between each unction the less unguent is required, and the better and safer will the cure be. Mr. *Raymond* in this manner

* This is practicable however in the summer time, even during the cure, and the salivation thereby prevented in a great measure: witness Dr. *Hallman* and Assessor *Bierchen*.

† It is very pleasing to me to find that this is likewise approved by Mr. *Plenck*: see his *Methodus Nova & Facilis Argentum-vivum exhibendi*, p. 49.

cured his patient, who had a hole in his skull from a venereal cause. After the application of five ounces of mercurial unguent the hole was filled up, and all well in eight months, the time of preparation included. But when he before tried to accelerate the cure, his life was endangered by convulsions: see *Traité des Maladies, qu'il est dangereux de guerir*, p. 303. Now if a person, who has contracted the disease, requires eight months time to cure it, is it then a wonder that any one, who has it by inheritance, should require three or four times as much. This is the reason that so many are left uncured, only through impatience, and employment of too short a time. The late Mr. Astruc cured two that were miserably sick by slow unctions and without a salivation. The one had been twice salivated, and the other used the sudorific cure with guaiacum to no effect. The one was at last cured within six months by being anointed every fifth, sixth, or seventh day; the other, being less affected, was cured within three months.

2. A little only ought to be rubbed in at each time, for instance, one drachm and a half, or two drachms. And,

3. The ointment ought not to be hastened, but left off as many days as are necessary to prevent any spitting. Therefore the anointing is to be deferred as soon as the patient begins to feel a heat in the mouth, or his gums grow red and swell. One may certainly know by this that the quicksilver is in the blood.

4. The body ought for some time to be well prepared, in order that the quicksilver may cause no trouble in it, nor immediately run to the mouth, but remain for some time in the body, and go off slowly and by degrees through the skin, by the kidneys and the stools, &c.

The preparation is almost the most necessary part of the whole cure; to which a longer or shorter time is required, according to the circumstances of the patient. How bad a consequence too short a preparation may be attended with appears from a case in the above-mentioned speech of Dr. Strandberg, p. 18. How well the cure afterwards succeeded, after a previous and long
pre-

preparation, may be seen in the same place. Each person may require a different preparation, according as the constitutions differ; but in general it consists in bleeding, more or less, according to the plethoric habit: see p. 87. Next day some gentle purge must be taken, which may be repeated after a day or two, if there is reason to believe that the stomach and bowels want more cleansing. Besides which the patient ought to drink freely, either of whey diluted with water, or water mixed with one fourth or fifth of milk, or barley-water with milk, or some ptisan prepared of well-washed corn, or of the roots of *scorzonera*, *cichorium*, *gramen*, or *taraxacum*, boiled in water; to which, after being taken off the fire, may be added some liquorice so as to make it palatable. When cool, pass it through a strainer, and let it be drank either as it is, or mixed with a little milk *. As to the food, the patient ought to be very nice, and neither eat too much, nor such things as will cause a heat in the blood, or make it acrid. However, one of the most necessary points of the preparation are milk-warm baths, which one ought to begin with the day after having taken the physic, and are to be used once or twice a day, according to the strength of the patient, for instance, in the morning, and at six o'clock in the evening.

The longer a patient can bear to sit in the bath, the better it is, especially for those who have a lean and dry constitution; but a woman big with child ought not to venture into the bath, for fear of miscarriage. At *Montpellier*, in the hospital for venereal diseases, they commonly use to bathe eighteen times; but the number of baths cannot be fixed: one patient wants more, another less. After each bath he ought to drink weak broth, or strained barley-broth. When

* Formerly it was customary to let the patients drink decoctions of *guaiacum* and *sassafras*, and the like, during the preparation or the cure itself. But this custom is now corrected. The intention of preparation is to dilute the blood, and to relax the solid parts, but not dry them up.

he leaves off the use of the baths, it ought to be well considered whether another bleeding is required; though this is seldom necessary with us; but to take another purge is generally of advantage.

