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MORGAGNI'S
CAUSES
OF
DISEASES

VOL. II



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THE
SEATS and CAUSES *8C*
OF *M82s2*
DISEASES

INVESTIGATED BY ANATOMY,
IN FIVE BOOKS,
CONTAINING
A Great Variety of DISSECTIONS, with REMARKS.

. TO WHICH ARE ADDED
Very ACCURATE and COPIOUS INDEXES of the
PRINCIPAL THINGS and NAMES therein contained.

TRANSLATED from the LATIN of
JOHN BAPTIST MORGAGNI,
Chief Professor of Anatomy, and President of the University at PADUA,
By BENJAMIN ALEXANDER, M. D.

IN THREE VOLUMES.

VOL. II.

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T O

D^R. R U S S E L L.

S I R,

IT gives me a secret, and a sincere, pleasure, that I have the honour of addressing myself to You on this occasion. I have been long-wishing for an opportunity of discharging, in some measure, the debt of gratitude and respect which I owe to Your Character. And I might have waited still longer, for such an opportunity, had not the occasion before me, which I gladly embrace, presented itself.

Various are the views in which Dr. RUSSELL stands intitled to my esteem, I mean as the Preceptor, the Physician, and the Friend. In each of these departments have his Humanity and Capacity been conspicuous. And to Him, in each of these Characters, do I stand almost equally indebted. From His examples, as a Preceptor, I long had the pleasure and advantage of receiving the most excellent maxims in the Practice of Medicine, and of learning an

accurate Attention to Diseases. And that practical Skill, which I had often been witness to in others, I have been happy enough to experience in myself. Nor is it without a peculiar pleasure that I express my gratitude on this head, as well because it is the ONLY TRIBUTE I can be allowed to bestow, as because the kind offices of Friendship went hand-in-hand with the endeavours of the Physician.

The Public, then, Sir, will at once be a judge of the propriety of this Address. The Public, which is always grateful itself, and respects that principle in individuals, will see how just and indispensable it is to dedicate to You a part of the Labours of that Life, which You have been thus instrumental in preserving. That You may live happily and long, in the exertion of that Medical Skill, for the benefit of your fellow-creatures—and that Your friends may, consequently, be long indulged with that condescension, and readiness to oblige, which I have so often experienced at Your hands—are the earnest wishes of

Your sincere Friend,

And respectful humble Servant,

BENJ. ALEXANDER.

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E R R A T U M.

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THE
SEATS and CAUSES
OF
DISEASES

INVESTIGATED BY ANATOMY..

BOOK the THIRD,

Which treats of DISORDERS of the BELLY..



LETTER the TWENTY-SEVENTH,

Contains some Observations on preternatural Hunger, and upon Death from the same Cause: and afterwards treats of injur'd Deglutition.

I. **O**F all the four books, into which the *Sépulchretum Anatomicum* is divided, the third is by far the longest, inasmuch as it comprehends the disorders of all parts whatever, that relate particularly to the belly, and not only in the male body, but in the female also. For which reason, I shall now take the more pains to study brevity, as far as I am able; which I am under a necessity of doing, if I would, at length, ever put a finishing hand to this work, that I have undertaken for you. And there seems to me, to be the most room for doing this, in those several subjects, which are spoken of separately, in the four first sections, "Loss of appetite, preternatural hunger, morbid thirst, and injur'd deglutition." For if you except the last, there is not one dissection, which has been perform'd by Valsalva; or by me, that relates, in particular, to these arguments. And lest you should be surpriz'd at this, only consider, how seldom it happens, that any person dies, whom a lost appetite for food, or too great hunger, or thirst has consum'd, without some violent disorder being joined with it, or being the consequence of it. Wherefore, if where I have treated of this violent disorder, or shall treat of it, you find that these disorders are, at the same time, taken notice of; what occasion is there, that those things, which are necessarily said, or to be said, in other places, should be needlessly repeated here? Turn over, I beseech you; these three first sections of the *Sépulchretum*. You will see that a languid appetite, or a deficiency thereof, was generally join'd with great injuries of the viscera, that is with great disorders; and that great thirst was generally join'd with fevers, with inflammations, and with dropsies. For which reason Bonetus tells us, that some of the same observations are again produc'd by him, in other places, and even some of those, in regard to which he makes no such declaration, are reproduc'd in other places. But this is less surprizing, than that the same observations should be again repeated, in one and the same section. For in the first section, the third, and fourth, observations are no others than those

which are produced in article the seventh, under the ninth observation, and article the first, under the tenth observation. Nor in the third section, in like manner, are the third, and fourth, observations, any other than what are again given, under the fifth observation, article the seventh and third, as those also are one and the same, that are found under observation the seventh, article the second, and in the additamenta, under observation the fourth, article the first, besides others which you perhaps will remark.

2. These things, however, I do not say of the second section. Yet one thing I say, that this excessive hunger was, also, join'd together with some considerable disease, as either the various symptoms, here and there, in the living patients, or the disorders in the viscera of the bodies after death, demonstrate. Besides, if you except some certain conformations, that are very rare, and those such as were impress'd on the very stamina of the body, as for instance, the pylorus being deficient, or wider, and, at the same time, much shorter than is natural, and the tube of the intestine, being less distorted into folds, and circles, to which I wonder these two other causes, that are so well known, one of which was found by Ruyfch to be adventitious (*a*), and the other by Dionis to be congenial (*b*), are not added; I say, if you except these, in most other observations there will be reason to doubt, whether a true, or a false, cause of unusual hunger be advanced; as when that cause is sought after in the spleen, as if it discharg'd something into the stomach (*c*), and when it is supposed to consist in the enlarg'd state of the stomach (*d*), which you will say, was rather the effect of too great a quantity of food being taken in, than the cause, just as in the first section (*e*), you would suppose, that the very small capacity of the contracted stomach, in a man who had eaten nothing for a long time, was the effect of taking in no food for so long a time, and by no means the cause why the patient could eat nothing. And in regard to the spleen, and the magnitude of the stomach, you will doubt so much the more, by and by, when you have read the appendix after the seventh observation, and the tenth observation itself. But will you believe the unusual magnitude of the liver (*f*), to have been the cause of excessive hunger, either because it cherish'd the stomach more by its warmth, or because it separated a greater quantity of bile? or rather an effect, because from an encreas'd quantity of nourishment, this soft viscus had been much encreas'd in its size, just as it happens in geese that are full-fed? and if you think thus, in regard to the liver, will you not judge nearly the same of the pancreas also (*g*)? as if truly, because it was furnish'd with two ducts, which went to the intestines in distinct places (an appearance that has been, more than once, found in other bodies, and even in those that had not been troubled with a morbid hunger) the viscus must, for that reason, secrete a much greater quantity of juice, which circumstance was not to be argued from the number of the ducts, as these might be small in proportion, but entirely from the more enlarg'd state of the viscus, which was, in other respects, found, if its state was really en-

(*a*) Obf. anat. chir. 74.

(*b*) Anat. de l'homme demonst. 2.

(*c*) Obf. 4. & seq.

(*d*) Obf. 1. & 8.

(*e*) Obf. 5.

(*f*) Obf. 2.

(*g*) Obf. 13.

larg'd. Finally, to omit other things, should it have been said, that the "pica had arisen from the stomach being almost in a sphacelated state?" certainly not; for this mortal disposition of the stomach, as it was in a woman, who was just at the point of death, could not, without doubt, have existed, at the time "when she was fond of eating cinders and ashes."

3. But do you approve of nothing, in this whole section, you will say? yes: I do approve of many things, notwithstanding I could wish, there had been a better choice, in some things, and in others, a more nice judgment. There are, also, still other cases, that I cannot admit without some hesitation: and others on the contrary, that I am even able to confirm. You see, for instance, what is said in the ninth observation, of some lice being devour'd by an icteric boy, so that they grew in the stomach, to "a monstrous magnitude, and to a very considerable multitude," and brought on "an insatiable hunger, by consuming the aliment" taken in. Do these creatures then, like to feed upon the same kind of nourishment as men? and do they thrive very well therefrom? or is the stomach a very proper place for them to live in, so that they shall neither be overwhelm'd with the liquors taken in, nor carried away to the intestines, together with the food in which they are so greedily entangled; and is it even a proper place for them to propagate in? In short, if they had really liv'd there, would they not rather have quickly brought on an intolerable erosion, in a viscus of this delicate nature, and a sense of erosion, rather than of hunger? and yet no erosion is mention'd, as having been seen in the dead body. Wherefore, for more than one reason, the observation that is adjoin'd in the scholium, and is given, in another place, under this title (*b*), "A pair of the stomach, from bladders full of lice being affix'd to it," may seem somewhat less incredible: although I am much inclin'd to suspect, that in both of the cases, some little bodies, or if you will have it so, some little animals, were seen, which in some measure resembled lice, especially as it is clear, that he who relates the second, was not himself present; and he who related the first, has not expressly said that he was himself present; and neither of them, whether the lice were at that time still alive, in order to show us from the motion, at least, that they were animalcules. But as I observ'd, after I had written these things, that the case seem'd credible, to more than one of my learned friends; I would, for that reason, so much the more have you remember, that I do not say these things, as a person who absolutely denies the truth of the facts, but rather as one who doubts thereof. On the other hand, when in the appendix, which is subjoin'd to the scholia of the observation, the question is of worms in the human body, causing excessive hunger, by their peculiar magnitude, or number, there is no reason for hesitation thereon. For these creatures live in their proper places, and feed on their natural provision: and if their place, and provision, be not in proportion to their magnitude, or at least to their multitude, it is evident that the animal, in which these worms are, being defrauded of its nourishment, must be often troubled, with an incredible hunger, and often even with an incredible thirst. For both of these circumstances have not only been, fre-

(*b*) L. hoc 3. f. 6. obs. 38.

quently, observ'd by others, but by me also, and particularly in that young whelp, which I accurately dissected, and in which, though it died after being troubled with these symptoms, I could no where find any morbid appearance besides a great number of worms, as I have written in the letter, which was formerly publish'd by our Vallisneri (*i*). So likewise, when the observations of Bontius are pointed out (*k*) "of excessive hunger, and canine appetite," as it is call'd, being the consequence of infarctions in the mesentery, they bring to my mind what Albertini had formerly related to me, that he, in some bodies, who had labour'd under this kind of disorder, and particularly in a boy, who was hungry to such a degree, as to be frequently seiz'd with swoonings from that very cause, had found the glands, that lie in the belly, to be tartarized, as the common phrase is, so as to turn the edge of the knife by their hardness. But whether there was an abdominal flux in these persons, and of what kind it was, when the fresh supplies of chyle were continually intercepted by the mesentery, or whether there was none at all; for in Bontius (*l*) you will read that there was a lenteria; I do not certainly remember.