It frequently happens that we get such patients under our charge, whose circumstances or hideous pains will not allow so long a preparation; namely, those who are already so weak that they can scarce hold out any longer; whose ulcers in the throat threaten with the loss of the nose, the bones of which already begin to be affected; whose breath gives some occasion to fear ulcers in the lungs, &c. With such persons any delay will be dangerous. In such circumstances one may follow professor *Haguenot's* advice, and, after one or two days preparation, anoint and bathe the patient alternately, till the violence of the disease be tolerably subdued; which is soon done: then, leaving off the ointments for a little while, the preparation is undertaken in food, drink, and especially with many baths, just as is before mentioned, and as if no unguent had been applied beforehand: the ointment is undertaken again, after a proper preparation, and continued till the disease is quite cured*.

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* Mr. *Goulard*, l. c. p. 26. did in this manner save the life of a gentleman who in his youth had contracted several venereal disorders, which he had only appeased with palliatives. He sought relief in *Holland*, but to no purpose. He travelled to *Paris* in order to get cured there, especially of a tumor on the uppermost part of the breast, where the *clavicula* unites with the *acromion*. A plaster was applied: the tumor suppurated, pieces of the *clavicula* fell out, and the sore was healed up. But he used nothing that could extirpate the venereal poison in his blood. He went home again, thinking all was well: but was attacked by one distemper after another; as cold fevers, bleeding of the nose, diarrhœas, pimples scattered in the body, *exostoses* on the skull, and contracted a scurvy besides. At last he took shipping for *Montpellier*. Mr. *Goulard* was struck when he saw him: for he was amazingly lean and pale, affected with a tertian fever, and besides with a severe pain in all his

The food, during the cure, ought to be moderate, and well chosen. Salt, sour, smoked, fat, and hard food, ought not to be eaten. Spices are likewise improper. Milk, and its preparations, barley-broths, with bread and barley-gruel, are very suitable. Eggs, soft-boiled, are to be eaten at times. Spinage stewed or made into pudding, or bread-pudding, may likewise be eaten. Those who are weak, or of a cold constitution, or have had strong evacuations, may, at dinner-time, eat some weak veal or chicken broth, a little steak or hachee of flesh. Wine ought intirely to be left off, except he should be disposed to a diarrhœa; for in that case it is of service; and then he must avoid prunes, cherries, plums, baked apples, preparations of it, and other fruits. On the contrary, such things are necessary to those who are obstructed: for without regular stools it is impossible to keep the mercury from the mouth.

his articulations. His pimples and *exostoses* were likewise painful. When the fever was cured, a strong bleeding of the nose troubled him, and, when that stopped, the fever returned; from which being again relieved, an enervating diarrhœa affected him, which also was conquered. As all this was an effect of the venereal poison, and his strength was too much gone, it was impossible to think of using the customary preparation and mercurial ointment. Although the patient was only thirty-four years old, had good lungs, and still some hopes. Mr. *Goulard* undertook professor *Haguenot's* method, brought the sick into the bath, where he could hold out no longer than a quarter of an hour. After that he was anointed with an unguent which contained one third of quicksilver. These two remedies were used alternately, so that within fifteen days he had used the bath as many times, and the unguent ten times. During all this time he was allowed to eat broths with antiscorbutic herbs. In this manner the venereal poison was so far subdued that the patient was able to take a little purge of manna, and afterwards use forty-five baths, in which he sometimes could sit for a whole hour together. After having used them, he was rubbed with the mercurial ointment fifteen times in forty-five days, and thereby regained his health and former strength.

The

The signs of an imminent spitting are not only heat in the mouth, red and swelled gums, but likewise obstipation of the *alvus*, diminishing of urine, which also grows reddish, and an unusual propensity to sleep. Therefore we are obliged to prescribe for such, alternately, manna or cassia, and clysters, ordering them to drink freely of some proper drink already mentioned.

The composition of the mercurial unguent is as follows: Take of purified quicksilver six ounces, and of hogs-lard six ounces: let the quicksilver be first rubbed with a little turpentine till the globules of it cannot be seen, and afterwards mix it with the hogs-lard. The pounding and mixing ought to be done with great attention and labour*. Three days are certainly required to do it well. The quicksilver ought to be first exceedingly well purified, which is done by rubbing it in a stone mortar with a wooden pestle, and washing it (if I may so say) with as much water as will cover it. The water, which grows dirty, ought to be poured off, together with a black or a blackish-brown powder which is then separated from the quicksilver. This washing is to be repeated in the same manner, till the water grows no more dirty, and no blackish powder is separated. The hogs-lard

* This is of the utmost necessity; for the quicksilver will by this means be better divided and combined with the lard, so that it cannot run together in the blood and salival glands. If the unguent is still a dark blue, it signifies that it is not sufficiently worked, and will soon cause spitting: but the light blue not so. Mr. *Petit* made his of a quicksilver which was distilled from cinnabar: for instance: With a pound of this was mixed a little spirit of turpentine in a marble mortar; to which was added fat (not salted); all which were worked together for two or three days afterwards: then he put to it four ounces of melted lard, and caused it to be well worked in with the former. It will perhaps be indifferent which of these unguents we chuse; only we must remember, that this contains equal parts of quicksilver and fat; but in the former the quicksilver makes only a third part. We direct the use according to that.

ought

ought not to be melted, but cut into small slices and cleansed from its small membranes and threads. If the unguent be not well worked, so that the quicksilver may be equally dispersed through every part thereof, then we are deceived with it; for the quicksilver will sink to the bottom of the pot, especially during the warm season.

Now, in order to go to work with the ointment, clean thread stockings ought to be kept in readiness, and the room moderately warm; then, having inspected the gums and the inside of the mouth, that it may be known in the sequel whether they grow affected by the cure, the patient is placed by the fire-side, except when the summer heat is very strong. If he cannot anoint himself, it must be done by another person; who, having put on a glove, warms it well before the fire, and rubs the part which is to be anointed till the skin begins to grow a little reddish; then, according to the age or circumstances of the patient, he takes a drachm and a half, or two drachms, of the unguent, and rubs it in first on the left foot and over the whole leg. The next two or three following days nothing is to be done. After that we anoint the right foot and leg in the same manner. The third time the left thigh; and the fourth time the other. If nothing be found that announces a salivation, then we may proceed to anoint for the fifth time, on the groins and limbs; and the sixth the whole back. The seventh friction is performed all over one of the arms, and the eighth on the other. Afterwards it is begun again in the same order and on the same places as before, till the person who directs the cure thinks it sufficient.

As the perspirable matter is the most copious of all evacuations, and consequently can make the greatest derivation from the mouth, it would be best to clean the part every day after it has been anointed; which may be done by washing off the little unguent remaining on the skin with some soap, brandy, and water: this will open the pores in order to promote perspiration and facilitate the entering of the quicksilver when the part is to be anointed again. To order

them baths at that time would debilitate too much perhaps, especially those whose stomachs and constitutions are weak. Therefore those who use the ointments in the summer time come more easily off, by taking gentle exercise abroad when convenient, the air being then warm.

One ought to anoint more that part or those parts which have suffered most during the disease, especially where any *exostoses* have been, or some pain is still remaining. We omit a day or two between each anointing, especially as to children, women big with child, and weak persons. The patient ought to lie down between sheets for an hour or an hour and half after each unction. The number of unctions can never be fixed; but they may be left off when the disease and the symptoms which are curable have ceased *. Or, that I may be the more explicit, when

* Old *exostoses*, neglected and much indurated tumours in the groins, and what we call a herpes (*dartres*) will not always yield to this cure. But now they can do no more mischief. External ulcers are sooner healed up by dipping lint in the *spiritus mercurialis* and applying it to them. If the ulcers are very sordid, one may make this stronger. Assessor *Bierchen*, who probably first began with the stronger solution in this manner, takes commonly four grains of the *mercurius sublimatus* to one ounce of *spiritus vini*. But the ulcers are sometimes very sensible; a remarkable instance of which is given by the late Dr. *Goisard*. In that case they may be anointed with fresh butter (not salted) or unguent made of cream, till the mercurial frictions from the inside have had time to make some alteration. Venereal eruptions will likewise sooner give way to a washing of the above-mentioned spirit diluted with warm water. *Porri venerii* may be taken away either by ligatures, or cut off by scissars, in case they do not fall off by the cure. To cure *exostoses* we assist by smoaking them with cinnabar, in case it should appear necessary. More of this may be read in Mr. *Astruc*, and *Faber*, *lib. cit.* But it is a matter of importance not to leave any shanker, which would propagate the contagion again. The experienced *Hildanus* has already, in the year 1589, made this necessary observation, and proved it by cases.

the physician considers the time, the unguent employed, the duration and degree of the disease, and the disappearing of the symptoms, and by that judges that no more is wanted; especially if the cure has not been attended with spitting or a *diarrhœa*, one may then begin to wash one's self clean with soap, a little brandy, and warm water; and purge two or three times; but taking care not to expose one's self too soon to the air. A patient went out too early in the open air, with a thin silk waistcoat on, and thereby contracted a violent colick which had nearly killed him. Also a patient of Mr. *Petit* eat a quantity of cakes flily, immediately after the cure was finished, and thereby lost his life. Mr. *Faber* mentions one who got a dysentery by eating too many raisins, and had but a narrow escape.