4. I am also pleas'd with those dissections, that are produc'd in the last place (*m*), of two men who were kill'd, by a long abstinence from meat, and drink, but should have been still more pleas'd, if, as they shew "that the veins, and arteries, were surprizingly emptied, and that from the vena cava, scarcely two or three spoonfuls of blood flow'd out, and from the aorta, none at all;" so, in like manner, they had shewn other things, that are worthy of observation, as for instance, the ages of these men, their constitution, habit, strength, and the exact number of the days of their abstinence, the symptoms which preceded their death, the state of their viscera, and other things of this kind. Which accuracy would have been extremely useful, in the first of these men particularly, as he was, "in other respects, of a sound and healthy body," when he took the resolution of killing himself with hunger. For those who, in consequence of disease, or the torture of it, are brought to such a state, as to be able to take no nourishment, can teach us nothing certain, either living, or dead, as you are, without doubt, entirely ignorant, how many days this disease, itself, might, perhaps, have taken away from life, and what unusual appearances, the privation of nourishment had, of itself, brought upon the viscera. So in the works of the celebrated Peyerus, I mean the son, we have the dissections of a man, and a woman (*n*); who were starv'd to death with hunger; but in both of them, we read of morbid appearances, of the internal parts, and of such a kind, that when we acknowledge these to have related to disorders, we do not very greatly wish for those other informations, which I mention'd just now. On the contrary, most of these circumstances are accurately taken notice of by the very excellent Fantonus (*o*), in a woman who obstinately refus'd taking food for fifty days, when she died. But as she did, however, take a little twice, and which is of still more consequence, made use of water by way of drink, although "in very small quantity," she is by no means to be compar'd with

(*i*) Consideraz. int. alla generaz. de' vermi.

(*k*) Obf. 12.

(*l*) Vid. Sepulchr. l. 3. f. 10. obf. 1.

(*m*) Obf. 18. § 1. & 2.

(*n*) Obf. anat. 1. & 7.

(*o*) Dissert. anat. renov. 1.

the man, of whom I made mention in the first place. For how much the drinking of water, may contribute, by diminishing the scarcity of the humours, and tempering their acrimony, which are the two things most injurious to hungry persons, to lengthen out their lives, is proved by the experiments of Redi (*p*), who keeping many capons without any food, observ'd that of those to which he, also, denied drink, not one of them liv'd beyond the ninth day, whereas that, to which he gave as much water, as he would have, which he drank, very greedily, and frequently, for the first sixteen days, lived more than twenty days. Nor indeed do I believe, although Pomponius Atticus (*q*) ended his life, together with his very violent disease, within the fifth day of his abstinence from food, it would first have happen'd, "that the fever left him all at once," and the disease have begun to be more mild, "if he had abstain'd" from drink also, "for the space of "two days," as he had "from food." However, whether that short alleviation of Atticus, is, perhaps, to be explain'd, from the forty-seventh aphorism of the second section, of Hippocrates, as if the pus had then ceas'd to be prepar'd, which afterwards "burst out by the loins," or whether it is rather to be attributed to his abstinence from food, since Redi (*r*) affirms that it is incredible, how beautiful the viscera of those animals are found to be, that have died of hunger, you are quite at your own liberty to determine. I will confirm to you another maxim of Redi, in regard to those things which I have above thought deficient in observations of this kind, by a certain experiment of Valsalva's. Much, says Redi (*s*), do the age, and strength, of animals contribute to make them bear up the longer under hunger. And the following is the experiment of Valsalva, which is written with the accuracy, and care, that we require.

5. A dog was taken away from his mother's dugs, a little after being whelp'd, and kept from all kind of nourishment. On the third day of his hunger, he began to be attack'd with convulsive motions in his whole body, sometimes more violent, sometimes more mild. He died on the fourth day. The belly being open'd, the gall-bladder was found to be very full of bile. The thorax being open'd, the lungs, in the right side, were ting'd with a very black oblong spot: the auricles of the heart were much dilated by coagulated blood: of which the ventricles were also full. And in all the sanguiferous vessels likewise, but particularly in the veins, whatever blood there was, had become coagulated, so that it was no where found to be fluid. At length, the cranium being cut through, the cerebrum was found to be soft, and flaccid, and not very well distinguish'd into two substances, so that the cortical part could be known from the medullary. Both the tympana of the ears, being full of a pellucid jelly, had the little bones exactly well-form'd indeed, but, even at that time, preserving their membranous softness.

6. The convulsive motions, which had preceded death, are, in some measure, like those, that Valsalva had observ'd, before the death of that woman (*t*), who had abstain'd six days from meat, and drink. But those

(*p*) Osservaz. int. agli animali viventi, (*r*) Osserv. cit.

&c.

(*q*) Vid. ejus vit. apud Corn. Nep.

(*s*) Ibid.

(*t*) Epist. 17. n. 25.

appearances that were in the whelp after death, are most of them proper, rather to the fœtus, than to the animal, who has died of hunger, yet some of them are common to both, as the quantity of bile, by reason of the gall-bladder not being compress'd by the stomach, or the nearest intestine, both of which were of course flaccid. But, also, whatever bile flows down from the liver to the intestines, so much the more readily appears therein, as it is not hid by a mixture with the food that is taken in. Nor does reason only confirm this, but observation also, as well in almost all those animals, which Redi had kill'd by hunger, as we know from the testimony of Caldesi (*u*), as in men who were destroyed by abstinence, which the joint observations of Peyerus (*x*), Fantonus (*y*), and Haller (*z*) demonstrate. It is also shewn by reason, (as by long abstinence, from all kind of meat and drink, the humours of the body become very acrid, and tend to putrefaction) how easily it may happen, that the bodies of those who die of hunger, shall smell very strongly, as is asserted by a very celebrated writer, of the bodies of men, but particularly of dogs: which mark added to others, would certainly be useful, not only to those who desire to know, whether some men were carried off more by hunger, or by disease; but also, some times, to those, who I see doubt whether the dogs on which experiments have been made, have died of these experiments, or of hunger. But I will now leave these considerations, to those who shall hereafter make the experiments, and pass over other things also, to insist upon that which I promised you. How long the dogs lived, which Redi (*a*) had thus kept, from all kind of meat and drink, you will understand from hence, that some of them reach'd to thirty-four days, others to thirty-six, and that a little whelp seem'd likely to live for many more days, if he had not thrown himself headlong from a very high window. But although this was in fact a small whelp, he nevertheless was not just born, as that was which, according to the observation of Valsalva, could not live over the fourth day. Indeed, that there may be wonderful varieties in these things, I the more readily confess, the more I attend to the great number of different instances of long abstinence, which are both learnedly produc'd, and accurately consider'd, by that very learned man Beccarius (*b*). Nevertheless I should suppose, that what is deliver'd down by Hippocrates (*c*) pretty well agrees with truth, if you except some very rare constitutions of bodies, and circumstances of cases, I mean that "young persons" bear fasting "with less ease, and children least of all," which, on the contrary, they bear more easily, who "are middle-ag'd, and old men the most easily of all," unless, perhaps, they are quite decrepid with age, as Celsus wisely (*d*) interprets Hippocrates, by giving his opinion in the following manner: "men of a middle age bear abstinence very easily, but young men not so well, and children, and men very far advanc'd in years, cannot bear it at all;—but that person is most of all under ne-

(*u*) Osservaz. int. alle Tartarughe.

(*x*) Obs. 7. cit. supra ad n. 4.

(*y*) Diff. ibid. cit.

(*z*) Ad Boerh. Prælect. § 98. not. 2. & pusc. Pathol. obs. 24.

(*a*) Osservaz. cit. supra ad n. 4.

(*b*) Vid. de Bonon. Sc. Acad. t. 2. p. 1. inter Medica.

(*c*) Sect. 2. aph. 13.

(*d*) De Medic. l. 1. c. 3.

"cessity

"cessity of taking food, whose growth is most advancing:" which Hippocrates, also, had expressly taught, in the next aphorism (*e*).

7. And the opinion of Hippocrates would be surprizingly well confirm'd by one story, if this were really, as Cardan (*f*), and Zambeccarius (*g*), have hastily suppos'd, a history, and not a poetical figment of Dante (*b*), of the count Hugolini, and his four sons, who were starved to death with hunger (which one fact is undoubted), so that all of them lived some days, but the boy, of three years, died on the fourth day, and the other children, who were somewhat older, or almost young men, on the fifth, or the sixth day, and last of all, the father, as he was of a middle age, or at least only just entering upon old age, died on the eighth day: all which circumstances were, without doubt, imagin'd by the poet himself, in conformity to the aphorism of Hippocrates, the author being at that time very learned, or at least in conformity to probability, as the poet himself, sufficiently shews in that place, though these worthy men have not attended to it, where he introduces the spirit of Hugolini relating these things to him, which, as he expressly says, "he could not have been informed of" by any other means, inasmuch as they had happen'd in the dark recesses of a high tower, the keys of which were thrown into the river by the enemy, immediately after they had been shut up therein.