Some constitutions are of such a nature that the quicksilver immediately proceeds towards the mouth: therefore we should never neglect to take notice of the patient's mouth at each unction. If we perceive that a spitting will ensue, we do not undertake another unction before we can make ourselves sure again, and afterwards leave a greater interval of time between each unction. If it should break out to a salivation, though it seldom happens, the patient ought immediately to shift his stockings, linen, and sheets; and what is still remaining of the unguent on the skin must be washed off; a gentle purge or two must be taken; and, in case the pulse is strong and high, he must be bled. In *Montpellier*, tepid baths are used immediately. An increased perspiration makes a diversion from the mouth and intestines. If others in the same room use the mercurial cure, the patient ought to go into another; because in the former the air is full of vapours and exhalations of quicksilver, which may be absorbed in the body by the mouth, the breath, and the pores of the skin: thence it happens that in such rooms many a one has fallen into a salivation without having been anointed a single time.

I will also mention another and more commodious way of curing the venereal disease, as I find it likewise to have succeeded well in *England*, and also that

it was practised with success in the *French* army during the last war. Dr. *Locker*, in his practical observations, tells us, that with this remedy he has cured 4880 persons in the hospitals of *Vienna*. Dr. *Gardane* * has shewn, in the plainest manner, the innocence and great efficacy of this remedy, and proved what he has advanced by several observations †. As to this remedy, I myself have not had much experience, as I have seldom had opportunities of trying it. I must confess however that all those I have ordered it for, were very well cured by it. A patient is sure enough, I should suppose, not to fall ill again after this, provided he continues the cure for some time: at least I know some poor people, whom I cured long ago with it, who are still in good health. No other preparation is here required than a purge or two; unless a bleeding, which will be necessary especially if the patient is plethoric, still has strength, and the symptoms are inflammatory; some warm baths will likewise be of service, in case he is of a very lean and dry constitution. We have now learnt by experience that every one may attend upon and perform his own business during the use of this remedy. Young children may likewise use this remedy, when prepared without brandy. It is more critical with women who are big with child; for, as it promotes their menstrua, it may cause them to miscarry, if they have not been bled sufficiently. I have heretofore been of opinion that this would not agree with those who have weak lungs, but several experiments have shewn that apprehension to be without any foundation.

Baron *Van Swieten* ought at least to have the honour of first bringing this remedy into common use. He had it prepared as follows:

* In his *Recherches Pratiques*, printed at *Paris*, 1770.

† Mr. *Faber* himself, who is so great an advocate for salivation, confesses nevertheless that this, prepared after the method of Baron *Van Swieten*, is the most efficacious remedy against a venereal herpes. See l. c. p. 410.

℞ *Mercurii sublimat. corros. in pulv. subtiliss.*
redacti - - - *gr. xxiv.*
Spirit. ardent. e frumento ℥iv.
Digere, subinde agitando donec mercurius solutus
fuerit detur ad lagenas vitreas.

This was called *spiritus mercurialis* in our shops. We were not backward to try it in *Sweden*, especially I prevailed on the late *Affessor Elf* to use it in the hospital at *Stockholm*. But we soon found that the taste was insupportable, so that the sick could not continue with it. Therefore we pounded *mercurius sublimatus corrosivus* very fine in a glass mortar, and dissolved it in clear spring water *. This was effected by taking six, eight, or twelve grains of the above sublimate according to the sensibility of the constitution of the patient, mixing it first in the mortar with a little water, and, when it was dissolved, pouring it into a vial, adding a quart of water to it: it was then filtered through blotting-paper, and a little syrup of raspberries added, shaking the vial very well. This got the name of *solutio mercurialis* in our shops. Of this we gave to the sick, on the first days, morning and evening, half a spoonful at once in a tea-dish filled up with the common drink of the patient; which being taken, he was to drink, after that, thin oatmeal-broth, barley-water, rice-water, toast and water, or chicken-broth. I let them generally drink a ptisan of sarsaparilla root, diluted with milk. I find that *Mr. Gardan* orders milk to be drunk after it by those who can bear it, and are much weakened: to some he gives it in chocolate. The drink used after the remedy ought to be drunk in quantity, for thereby gripes are immediately relieved, in case they arise from the medicine. If it causes disgust or reachings, it may be prevented by dissolving the mercury in four or five ounces of good brandy, and filling the rest with water. The stomach has its

* *Mr. Gardan* rubs the *mercurius subl. corros.* with as much *sal amoniacum*, and dissolves it in distilled water? See l. c. p. 268 and 269.

various caprices, and a physician is obliged to comply with them.

When we have in this manner for a couple of days accustomed the stomach to this remedy, we then can give a spoonful morning and night. At last when the medicine does not at all affect, one may increase the dose on giving one spoonful in the morning, one towards noon, and one in the evening. In this manner we continue not only till the patient seems to be recovered, and the external symptoms disappear, but likewise for some time after: in fine, if for instance sixteen or twenty grains have been required to abate the signs of the disease, we prevail upon him to continue till as much more is taken, in order that he may be sure not to fall ill again. Confer Mr. Gardan, ch. i. p. 112. It is true that we cannot easily persuade the patient to use any thing, after he finds himself well, but we ought to tell him frankly, that he otherwise is by no means secure. We ought before-hand to make this agreement with him, and not undertake the cure before he promises entirely to comply with the prescription.

The same food is convenient in this cure as in the former. A purge ought to be taken once or twice a week; manna or *pulpa cassiæ* are most proper. To poor people one may give the root of jalap well rubbed with a little sugar; for it is confirmed by experience that the cure then succeeds better. There is no fear of any spitting if we direct the cure with prudence in the above manner, for this remedy itself promotes the perspiration and urine; the quantity drunk likewise increases these evacuations, and the physic procures stools. When these three evacuations subsist, hardly any spitting can ensue; but if by the above-mentioned signs we find any appearance of its coming on, then one must leave off the solution for some days, drink more, and take physic once or twice. In the warmer countries the sick may walk in the open air on such days when the weather is fine and warm. They may use the same liberty in our country in the middle of the day during the summer season. The sooner the symptoms decrease and disappear, so much the better it is; if it goes but slowly, we increase the dose.

Of the several remedies already mentioned with which tender children may conveniently be cured, I think the *solutio mercurialis* to be the surest and most easy of all. The difference in the preparation when intended for them is, that we only take six grains of *mercurius sublimatus* instead of twelve; we give it in milk, and likewise order the same to be drunk afterwards. A dose in the beginning is only half a tea spoonful morning and night; afterwards we give a tea spoonful twice a day. The child ought likewise to purge once or twice a week; one ought frequently to look after it, if any slime is derived to the child's throat; in that case, in order that the child may not thereby be suffocated, we endeavour to get the slime away by purges and injections, or by some other thing that answers the same purpose. This is also a necessary observation of Mr. Gardan, ch. i. p. 139.

These two methods to cure the venereal disease, are the best hitherto found out; but a still more efficacious one will be to combine them both, so that if the disease is inveterate, a patient uses the mercurial ointments, and *solutio mercurialis*, during the same time*. The patient must be well prepared by diet, bleeding, purges and baths; then he begins with the *solutio mercurialis*, assisting its operation with frictions of the *unguentum mercuriale*; however what remains of this on the skin, must be washed off with soap, water, and a little brandy, each day following after an ointment. We likewise mind as above mentioned, that neither spitting nor *diarrhœa* may ensue; also if the patient has the scurvy, we give remedies against that before or during the mercurial cure. Frequently it will happen that *exostoses*, *caries*, pain in the bones, and indurated tumors especially in the groins, will baffle the ointments; but they disappear when the *solutio mercurialis* comes to their assistance. Also we find that venereal tetter sometimes do not yield to the *solutio mercurialis*, but they must however give way on combining the use of ointments to the former remedy.

* Professor Von Schulzenheim and Assessor Bierchen have on such occasions already, some years ago, combined both the methods; Mr. Gardan calls it *Traitement Mixte*.