If therefore you happen to want a number of histories, to prove the several parts of the aphorism of Hippocrates, as they are explained by Celsus, I will take notice of some from the Roman history, which come into my mind, as I am writing. I have said above (*i*), that Pomponius Atticus, being sick, died on the fifth day of his abstaining from food. But Sextius Baculus, as you have it in Cæsar's Commentaries (*k*), although he was so far sick, "as to have been without food for "five days," was so far from death as to take up arms and repel the enemy, inasmuch as he was at such a flourishing time of life, as, not long before, to have perform'd the office of first centurion, to the legionary soldiers; but Atticus had completed his seventy-seventh year: so we must not be surpriz'd, that Suetonius (*l*), when he spoke of Tiberius having "abstain'd "from food, for the space of four days," did not only not add what injury he receiv'd therefrom; but even asserted, that Tiberius "immediately went "down to Ostia"; for Tiberius was at that time of a middle age, and a firm constitution.

To these, you will, yourself, add examples of younger persons: nor will you easily find, I believe, when you come to children, and infants, any who have born fastings of this kind, in such a manner. Nor indeed would I have you object to me, from the observation of Fernelius (*m*), the instance of a fœtus who seems, as a really memorable example, to have born a want of nourishment for the space of two months. For notwithstanding the mother, who "in the opinion of all those that attended her, had "swallowed down no meat, nor drink, for the whole two months," at length, in the latter end of the fever, of which she died, "brought forth a

(*e*) 14.

(*f*) Com. in cit. Aph. 13.

(*g*) Experim. circa diversa e viventib. exsecta.

(*h*) Infern. cant. 33.

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(*i*) N. 4.

(*k*) De Bell. Gall. l. 6. c. 38.

(*l*) De duodecim Cæsariis. l. 3. c. 10.

(*m*) Pathol. l. 6. c. 1. in fin.

"child that she left surviving;" yet as often as ever she got down food, or drink, quite to the lower part of the œsophagus, which she immediately brought back, and threw up, it is to be suppos'd, that some portion of the ingesta, which were going backwards and forwards, had always entered the mouths of the absorbent vessels, in the mouth, the fauces, and the œsophagus, and that by these means, this woman was preserv'd for so long a time, nearly in the same manner as another gravid woman mention'd by Hildanus (*n*), who was kept alive, for the space of six weeks together, with her foetus, by nourishing glysters alone. And, indeed, it is not absurd to suppose, that the tubercle with which the mouth of the stomach was shut up, as appeared in her body after death, had not been so large while she was living, as quite to obstruct that orifice, unless, perhaps, in the latter part of her life; for disorders of this kind are continually increasing, and consequently extend themselves to such a degree, as to reach those parts, that they did not, sometime before, reach.

8. This observation of Fernelius brings to my mind the fourth section of the Sepulchretum, in which even this very observation is (*o*), of which section I made such mention in the beginning (*p*), as to discover, that I was not wanting in observations relative thereto, or in other words, to impeded deglutition. And certainly, I should not be at all deficient, if I thought proper to imitate what is done, even in this section. For you will see, that the fourth observation in it, differs from the seventeenth, only by being related in somewhat fewer words: and you will wonder still more, at the same thing taking place in the nineteenth, if compar'd with that to which it is immediately subjoin'd, I mean the eighteenth. And in the additamenta themselves, does not one part of the second observation repeat, in so many words, what had been already given, with sufficient fullness, in the same section, in a part of the scholium to the eighth observation? I however shall not repeat here, even those which I have produc'd in other letters, from Valsalva's observation, or my own. But whatever of this kind remains, I will give you here; those others I shall but just make references to. And two histories do remain from the papers of Valsalva. The first of these is as follows.

9. A man of fifty years of age, began to complain of his deglutition being impeded. The impediment was by degrees increas'd: his voice was lost: he had a considerable pain in swallowing: a portion of the food remained in his fauces, which sometimes return'd after that, by degrees, into his mouth, seemingly corrupted: his body became emaciated: nothing preternatural was to be seen externally; only the left internal maxillary gland was perceiv'd to be indurated. He died suddenly suffocated as it were.

The gland just now mention'd, as being indurated, had at the side of it, a matter like the white of an egg. And many tumours were seen in the pharynx, and at the upper part of the larynx, which were of a cancerous nature.

10. A young man, likewise, who died almost in the same manner, after very similar symptoms of disease, discover'd tumours of the same nature, particularly at the upper part of the larynx, and the neighbouring sides.

of the pharynx. But the tumours, in some places, were already ulcerated: and an ulcer had perforated the epiglottis itself.

11. As to what relates to the sudden death of both these persons, you may from hence confirm what I have before said (*q*) Valsalva had told me, I mean that he had twice seen a death of this kind, from a violent disorder of the larynx, at which time he perhaps had these two cases in his eye. The same was also observ'd by me, in a virgin, of whom I took notice in the same place, and perhaps, also, in a very excellent singer, who was troubled with a very manifest ulcer in the fauces, which caus'd a great difficulty in swallowing. But as it was not possible to determine, in the living body, to what parts this ulcer extended itself, nor yet permitted to examine it after death, I therefore did not lay down the thing as certain, and well enquir'd into, especially as ulcers of that kind, sometimes do not reach to those parts you would suppose them to reach, and reach to others that you would not have supposed. And this will be clearly shown, by the case of a man, who was snatch'd away by the same kind of death: which case, although I have partly hinted at it in the *Epistolæ Anatomicæ* (*r*), and partly in a letter which I have before sent to you (*s*), yet I have no where given at large, but purposely defer'd it to the present occasion, as relating to impeded deglutition.

12. There was a man in whom, as he swallow'd, part of what he drank return'd by his nostrils. The bony palate of the man was quite sound; but the palatum molle, together with the uvula, had been consum'd by an ulcer that was not recent, and which, as far as could be distinguish'd by the eye, was already brought to a cicatrix; but where the eye could not reach, it continued even then, as the matter, which was thrown up by spitting, demonstrated. This join'd to a cough, that was sometimes troublesome, and other symptoms of a similar kind, although slight and ambiguous, created a suspicion of an ulcer extending itself downwards. And this suspicion was encreas'd, by the patient dying suddenly, as if suffocated.

Nevertheless, the inferior part of the pharynx, and the larynx which lies within it, and the canal of the aspera arteria, that lies below the larynx, were altogether uninjur'd: although the left lobe of the lungs, at the upper part, which was hard to the touch, was found, when I cut into it, to be exceedingly corrupted, to a very considerable extent. But the ulcer had extended itself to the higher parts of the pharynx, and to the posterior foramina of the nostrils, and there continued. As to the other parts, when the belly was open'd, I found the liver, the intestines in some places, and the internal muscles of the abdomen, livid, as if from foregoing inflammation, and smelling very strongly.

13. Where, and at what time, I dissected this body, you will find in those epistles, to which I just now refer'd (*t*), and in the same place, and also in the twenty-second of these letters to you (*u*), you will see what I hinted in regard to the origin, and causes of that disorder, of the lungs. But for what relates to the causes, and manner, in which deglutition was injur'd, in this man, or in the two dissected by Valsalva, that I have given you the

(*q*) *Epist.* 22. n. 25.

(*r*) *Epist.* 9. n. 9. & 10.

(*s*) *Epist.* 19. n. 50.

(*t*) *N.* 11.

(*u*) *N.* 26.

histories of, they are so evident to any one, not ignorant of the motions of the whole pharynx, and larynx, that are necessary for the performance of deglutition, that there is not the least occasion to explain them. To these belong seventeen observations, in this fourth section of the Sepulchretum, which are in two appendixes, that are subjoin'd to the twentieth observation. And although when I have, frequently, found, as I have already said, the cartilages of the larynx become bony, in old men (x), the epiglottis was never yet found to be bony by me, I do not, however, doubt but it may sometimes, become less flexible, and yielding: which is a circumstance that seems to be more prejudicial to the swallowing of food, than of drink. For the liquors that we drink, when they have reach'd as far as the epiglottis, flow down on one side, and on the other, where there is a kind of sulcus at the sides of the larynx, and slip down to the lower part of the larynx: nor does it then happen that they enter the larynx, unless they either flow back, in too great a quantity, from the sulci, or these sulci, by inflammation, and a tumid state of the parts, are destroy'd, or a kind of convulsion excited, by irritation, or any of the muscles, that, by reason of being affected with a paralysis, is unequal to its office, disturb the easy flowing down of the liquors: the latter of which I have observ'd, in a woman of princely rank, after an attack of the epileptic kind, and the former, in a noble Count, whose very troublesome disorder I have already describ'd to you (y), and which was, in part, similar to a convulsive, but very short, angina.

I would not here have you suppose, that the consideration of the epiglottis is superfluous, when the question is of impeded deglutition, because Targioni (z) lit on the body of a man, in whom, although the epiglottis was entirely deficient, perhaps from having been formerly destroy'd by an ulcer; the power of speaking, and of swallowing, without any difficulty, were not wanting, or at least, in the last acute disorder of which he died. For although the arytaenoid muscles, which were in him much thicker, and stronger, than they in general are; might have been able to shut up the glottis so exactly, as by way of an unusual instance in the human body, to supply the office of the epiglottis, as other parts have supplied the office of the uvula, sometimes, and sometimes of the tongue, when originally deficient, or from disease (a), or whether accurate observations, and examinations, might, while he was living, have shown other things; we ought certainly to take care, in consideration of what happens naturally in the greater part of mankind, and not of what happens by way of prodigy in any one, not to run into such absurdities, as to suppose the epiglottis almost useless, as it were, in deglutition.

I am not ignorant, that there are, at this time, celebrated men, to whom it seems that deglutition may be explained so differently, from the manner in which others explain it, that if you are of their opinion, you will not want that explication which I hinted at just now, of the difference there is betwixt fluids, and solids, in passing from the mouth into

(x) Advers. 1. 2. 23.

(y) Epist. 14. n. 37.

(z) Prima Raccolta di osser. med. verso.
il fine.