Physicians employ still other methods to cure this disease. I will only mention a part of them. Mr. *Plenck* in *Vienna* combines purified quick-silver with *gum arabic*. This is brought about by means of a tedious and long rubbing, mixing with it by degrees *aqua fumarica* and *syrupus kermesinus*, or he makes pills of it by adding *extractum conii* and *pulvis liquiritiæ*. More *gum arabic* than what Mr. *Plenck* prescribes, is wanted in order to suspend the quick-silver, otherwise it falls to the bottom of the vial after a little while under the appearance of a grey powder, mixed with visible particles of quick-silver. This remedy operates rather slowly, therefore Mr. *Gardan*, ch. i. advises to mix a quart of this solution with seven or eight ounces of pure water, in which have been previously dissolved four grains of *mercurius sublimatus corrosivus*; it may be used in the same manner as the *solutio mercurialis*.

Dr. *Gervaise* takes as much quick-silver as he intends for one dose, mixes it with some syrup in a spoon, and thinks thereby to gain the same point.

Others mix quick-silver with honey. Mr. *Nicole* mixes it with a paste of which he makes biscuits; the fermentation which from thence arises, may perhaps make the quick-silver more active. *Pilulæ Barbarossæ* work on that foundation. Perhaps it is the same case with those of Mr. *Bairos* and *Bellost*, of which may be read in Mr. *Gardan*'s work. But I would rather not trust to such remedies, for they cause either a strong spitting, or the quick-silver is carried off by stools, as it commonly is combined with some purge. The *Dragees* of Mr. *Keyser*, for and against which, so much has been written, would then do as well. They are prepared of quick-silver and vinegar, which Mr. *Keyser* most likely has learnt from the writings of the great chemist *Margraaf*. The late Professor *Sauvage* in *Montpellier*, and other connoisseurs, speak favourably of them when the disease is inveterate*; such praise, by men who are competent judges on the affair, gives me a greater opinion of the remedy than the recom-

* See *Journal de Medicine*, 1766, Mars p. 263.

mendations which Mr. *Keyser* has found means to procure from persons of quality.

The experienced Professor *Venel* in *Montpellier*, mixes the panacea with a little of *turpethum minerale*, and uses it frequently instead of the *dragées* of Mr. *Keyser*.

Decoctions of *radix chinæ*, sarsaparilla and saffras, were before much in use, but especially *guaiacum*. Mr. *Ulric V. Hutten*, who during nine years laboured under this disease, got at last cured as he himself says by decoction of *guaiacum*, after he had gone through the salivation eleven times to no purpose. The physician to the Emperor *Charles V.* asserts, that he had cured three thousand unhappy infected people by this remedy. He is told that one of the *French* kings was cured with a decoction of the *Burdock* root *. It is likewise mentioned that Dr. *Felz* has wrought miracles with his *Tisan*; he died without discovering what it was made of. I ought not to suspect him to have acted as quacks, who commonly understand *leger-demain*, and mix in their tisans some preparations of quicksilver without any one observing it, bragging that they cure the disease with herbs alone, notwithstanding it is the salt of mercury which produces the greatest effect. It is very well known that *guaiac* and sarsaparilla often cure when they are used afterwards by them who several times have salivated without any considerable effect. The poison is stirred up by them, to use the expression, and altered, and then acts in an unsettled gout (or *arthritis vaga*). We seldom can get these remedies fresh, therefore they are of less use here than in *America*. Two young gentlemen were affected to such a degree, that their complaints and cries in the night time, reached their neighbours; they had at home in the year 1563, made use of a great many remedies, but to no purpose; they were at last obliged to go over to *America*, where they got well cured with a decoction of fresh *guai-*

* In how sly a manner King *Francois I.* was infected, and at last lost his life, by the venereal disease, may be read in the *Essais Historiques sur Paris*, T. v. p. 184.

acum. See *Parallele des differentes methodes de traiter la maladie venerienne*, p. 30. Dr. Raymond in *Marseilles*, who before made use of the ointments for his patients without salivation, now commonly uses the *solutio mercurialis* for them, and at the end of this cure lets them drink *decoctum lignorum*.

Those who, without any right preparation or order, have used now the one and the other remedy, at last cause an alteration in the poison, and an indolence in their organs, that scarce any remedy can have an influence on them. We have instances of such persons having been cured with pills of *Mercurius sublimatus corrosivus*; the operation of them is very violent, and ought therefore only to be employed in great necessity, and that under the inspection of a very experienced man. They are composed of *Mercurius sublimatus corrosivus*, *mercurius dulcis*, *g. guaiac*, *ammoniac*, *Powder of senna*, *pyrethrum* and *syrupus de spina cervina*. They are on such occasions much recommended by Mr. Guyon, Mr. de la Sonne, and Mr. Faber; they confirm their eulogiums with experiments. In the composition enters one twenty-eighth part of *mercurius sublimatus corrosivus*, and not as Mr. Astruc pretends one-twentieth part. As their effect seems chiefly to arise from *mercur. subl. corr.* one should think that *solutio mercurialis* in a greater dose, could be given with more safety to the same effect.

Dr. Faber communicates another remedy which he used with success when the mercury has failed, as especially in swelling of the knee from a venereal cause. It is a tincture prepared of brandy, *pulpa colocynthidis*, saffron, cloves, *anisum stellatum*, and *terra foliata tartari*: one finds plainly this operates as a strong purge.

It is not long ago since we have got hopes to be able to cure poorer people with a simple remedy which likewise grows in this country; it is an herb I mean, which Archiater V. Linne calls *Conium*. We are confirmed in this by several experiments given by the great friend of mankind Archiater Storck; see *Annus Medicus*, iii. p. 131, 262, and 291; a book written by Dr. Collin. The herb may be used as tea, as decoction, in broth, in baths, or its extract made into pills. I myself
have

have not tried it in such cases; but I am informed by my friends among the physicians, that it often has had good effects in remains of venereal disorders, which would not yield to the mercury. It has been of great service in diseases of the throat arising from such a cause, when used in gargarisms and fomentations*.

A similar praise is bestowed on an extract of *Aconitum flore cæruleo*, by this indefatigable gentleman; it is to be rubbed into a powder with sugar.

We likewise learn from a book lately published by the same able practitioner, that *Flammula Jovis officinalis* cures venereal sores. He prescribes this herb as tea, or in decoction, and strews powder of it on the sores. Those who have hospitals under their care, may in time be able to determine whether this can be confirmed.

Affessor *Sundelin*, surgeon of a regiment, uses to wash the whole body with *spiritus mercurialis*, and cures in this manner an inveterate venereal disease. That the mercury in this manner enters the blood, can be seen in his second case, where it caused a full salivation. See the *Chirurgical Cases*, p. 92.

I have enumerated so many methods of curing this disease, because it is so different, and appears under so many shapes. The various age, constitution and sex of the patient require a different treatment; an hereditary disease often wants a different cure from one which is contracted, and it varies in respect as it is more or less old. It is besides of various degrees. One has a simple venereal disease, another has it complicated with the scurvy or some other acrimony in the juices. It will not answer to treat persons so differently affected in one manner, and to understand a single method only. A remedy may agree well with one, and not with another person. Sometimes we are obliged to combine several methods before we can gain the point. Therefore the experience and judgment

* Mr. *Coster's* opinion of this pleases me much. See *Journal de Medicine*, 168. Nov. p. 420, 434. Likewise that of Mr. *Tissot* in his *Avis au Peuple*, p. 669.

of the physician are required, together with an exact compliance of the patient.

C H A P. XXVIII.

On V E R M I N.

CHILDREN become affected with vermin in the same manner as the scab, and it is likewise propagated and increased like that, but is more easily cured. An unguent made of parsley seeds and fresh butter, not salted, will drive the vermin out of the head after being applied for two or three times. However the surest and besides the most useful remedy is, to clear the vermin away from the child's head with a comb,

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E R R A T A.

- Page 20, line 18, children, *read* children.
42, l. 33, *vervena*, *read* *verbenæ*.
68, in the note, l. 1. *warthy*, *read* *warty*.
95, in the note, l. 5 from the bottom, *schilliticum*,
read *scilliticum*.
102, l. 7 from the bottom, *lay*, *read* *lie*.
123 in the note, l. 7, *felicia usu*, *read* *felici ausu*.
195, l. 12, *Sedum*, *read* *Ledum*.

F I N I S.