(a) Ephem. n. c. Dec. 3. A. 9. obs. 212. & Slevogt. diss. de Gurgul. §. 61. 63.

the fauces. I confess it is not, at present, either a proper place, or time, to consider the whole of their opinion, as the importance of it requires, yet I will, at least, venture to say, that there is in this opinion, more than one thing, which I can by no means admit.

Nor does it escape me, that there is a remark made by Paul Barbette, that is also to be read here in the *Sepulchretum* (*b*), which by no means agrees with that explication I have given you above. But if there was, at the same time, “an abolition of speech,” there must have been other disorders, besides a rigidity of the epiglottis, “not sufficiently shutting up” the larynx, in the passage of liquors, or “an induration” of it, to which one circumstance Paulus attributes all the symptoms. But what part was affected with disease, besides the epiglottis, in another certain observation, in which I read that the deglutition “both of solids, and fluids,” was impeded, I should perhaps be able to conjecture, if I understood what appearances were found in the body after death. And the following appearance is said to be found; “the epiglottis, by means of a catarrhus spasm, was so drawn up, towards the orifice of the œsophagus, that the orifice of the aspera arteria remained quite open, and neither fluids, nor solids, could be taken down, for fear of suffocation.” But I cannot possibly conceive, how the orifice of the larynx could be quite open, while the epiglottis was drawn up in such a manner, as this orifice should have been, in that case, quite cover’d. And in this manner I should be ready to suppose it was written by the author, and ill-copied, which is easily done by substituting *apertum* instead of *opertum*, only that the patient would then have been under a necessity of thinking how to breathe merely, instead of thinking how to swallow.

14. But, to return to the observation of Paulus given in the *Sepulchretum*; as to the attempt in the scholium, which is immediately added, to explain that impediment of deglutition, by “a convulsion of the muscoli hyoidæi, because the larynx is then drawn upwards;” the explanation ought to have been more strict, and express, especially as the muscles, which may be signified by that name, are many in number, and some of them perform offices directly opposite to each other. Nor yet is it to be doubted, that not only the os hyoides, and larynx, but even the parts that belong to them, if they are by any means considerably affected, may cause an impediment to deglutition. For you will call to mind, that this had happen’d from the upper appendages of that bone being luxated, as is related by Valsalva (*c*), and, in like manner, from the cartilages of the larynx being luxated, as Boerhaave (*d*) writes, from the observation of Cowper, the thyroid, I suppose, being remov’d from the cricoid; for the book, in which Cowper gives you this case, I have not in my possession; and whether those things which you may read of, in the acts of the Cæsarean academy (*e*), are referable to the same class, you will judge; the method of cure, at least, comes pretty near to that of Valsalva.

But in regard to the convulsion, or paralysis, of the muscles, even of the œsophagus itself, it is to very little purpose to say any thing, since

(b) Obf. 6.

(c) De aere hum. c. 2. n. 20.

(d) Prælect. ad Instit. §. 8c6.

(e) Tom. 6. obf. 50.

examples of the former are very often to be met with, in hysterical patients, and observations of the latter, though more rare indeed, are not wanting, notwithstanding it is a disease, like other paralytic affections, of much longer continuance, and more obstinate, than the first, so that the patients have, for this reason, either been destroy'd by hunger, as you may see in Willis (*f*), Helwich (*g*), and others, or sometimes by means of aliments being thrust down into the stomach, by the help of a chirurgical instrument, have been kept alive, for twelve, or fourteen months, and at other times, even for sixteen years, the latter of which kind of cases the same author, Willis, has in his Pharmaceut. Ration. (in the first part indeed, but in the second section, and in the first chapter, not as it is said in the Sepulchretum (*h*), section the third, chapter the third), and the former, nature at length having overcome the disorder, Job Basterus, in the year 1682, communicated to Stalpart (*i*), and the same author, being a lively old man, in the year 1744, which is a remarkable instance, communicated it to the Cæsarean academy (*k*). And Rammazini (*l*) saw a paralysis, of a shorter continuance than that indeed, overcome, without the intrusion of this instrument, into the œsophagus, which is a very troublesome operation, as he saved a female patient without the least food, or drink, for threescore and six days, by the means of nourishing glysters, a longer, and more useful, practise of which, I do not remember ever to have read; and this is a kind of remedy, which, as it is always easy, and always innocent, ought never to be neglected by the physicians, in every species of impeded deglutition, and not only in that from a paralysis of the muscles.

Moreover, you will, I suppose, think with me, that the case which you read, related by the celebrated Heister, in a certain dissertation of John Charles Spies (*m*), is to be refer'd to a kind of slight paralysis. This case is of a nobleman, and one who was already old, and had, for a long time, been affected in such a manner, that though he could swallow every thing very well but his last bolus, he could not, however, swallow that, which, for this reason, frequently remained in his fauces, from one meal to another, till it was, at length, push'd down in the following meal, unless it had happen'd to be previously thrown up, by the help of spitting, or some slight cough. And I made no doubt but this circumstance happen'd much in the same manner, as in men pretty far advanc'd in years, all the urine is expell'd from the bladder, one part urging another, till it comes to the last drops, which the weaken'd power of the muscles is, now, not able entirely to expel, as they had been us'd to do at a more flourishing time of life. So likewise, in this man the former bolusses were push'd forwards by the weight of the following ones, till the last being without that assistance, and not being sufficiently help'd on by the muscles of the pharynx, was under a necessity of remaining, where it had been already thrust.

15. But as this, and most of the disorders of which I have hitherto spoken, related to the pharynx, and the parts that lie nearest to it, so others

(*f*) Pharm. rat. p. 1. f. 1. c. 2.

(*g*) Eph. n. c. cent. 1. & 2. obs. 147.

(*h*) Sect. hac 4. in addit. obs. 2. in fin.

(*i*) Cent. post. p. 1. obs. 27.

(*k*) Act. t. 8. obs. 21.

(*l*) Const. epidem. a. 1691. n. 22.

(*m*) De Degl. c. 2. n. 9.

are also to be met with, which relate to the œsophagus itself, and the parts that lie thereabout. As to convulsion, and paralysis, there is no occasion to say any thing more upon these heads. But there are two other disorders, which are, in like manner, contrary to each other, that may be the causes of difficult deglutition, I mean the dryness of the glands of the œsophagus (*n*), and their œdematous turgescentcy (*o*). Besides, the gula is sometimes ulcerated: a remarkable instance of which you have in the Sepulchretum (*p*). And although an ulcer of itself, if it be painful, or at least if it be large, and have prominent lips, one of which kind was seen by Brunnerus (*q*), whom you must turn to on this occasion, impedes the use of deglutition; yet if there be none of these circumstances, and the ulcer itself begins to be inclin'd to a healing state, or is even already in part healed; it may frequently happen, that some consequences of the ulcer may remain, and obstruct deglutition, as a caruncle, callus, narrowness, or, in fine, coalition, which is taken notice of by Franciscus Sylvius (*r*).

And the caruncle at the termination of the gula, seems to have been formerly hinted at by Galen (*s*), when he said "it sometimes happens, that even something fleshy (such as we often see externally) is generated in the stomach, which either entirely obstructs the passage of the aliments, or, at least, hinders it in some measure." And here, in the Sepulchretum (*t*), you certainly see that a caruncle is taken notice of, which arose from an ulcer of the œsophagus, that was heal'd up. And notwithstanding all calli, of the gullet, are not to be accounted for from ulcers, as, for instance, where you read in Cælius (*u*), of the "beginning, and upper part, of the stomach, being callous," nor yet all narrowness, or contraction, as that which is related in this section (*x*), to have happen'd after an ardent fever, unless you will suppose, that, in this case, there were aphthæ, or internal pustules (*y*); yet where an ulcer has preceded, or, in part, yet remains, as in a soldier (*z*), who found great difficulty in swallowing, but not the least pain, we must attribute "the coarctation, and callosity," of the œsophagus, to the erosion, which was found at the same time, being not entirely remov'd, all round. Nor is it to be doubted, but the same cause that brings on contraction, or narrowness, may also produce coalition, under which name, I here understand, with the learned Mauchart (*a*), that coarctation, which leaves no passage at all, or scarcely any. And indeed, the coalition which he saw (*b*), of a callous nature, and scarcely admitting a slender probe, was not without a purulent ichor. Nevertheless, a coalition does sometimes happen, from other causes, also (as that perhaps did in some measure) many of which I shall take notice of below (*c*), and some of them relate to tumours generated in the very coats of the œsophagus, observations of which kind are given us in this

(*n*) Eph. n. c. cent. 1. append. n. 10. obs. 162.

(*o*) Earund. cent. 5. obs. 59. ubi I. M. Hoffmann. & Benedict. Sylvatic. citantur.

(*p*) In addit. ad hanc sect. obs. 1.

(*q*) Gland. Duoden. c. 10.

(*r*) Prax. med. l. 1. c. 5.

(*s*) De sympt. caus. l. 3. c. 2.

(*t*) Obs. 21.

(*u*) Morb. chron. l. 3. c. 2.

(*x*) Obs. 14.

(*y*) Vid. act. Hafn. t. 1. obs. 109. & Eph. n. c. dec. 2. a. 9. obs. 45.

(*z*) Commenc. litter. a. 1741. hebdom. 25. n. 1.

(*a*) Diss. de struma œsoph. §. 18. 22.

(*b*) §. 11.

(*c*) N. 16.

fection of the Sepulchretum (*d*), and another, which well deserves reading, is added by the celebrated Widmann (*e*). But that species of coalition, which is brought about by means of a cartilage, merits our attention above all others, three instances of which are produc'd in the Sepulchretum (*f*): and to these, you will particularly add two others, one of which is accurately describ'd by our Vallisneri (*g*), and the other is moreover illustrated in a very learned dissertation, by the celebrated Trillerus (*h*).

There are some very eminent men, to whom, that disorder "seems to arise" from the drinking of hot water," a custom so frequent in this age, which I do not altogether deny. But I wonder, nevertheless, as even the ancients or at least as the Chinese, who are very tenacious of their customs, have made use of hot liquors, for so long a time, and do still use them, that there have not been formerly found, and are not at present found, among them, such as labour under an impeded, or injur'd, deglutition; and it is even not often, or rather it is so very seldom, that the œsophagus is found to be cartilaginous amongst us, that I do not remember who has ever met with this appearance, in Italy, besides Vallisneri, and even he found it in such a man, in such a place, and at such a time, that it does not seem possible to account for it, from the abuse of coffee, or tea: and I do not mention that Trillerus, in his case, had accounted for it from quite an opposite cause (*i*).

Be this as it will, I mention'd coalition by means of a cartilage, because here also I observe the œsophagus, if not to be entirely stop'd up by a cartilage, as in the observation of Stofelius (*k*), at least to be so far obstructed in the other instances, that only a very small foramen remain'd. But what if the cartilage did not protuberate outwards; but left the passage open to its natural size? do you think that the faculty of deglutition would be unhurt? that very experienc'd physician, Victorius Gornia, communicated to me a dissection made in Germany, of the body of a most high, and mighty prince, whose œsophagus was externally membranous, but internally cartilaginous, and towards the stomach bony, to the extent of an inch. Yet this prince had not only, for the last two years of his life, vomited every day at the interval of two hours after dinner; but had even never complain'd of any uneasiness, or difficulty, in swallowing. Does it not follow then, that the food, also, may be driven on by the stronger muscles of the pharynx, through the gula, when not collaps'd in its parietes, nor standing in need of dilatation, but perpetually kept open by the rigidity of its sides, in the very same manner as the blood is propell'd through a bony artery, by the force of the heart, and the arteries which lie behind it?

You, therefore, will consider of this, and at the same time adding the last observation, to the five I mention'd above, you will again consider with yourself, whether it seems proper, to attribute to the abuse of hot water, that disorder, which, as is demonstrat'd by four out of these six examples, did not occupy the tongue, the fauces, or the upper tract of the gullet, but chiefly the lower part of this tube. And of the other two, one describes the disorder, as be-

(*d*) Obs. 22. §. 1. & in addit. obs. 2.

(*e*) Aët. n. c. t. 6. obs. 149.

(*f*) Obs. 8. 9. 20.

(*g*) Opere, t. 3. observ. 36.

(*h*) De fame lethali ex callosa oris ventric. angustia.

(*i*) Ibid. §. 42.

(*k*) 20. hic in Sepulch.

ginning from the region of the clavicles; so that there is one, in which the beginning of the œsophagus is said to be shut up by a cartilage, together with the termination of the pharynx: and for this reason Stoffelius enquir'd, which others would not even have thought of, whether we might not make use of pharyngotomy, in imitation of the operation that they call laryngotomy, or rather, whether an incision might not be made into the upper part of the œsophagus, through which a pipe, carrying in nourishment, might be convey'd, by preferring an uncertain remedy, as he says, to a certain death; but at the same time, which is to be lamented, a very difficult and dangerous operation, as all must readily conceive, who compare the deep situation of the upper part of the œsophagus, with that of the *aspera arteria*, which lies quite at hand, and is almost superficial, especially as it is attended with so many muscles, nerves, and considerable vessels.

16. And that the parts, lying near to the œsophagus, may impede deglutition, in more ways than one, is shown even by those observations, which, as I have written them to you in other places, it will be sufficient here to point out, in pursuance of my promise. For these parts can not only be injurious, by making such a compression as to obstruct the passage, in the manner of that tumefied gland, in a woman of eighty years of age (*l*), or of the great artery, when dilated in the trumpeter (*m*), or as even both of them together, in a man dissected by Valsalva, when he was a young man (*n*); but also by deterring the patient from swallowing, since even when the passage is open, these parts, being compress'd by the aliments that are swallow'd, bring on danger of suffocation, as the dilated aorta did, in the woman who was dissected by the same person (*o*), in the marquis Paulucci (*p*) and in Ferrarini physician at the court of Modena (*q*). But to return to the glands that compress the œsophagus, what the thymus, when tumefied, can do to produce this effect, is not only shown in this section of the Sepulchretum (*r*), but also confirm'd by the observation of Verdriesius (*s*). And there are other glands, which, by their distention, pressing immediately upon the gullet, without any thing being interpos'd, do, in like manner, produce narrowness, and coalition, and in particular those that are call'd *glandulæ dorsales*: and this you will learn from the same section (*t*), and still more from some observations of a great number of dissectors, which are pointed out by me, in the *Epistolæ Anatomicæ* (*u*), and which you may join to the Sepulchretum, careless of the hesitation of Mauchart (*x*), when he wonder'd that those, at least, which are taken from Laurentius, and Diemerbroeck, for the others he readily admitted of, were not to be found in his copies of those authors works, because he would not have wonder'd, had he observ'd, that as Laurentius, and Diemerbroeck, had both of them revis'd their writings, the first since the year 1595, and the last since the year 1679, and had made additions to them at the same time, it was proper for me, not to make

(*l*) *Epist.* 15. n. 15.

(*m*) *Epist.* 18. n. 22.

(*n*) *Epist.* 17. n. 19.

(*o*) *Ibid.* n. 25.

(*p*) *Ibid.* n. 26.

(*q*) *Epist.* 18. n. 17.

(*r*) *Obf.* 10.

(*s*) *Eph. n. c. cent.* 8. *obs.* 90.

(*t*) *Obf.* 16.

(*u*) *Epist.* 9. n. 46.

(*x*) *Dissert. supra ad.* n. 15. *cit.* §. 6.

use of those former, but of the latter, editions, in which, if you enquire, those very words are to be found, that I have quoted from each.

Mauchart however, as he is a man no less cautious, than humane, on such an occasion, has at least said, that which cannot be denied, I mean, that the words are not to be found in his copies of these authors. But another gentleman who is, in other respects, very learned, having in his disputation on the fistula lachrymalis, happen'd to light, among other things that he took from me, on a passage of Aristotle, from the second book *De generatione animalium* C. V. which was quoted by me, *en passant*, in the sixth of the *Adversaria* (y), and having copied the words, as they are given by me, has pretty confidently pronounc'd, "that these words were not really to be found, in the "place quoted," not once calling to mind, that some might, perhaps, make use of copies, which were differently divided from his. And as with Sylvester Maurus, I follow'd not only "the common division, of the works "of Aristotle, into books, and chapters, but also the common translation," or rather, the very words of Aristotle himself, I hop'd, indeed, that if any should choose to collate the passage with the original, from whence it was taken, they would look for it according to the common division, or, if they happen'd to be without this, that they would readily find the passage, in their editions of that second book, in which the questions of the proofs of fecundity are treated of, and in that passage would find the same words, or at least, the same sentence.

And I say the sentence, lest you should, perhaps, be put to a stand by that one word *colorent*; for that Aristotle meant this, is not only demonstrated by reason, but affirmed by physicians, and amongst them by Niphus (z), who had explain'd the same book, and passage, of Aristotle, a hundred and twenty years before the paraphrase of Maurus (a).

And indeed, when I examined the word *χρωματίζωσι*, which Aristotle has made use of, in the Greek text, as it was proper I should, and which certainly signifies *colorent*, *tingant*, *insuficient*, that is "colour, stain, or dye;" I made not the least doubt, but it ought to be thus render'd, and consequently, suppos'd it to be owing to an error of the copists, or printers, that in the translation *perficient* is foolishly inserted, in the place of *insuficient*. And this remark, I was willing to throw in, on this occasion, lest those who read hesitations, or censures, of this kind in dissertations that have been much commended, and have gone through more than one impression, should suppose, in consequence of my perpetual silence, and still more from the authority of those by whom both these dissertations were written, that these strictures are just.

For as to a somebody, whose name I would not so much as enquire into, but only into this one thing, whether he could say, which has been denied, that he had receiv'd any provocation from me; as to somebody, I say, whether more fool, or knave, I know not, having, as I was told in former years, babbled out something rashly, and injuriously, in opposition to the opinion of the greatest men, and the most proper judges, in regard to my method of writing, formerly, upon some books, which was ne-

(y) *Animad.* 65.

(z) *Expof.* in l. 2. *Aristot. de generat. animal.*

(a) *Ejusdem* l. 2. c. 5. art. 3. ad. n. 11.

cessary, and useful; I shall never be so weak as to suppose, that wise men expect me to make any reply: I will therefore leave him, and such as he, if there are any such besides, to their own dreams, with the ridiculous interpretations of which I hear he is delighted. But if men who deserve answers, object any thing to me, with humanity, and good nature (and I wish there were not many things to be objected) I shall always be ready to give them every satisfaction in my power, and if by no other means, at least by the modesty of my reply.

But now, returning to our subject; besides the dorsal glands, from the turgescency of which Mauchart (*b*) mentions, that Mangetus had also seen a coalition of the gula, there are others, I say, which do not always occur to anatomists; although the dorsal glands do not always occur; that are more morbid, or at least more frequently so, which may produce the same effect, as those that were seen by the same author Mauchart (*c*), near to the termination of the œsophagus, and at the termination itself, would certainly have done, if their swelling had been more encreas'd, as those were, which Vallisneri (*d*) found, together with that change into cartilage. And thus the same thing happen'd in the very termination of the œsophagus, from a tumour that was either schirrhous, or made up of hard fat, the observations of Bonetus (*e*) in preference to others, and of a surgeon commended by Mauchart (*f*), demonstrate. But there is another part besides these, which exists in all bodies, and which, by immoderately constringing the lower part of the gula, produces an impediment to deglutition. This part is the diaphragm, betwixt the muscular flesh of which, the lower part of the œsophagus passes. Wherefore you see, why in that servant-man, whose diaphragm the celebrated Heister (*g*) saw "very much inflam'd," there was an incapacity of swallowing," and why some hysterical women perceive, in the place just pointed out, an obstacle oppos'd to deglutition, as in that woman (*h*), in whom I accounted for it, from those very muscular parts of the diaphragm being convuls'd, betwixt which there is a foramen, or fissure, to transmit the œsophagus; for that woman, when she had, already, got her food down almost to the stomach, perceiv'd an obstacle in that place. It gave me no small displeasure, that when I had found this foramen to be much shorter than usual, in some bodies, as in a certain old man who had been a porter (*i*), and in another old man, of whom I shall write hereafter (*k*), had met with it, as well as the œsophagus itself, which was in that part much wider, and more red, than usual, very large, especially in its breadth, I was much pleas'd, I say, that I could get no certain information in regard to either, whether they had perceiv'd any uneasiness, or difficulty, in swallowing, at that part.

17. And besides those that I have hitherto spoken of, I have also observ'd, that there is another part, which may compress the œsophagus, and that at the lower part. I mean the liver. For as there is an excavation, or

(*b*) Diff. cit. §. 12.

(*c*) §. 11.

(*d*) Obs. supra cit. ad n. 15.

(*e*) Sect. hac Sepulchr. obs. 22. §. 2.

(*f*) Diff. cit. §. 9.

(*g*) Dissert. sist. obs. med. miscell. obs. 15.

(*h*) Epist. 23. n. 4. & seq.

(*i*) Epist. 10. n. 19.

(*k*) Epist. 37. n. 30.

hollowing, in the posterior margin of this viscus taken notice of by the celebrated Winflow (*l*), which gives way both to the protuberance of the spine, and to the lower part of the œsophagus, when about to expand itself into the stomach; it can be easily conceiv'd, that if the liver should, at any time, become much swell'd, particularly in this part, and hard, it may press the œsophagus close upon the spine. And, indeed, I see that in this section of the Sepulchretum (*m*), the liver is taken notice of, among the causes of impeded deglutition, but not as being injurious in this manner, although Ballonius (*n*) seems to come somewhat nearer thereto. There is a far different method, which is a just one indeed, but in part, by which the celebrated Fantonus teaches (*o*), why, the stomach being thrust down into the umbilical region, by the vast bulk and weight of the liver, and its superior orifice being compress'd, aliments, and especially fluid ones, were swallow'd with difficulty. For he says, "that the cavity of the œsophagus " being thus elongated, by the force that was put upon it, had become much " narrower than usual," and that the stomach itself, being streighten'd by the compression, had resisted the food which was about to enter into it. And I think that the former part of this kind of explication, might be added to the others, in order to render it more easily intelligible, in the first observation of this section, why a soldier " being seiz'd with an opisthotonos, could " swallow nothing." For the neck being bent backwards, the œsophagus is distended, and thus as it becomes longer, so much in proportion is it made narrower, the anterior paries thereof approaching nearer to the posterior. And the same kind of explication may, in some measure, take place, where Hippocrates (*p*) speaks of " a distortion of the neck" coming on, so that the patient " could scarcely swallow."

18. It does not, however, escape me, that other causes of injur'd deglutition may be produc'd, some of which you will even find in the Sepulchretum. Yet you will not easily be persuaded, to enumerate among these as certain, that which is promis'd in the thirteenth observation, by having this title prefix'd to it, " A difficulty of deglutition on account of the œsophagus " being divided." For Blasius describes this tube to have been so divided, within the thorax of that boy, as to return into one cavity again, a little below its division, or as anatomists speak at present to have become insulated, or have made an island. But of any difficulty of deglutition, he does not throw in the least hint; so that this conformation seems to have been more unusual, than injurious. But we ought to form quite a different judgment, of that which the excellent John Graſhuis (*q*) found, I mean a morbid dilatation of the œsophagus, about the middle of the thorax, into a lateral sac, upon which, symptoms of deglutition, that were every now and then varying, depended, and symptoms that could never have been explain'd, without dissection. You may very soon expect another letter, which will, perhaps, be somewhat longer: but in the mean while, farewell.

(*l*) Expof. anat. tr. du bas ventre n. 259.

(*m*) Obf. 26. §. 2.

(*n*) In ſchol. ad. obf. 25.

(*o*) In ſchol. ad patris obf. anat. med. 24.

(*p*) Sect. 4. aphor. 35.

(*q*) Aët. n. c. t. 6. obf. 73.

LETTER the TWENTY-NINTH,

Contains a few slight Observations upon the Singultus or Hiccup, and upon Rumination or chewing the Cud, in Men. The other Part relates to Pain in the Stomach.

1. **A**LTHOUGH you will find three sections, in the Sepulchretum, upon the next disorders of the stomach, “the Singultus, injur’d concoction, and pain,” one upon each, yet I would not have you expect as many letters from me. For the two first, when they are violent, are of such a kind, that the one is found to be join’d with fevers, inflammations, wounds, and other diseases of the like kind, and the other with more considerable disorders, which it is either the consequence of, or has itself produc’d, so that they will be treated of, in conjunction with these disorders, as I am unwilling to repeat the same histories. And this you will be able to understand, very clearly, immediately upon turning to those two sections, which are written upon these subjects. For in the sixth, which is upon injur’d concoction, you will see it expressly declar’d to what diseases most of the observations more peculiarly relate, and in what places they have been produc’d more at large. And in regard to the remaining observations, all those that are written with any degree of accuracy, of themselves sufficiently show, whether they ought to be refer’d to any other section. For there are some, in which you will not find a single word, upon the subject of injur’d concoction, as that which you have under number eight, article the second, and that under number one, in the Additamenta. And why any observation, like that which follows next, which refers to those persons who “were able to concoct, not to say retain, their food, and had an appetite” for it, almost to the latter part of their lives,” should be inserted there, does not at all appear.

2. And what observation is there of the whole fifth section, from which you are not refer’d to another section? Or if you are not openly refer’d, do you not think that you might be with propriety, not to say that you ought? And yet, even with all this farrago of repetition, the whole number of the observations, when collected together, is but small; notwithstanding one of them (a) seems to be set down more than once. For which reason, I should suppose four appendices were thrown in, that the whole section might not seem to be immoderately short; in none of which appendices, any body is

(a) Confer. obs. 6. cum §. 6. obs. 7.

mention'd to have been inspect'd; and that, for the same reason, two dissections were added of ruminating men, which I should less wonder at, if they had been given where the question is of vomiting: nor is that sufficient; for last of all, a discourse on rumination, or chewing the cud, is added from Peyerus, which is so long as to exceed the length of the whole section. But do not imagine, however, that these things are taken notice of by me, as if I entirely disapprov'd them; but call to mind my intention. And even attend to these few things, which naturally arose in my mind, when I read over those appendices upon the Singultus, and the observations of men who chew'd the cud, some from one occasion and some from another, as is generally the case.

3. In the second appendix, when Thomas Bartholin mentions among the causes of Singultus, a tumour that compress'd the nerves going to the stomach, and says "it was suspected that there was a tumour of this kind, " in that man, whom I knew at Padua, and who was troubled with a perpetual uneasiness from the hiccup;" the observation of Jo. Rhodius (*b*) came into my mind, which relates to the same case, and which, although it is somewhat obscure, may nevertheless be look'd into by you. The same Bartholin asks, in the third appendix, "why just opening a vein in the "arm" should be of advantage in a certain Singultus, which he describes, and which is really extraordinary? What? if the superior phrenic vein, which you know accompanies the phrenic nerve, upon the quantity of blood, which was about to return, to that part where it would flow into that vein, being diminish'd, having been, consequently, reliev'd of a part of its load, either press'd less upon its attendant nerve, or absorb'd something, from whence this nerve was irritated? And as in all these appendices, mention is made of remedies against the Singultus, nor even externals remain unnoticed in the first, and the second; it brings to my mind the success of an easy, and obvious, remedy of Valsalva's, in a noble Count, that is milk, with which he fomented the abdomen; for as long as the cloths were wet with the milk, so long was the Singultus, which was so troublesome to the patient, restrain'd: in which, however, theriaca, when laid upon the part, was not without its use.

But as to the remark, which is made in a kind of scholium (*c*), that is plac'd betwixt the third, and the fourth appendix, of a Singultus, which, although it came on in a certain fever, that was attended with the worst of symptoms, was not mortal, it is a very rare instance indeed, and the contrary is asserted by two very eminent physicians; among the rest, Franciscus Vallesius (*d*), and Hieronymus Mercurialis (*e*), who deny that it ever happen'd to them to be witnesses of a favourable event in a case of the kind, nor did it happen otherwise to Hippocrates, in that woman who lay ill in the *forum mendacum*.

And in the malignant fevers, in like manner, describ'd by our Rammazzini (*f*), as many as ever were troubled with a Singultus, all perish'd, and one of

(*b*) Cent. 2. obs. med. 61.

(*c*) Ad §. 6. obs. 7.

(*d*) Comment. in Hippocr. epidem. 1. 3. f. 2.

ægr. 12.

(*e*) Prælect. pisan. in eand. hist. quæ ibi 26.

(*f*) Constit. a. 1692 & duor. seq. n. 22.

them being dissected, the stomach was found “to be mark’d here and there “with black spots:” and what was found, in the stomach of a certain man, who had been affected with the hiccup, you will learn from the *Opuscula Pathologica* of the celebrated Haller (*g*). Ledelius, however (*b*), after having quoted Epiphanius Ferdinandus, as “calling God to witness, that he had “never been deceiv’d in predicting death in ardent, and malignant fevers, “which were attended with a Singultus,” prudently admonishes us, “that “a patient ought not to be deserted, as long as there is life, because prodigies many times happen, in the cure of diseases,” as happen’d to him in a certain baker. And not to him alone, but to others also, as to Lanzonus (*i*), the celebrated Delius (*k*), and to me, in that epidemical constitution at Forli, in the year 1711, which I have already described to you (*l*). For the two patients, whom I mention’d, in the first place, in that description, were still alive when I wrote these things; although whoever had then seen them, and particularly Garavini, who was more like a dead person, than a living one, for some days together, and had heard, besides, the frequent Singultus of each, would have immediately given up all hope of their recovery.

4. But as to men who chew the cud, examples of which Peyerus has collected, in the greatest number he was able (*m*), and has refer’d some to rumination which was in-bred, and congenial, as it were, and others to that which is the consequence of disease; the same person has imagin’d that two observations, of a nobleman, and of a monk, both of which you see here in the Sepulchretum (*n*), relate to these two kinds, one to each. Both of them were made at Padua, and are the first of them all, and the only observations, besides, which are join’d with dissection; one thing is very foolishly added here, “that this monk had two horns.” For Rhodius (*o*) does not say it, in which Peyerus blunders (*p*), though he otherwise justly blames Bartholin, who has added it (*q*), and those who have follow’d Bartholin.

Certainly, Fabricius ab Aquapendente (*r*), as he took notice of this same monk, would by no means have omitted that circumstance, inasmuch as he had, a little before, thought it quite necessary to add, “that the father of “this ruminating gentleman, had born a little horn on his head. And “among others, who copied that blunder of Bartholin, was Etmuller (*s*), “who added one of his own, over and above; I mean that in these ruminating men, the stomach had been observ’d to be much more fibrous, “and fleshy, than usual, as if it had been cover’d with a muscular coat.” I wish we could so defend him, as to suppose, that by the term *stomachus* he meant the oesophagus; for this part Plazzonus (*t*), really, found “everywhere fleshy, like a muscle” that is, not only such, as “all men evidently have,” as Tryerius would have it suppos’d (*u*); for unless it had been

(*g*) Obf. 14.

(*b*) Eph. n. c. Dec. 3. A. 7. obf. 127.

(*i*) Earund. cent. 1. obf. 61.

(*k*) Ex. act. T. 8. obf. 108.

(*l*) Epist. 7. n. 16.

(*m*) Merycol. l. 1. c. 6. & l. 3. c. 3.

(*n*) Obf. 10. & 9.

(*o*) Cent. 2. obf. 59.

(*p*) C. 6. cit.

(*q*) Cent. 5. hist. anat. 61.

(*r*) De ventric. intest. &c. ubi de vari. ventric. in fin.

(*s*) Prax. l. 1. f. 4. c. 1.

(*t*) Vid. Rhod. obf. cit. 59 quæ 9. in Sepulchr.

(*u*) C. 6. cit.

much more fleshy, an anatomist, of some eminence, would not have observ'd this one thing only, at the same time that he pronounc'd "all the other" parts of the body, to be in their proper state." But for Etmuller; if however he did write these things; we cannot make use of this defence, inasmuch as he; which all the things that he had said before, in that chapter, show; by the term *stomachus* always meant *ventriculus* or stomach.

Yet that blunder of Bartholin is still more considerable, where he left these words, in his *Anatome quantum renovata* (x): "and indeed we cannot doubt but the stomach was double, in a ruminating man, spoken of by Salmuthus and others." And I wonder that this should have been transfer'd into the Sepulchretum, in that Scholium, which is subjoin'd to the two observations, that teach the contrary, of which I have hitherto spoken, especially as Bartholin could produce no dissection, besides these, of a man who chew'd the cud, not even from Salmuthus, and as, moreover, hares, and rabbits chew the cud, and nevertheless have not two stomachs.

5. However, although it never happen'd to Valsalva, nor to me, to see men who chew'd the cud, and much less to dissect their bodies; yet it has happen'd frequently to us, to dissect the bodies of men, who had been troubled with a violent pain in the stomach, of which the seventh section, as I have said above, professedly treats. And the observations of this kind, which I suppose to agree better with the purpose of this letter, than those of others, I shall immediately purpose. And first I shall give you three from Valsalva.

6. A man of sixty years of age, of a bilious constitution, had begun, for many years, to complain of a weakness, and pain, in the stomach, when at length a hardness, about that region, came on, below which, some hard globules besides (but these were very moveable) were perceiv'd, and attended with some tension of the whole belly. The belly, when shaken, evidently show'd that a kind of humour was extravasated within it. There were frequent borgorignii of the intestines, and eruptions of flatus. Vomiting return'd, more than once, at the distance of some hours after eating; which, however, had happen'd but seldom in the first years of the disease.

In the mean while, the patient made but little urine, was very thirsty, and complain'd of a dryness of the tongue: his pulse was weak, and small. At length, though a great quantity of serum was discharg'd, by the urinary passages, and the swelling of the belly was diminish'd, yet the other disagreeable symptoms, nevertheless, becoming every day more and more severe, and the vomitings being in the last month of his life, of a kind of serum ting'd, as it were, with foot, and smelling very strong, so that the patient, himself, said it resembled the bad smell of putrid flesh; his strength was gradually diminish'd, his speech became stammering, and he died.

The abdomen, even then, contained a pint, or two, of serum, similar to water, in which fresh meat has been wash'd. The whole omentum was contracted into certain tuberosities of different colours, which were mov'd, as that was mov'd. The stomach overflow'd with serum, of the same kind with that, which was thrown up by vomiting: but it was become quite hard, in about a third part of it: this part lay towards the pylorus, and had so

(x) L. 1. c. 9.

streighten'd it, that the aliments had scarcely room to pass through, after being prepar'd in the stomach. But although the whole of this hard part, when cut into, shew'd a white and solid substance internally, of which it consisted; yet on that surface, which was turn'd towards the cavity of the stomach, it entirely resembled both in colour, and smell, putrid flesh, distinguished with certain bloody points.

7. You see that those hard, and moveable, globules below the region of the stomach, were the tuberosities into which the omentum had contracted itself: and that the upper hardness was a schirrhus of the stomach, which as long as it did not extend itself by its encrease, so as to compress the pylorus, and streighten the passage through it, did not cause the vomitings to happen so frequently. The pain also, in the beginning of the disease, was but slight, as it arose only from some weight of the schirrhus, and from the resistance of the coats, which it occupied, to the proper extension of the stomach being made, for the reception of the food, or if this distention was brought on, from that part of the coats which was still sound, being incapable, of themselves, to bear all the distention that was necessary, without uneasiness. But when the schirrhus was encreas'd, and degenerated, at length, into a cancer, and that ulcerated; the pains must, of course, more and more encrease. For the stomach being thus affected, concoction being vitiated, and the balmy nature of the blood deprav'd, it is not at all to be wonder'd at, that the other circumstances of the history, should also happen, especially as that hardness of the stomach, and the tuberosities into which the omentum, that is connected to the stomach, had contracted itself, made a resistance to the free course of the humours. And from these considerations we may very well conceive how flatus, vomiting, ascites, weakness, and death, were the consequences of the original disease.

8. A woman of forty years of age, of a fleshy habit, but a fallow colour, having eaten onions, preserv'd in salt, and vinegar, together with bread made from the meal of chefnuts, began immediately to complain of a pain in her stomach. Which growing more and more violent, at the end of three hours, after eating this meal, she died in cold sweats, and a fatal syncope, which had seiz'd her.

Her belly being open'd, on account of a suspicion that she had been poison'd, every thing was found to be in its natural state, except that the stomach was distended to a very great degree, and somewhat inflam'd; but the blood preserv'd nearly its natural fluidity.

9. Valsalva thought proper to make this conjecture, in regard to the cause of the disease, that an effervescence being excited by the incongruity of that kind of food, this very great distention of the stomach had been, consequently, brought on, which, by compressing the sanguiferous vessels thereof, caus'd a remora to the blood's motion, from whence inflammation arose, and from this, an irritation of the nerves of the stomach, from whence, again, a syncope.

But however, this history may confirm what Diphilus, and Mnesithæus, say in Ludovicus Nonnius (y), of chefnuts, and the experience they had had

of their power of causing flatus; yet the same author does not deny, that they are in very common use, among many of the people inhabiting the Alps, and it is commonly known, that a bread is even made from their meal, which those people feed on in common, where, as Avantius (z) also asserts, “a great quantity of them grows.” Must we therefore, accuse the onion, which was added to that kind of bread, and suppose it, by means of its acrimony, to have attenuated, and cut, the gross particles of the chefnuts, and so let loose too great a quantity of air? As if, truly, the same rustic inhabitants of the Alps did not eat onions, occasionally, with their bread. This woman, however, seems to have had a stomach somewhat weak, and unaccustom’d to such a kind of food; and those rustics seem to have, as Horace (a) says,

Dura messorum ilia;
The reapers brawny sides.

But I believe that these circumstances were much better known to those who knew the woman, than to us. Whence then could the suspicion of poison arise, as they were not unacquainted with all these things? For if the woman had cramm’d herself, with an immoderate quantity of this food, there is no doubt but they would have known it, and have had less reason to suspect poison. You see, in this very seventh section of the Sepulchretum (b), that a little boy, in like manner, “died within the space of three hours,” from the immoderate eating of grapes. Yet there appear’d, at the same time, another reason, why this child died in that manner. “For the stomach being perforated, contained a great quantity of green ichor, which, without doubt,” says Rhodius, the writer of the observation, “was an æruginous bile,” that was endow’d with a very great acrimony.

How then was the case? I should be entirely of opinion, that in this woman, also, there was some other peculiar circumstance lying hid, although it did not fall under the notice of the eyes, in dissection, so that by this she was already dispos’d, if any cause did but happen to be added, as that flatulent and unusual kind of food, she was, I say, so dispos’d, as to be affected in this manner therefrom, though so many others are not us’d to be at all affected by the same diet, whether this disposing circumstance lay hid in those juices, which the food met with in the stomach, or in the nerves, which were endow’d with a more exquisite sense, and consequently more prone to irritation, and more ready to transfer that irritation to any other part, that is to the heart, in particular, to which the same nerves go, that go to the stomach.

In this manner therefore, or nearly so, you will understand what Valsalva conjectur’d: although we have scarcely any proof of the bad habit of this woman, from the fallow colour of her skin. Without doubt, in two other women, both of whom had eaten a melon, the one “stew’d in an oven with onions, and pepper,” after which she drank cold water, and the other, “boiled in milk, and well-season’d with pepper,” after which she drank cold, and four small beer, and who were both taken off soon after by a sudden death; in these

(z) Not. ad. Fieræ coenam, ubi de pane non frumentac.

(a) Epod. 3.

(b) Obs. 7.

women I say, without doubt, a bad disposition of body was more evident, as in one of them there had been a suppression of the menses, for the space of three months, and in the other, besides an advanc'd age, of seventy years, a long weakness of the stomach, and a decrease of strength. Yet there is also no doubt, but Christophorus Seligerus (*c*), and Michael Ernestus Ettmuller (*d*), observ'd more cachectic appearances in the body of one before dissection, and more morbid appearances in the stomach of both, or at least of one, by means of dissection.

10. A nobleman of Bologna, who was aged more than sixty, by one year, having been already troubled, for many years, at one time, with a hemi-crania, and at another time, with a gout, which was frequently vague, and wandering, and sometimes also fix'd, and at other times with calculi, of the kidneys, was, last of all, seiz'd with a gout in the right hand, without any tumour, but with a mild pain, which, as the power of feeling was soon become less quick, and strong, could scarcely be perceiv'd. His hand became entirely well; but in the mean while the right kidney was painful. But here also the pain was alleviated, fruitless reachings to vomit often recurring: however, when the vomiting ceas'd the gout seiz'd, in the same manner, upon his lower limb, and gave the patient excruciating pain at his calf, and at the ankle joint. After one or two days having pass'd, that whole extremity of the foot was entirely depriv'd of the powers of feeling, and moving. Yet the day following, some sense of pain return'd to the paralytic foot, and to the patient, both good spirits, and good pulse, which, at other times, was, for the most part, intermitting, and unequal, in the right arm.

At length, the day before he died, he threw up his food, mix'd with a watry matter: and felt a slight pain, with pulsation, and heat, at the region of the stomach. A little after that he vomited twice a yellow humour. On the following night he slept but little. In the morning, he complained with a very low voice, of three things, which had been continually troublesome to him, a great thirst, a bad taste in his mouth, and lost appetite: and the fever, which had before discover'd itself, in the pulse only, and that at times, was now evident. But the pain, and pulsation, of the stomach continuing, with a great heat in the back, the pulse, which had been very languid, the evening before, was now, from a great discharge of blood, by stool, totally abolished.

With this blood was mix'd a matter, that smelt very strong, and which, like melted pitch, follow'd the stick that was put into it, if you drew it back. In the mean while, the foot was very much in pain; and there was a sensation of something ascending, as it were, through the leg, and afterwards a sense of weight, in the lower part of the belly. But in the right arm, the power of motion was gradually lost, the nails of the fingers becoming livid: and that arm was soon after render'd quite paralytic. Some hours before death, frequent tremors were perceiv'd, about the præcordia. The discharge of blood returning by stool, as before, and the vomiting of the same kind of matter, perhaps, being at hand (as a nausea, and ill smell, like that of fæces, proceeding from the mouth, seem'd to show) the

(c) Eph. n. c. dec. 2. a. 1. obs. 139.

(d) Earund. cent. 9. obs. 66.

patient, saying he was suffocated, died about six and thirty hours after being attacked with the pain of his stomach.

The abdomen being open'd, the whole substance of the intestines was found to be occupied with a dreadful inflammation, from the stomach, quite to the termination of the rectum, so that not the least part of them was left unaffected with it. And in the intestines, a bloody matter, like that which had been discharg'd, was contain'd. The stomach and the kidneys were found. In the thorax, the posterior parts of the lungs, and particularly on the left side, were slightly inflam'd. In the pericardium, was a small quantity of water. In the heart were no polypous concretions.

11. The aphorism of Hippocrates (*e*), "If any person that is weaken'd, and emaciated, by an acute, or long continued disorder, or even by a wound, or from any other cause whatever, discharge *atra bilis* or black blood, as it were, by stool, he dies on the day following," except that it seems to have been fulfill'd in a somewhat shorter space of time, squares still better with this case, than with that to which it is applied by Ballonius, as you see here in the Sepulchretum (*f*). For his patient, who was, in the same manner, troubled with pains, at the region of his stomach, did indeed, "discharge an atrabilious blood," the day before he died, but it was "by the mouth." However Ballonius did not describe any disorder in the stomach itself, and Vallalva has represented it as being found. Both of them discover'd such appearances, near the stomach, that might easily account for the affection of that part. And the pulsation which was remark'd by Vallalva, was without doubt the effect of the blood, which was collected in the nearest parietes of the intestines, and the cause of its discharge into their cavity. For the vessels, by having their coats still more and more distended, were at length ruptur'd, and had their contents evacuated. To which, perhaps, a part of that prediction, to return to Hippocrates, may be applied (*g*): "palpitations about the belly shew an eruption of blood to be at hand."

But be that as it will, this one thing is certain, that almost all the force of so long, and so various, a disease, had, at length, suddenly fallen upon the vessels of the intestines, and had drawn the stomach, which is conjoin'd by vessels, with the intestines, and even by the very substance itself, into consent with them. So you will see it was drawn into consent, in another person, who, through the whole course of the disease, had discharg'd a black matter by stool, and in another, also, in whom the upper part of the intestines had grown livid. These two histories, you have in the fifth section preceding (*h*), which relates to the Singultus. And, without doubt, you would have a third also, in this (*i*), where all the intestines are describ'd as being extremely red, from inflammation, if the disease were also describ'd, as the dissection is, without which I wonder how this, and perhaps others, came to be plac'd among those that relate to the pain of the stomach.

And certainly, in the volumes of the Cæsarean Academy (*k*), you will find more than one observation, wherein not only the stomach was affected,

(*e*) 23. §. 4.

(*f*) Obs. 19.

(*g*) Prædict. l. 1. n. 20.

(*h*) Obs. 1. & 6.

(*i*) Obs. 50.

(*k*) Dec. 3. a. 9. obs. 222. & act. t. 2. obs. 103. 2. loco.

while the patient was living, but also an inflammation, or bad state, in some measure, of the intestines, and not of the stomach, was found after death. But if, in regard to that observation, which I just now copied from Valsalva, you rather ask, why the intestines themselves, as they were so very much affected, were not, consequently, excruciated with the pain, by which the contenting stomach was attacked; I believe I shall not be very far short of truth, if I suppose that, as in this man so many nerves speedily, and frequently, became paralytic, the nerves which went to the intestines, also, were resolv'd. But now I will likewise add some of my own observations, as I have promis'd.

12. A woman of forty years of age, who had been us'd, for the most part, to eat salt victuals, and drink generous wine, had been for many years subject to pains of the stomach, of which, a loss of appetite for food, and a nausea, were the consequences, and these were soon after follow'd by repeated vomitings of blood, with a continual fever, watchings, and thirst. And although the belly, when examin'd with the hand, never discover'd any remarkable hardness, in any part of it; yet the region of the stomach was not quite free, at times, from an uneasy sensation when scarcely any pressure was applied, and this even when the more violent pain was absent. She complain'd also of her loins; but this was only, either when she was about some greater labour than usual, or when she lifted any considerable weight.

A very obstinate pain of the head was, moreover, sometimes added, to the other complaints. Against all these disorders of the stomach that I have mention'd, as often as ever they recur'd with any great violence, blood-letting was always of some advantage: drinking plentifully of water also, in which a piece of bread, only, had been boil'd, was likewise of great use: and she seem'd, more than once, to have been quite recover'd, by the long use of milk-diet, and receiv'd fresh spirits every month, by the discharge of blood from the uterus, which continued regularly to the time of her death. In this manner it was that death came on.

Not long before, a hard tumour appear'd on each side, above the clavicles, where the external jugular vein goes down on the neck; this tumour created pain, nor would yield to any remedies, so that it encreas'd every day, and already caus'd respiration to be carried on with some difficulty. To this was added a continual fever, increasing in the evening, with which a little rigor was, sometimes, observ'd. She complain'd that her head was in pain, besides her stomach, where the pain was continual: with which, however, there never was, at this time, any vomiting of blood. She had, continually, a troublesome thirst, and a sense of very great bitterness in the mouth, from which, in the latter days of her life, a very ill smell proceeded; but no pus ever was observ'd to have been discharg'd therefrom. Under these symptoms, she drag'd on life much longer, than could have been suppos'd from her pulse, which, besides its being already small, and weak, frequently became smaller, and more weak, particularly in the last fifteen days, when she took nothing but broth, and a little wine, as she could now bear no kind of aliment besides, and much less medicines.

This lean carcase was brought into the anatomical theatre, when, as I was teaching anatomy, in the month of February, of the year 1744, and had
already

already demonstrated the male organs of generation, the female organs were wanting. The belly, therefore, being open'd, I saw the omentum roll'd up towards the upper part of that cavity, and extended so, that the transverse arch of the colon immediately occur'd to the eye, being now below the navel, whereas it generally lies immediately below the stomach. Into which situation it, probably, might have been push'd down, by the stomach, in some measure, though not entirely, as the left part of the fundus, of this viscus, descended lower than usual.

And the stomach was even livid externally, and particularly in a very considerable part of it, and had, at the same time, its coats very much thickened, and hardened, unless where they were, already, become so rotten as to be broken through with a touch, and to discharge a matter of a cineritious colour, and of a very strong smell, which, like a kind of fluid pulice, was contain'd in the cavity of the stomach. Into this cavity, it had burst out of the posterior paries of the stomach, which was immoderately thick, to a great extent, and internally tumid, and, in the same place, unequal, in a corrupt, rotten, and gangrenous state, and of the same lurid colour as the foremention'd matter was, so as to make it certain, that a tumour, or abscess, of the worst kind, had been ruptur'd in this place.

The pylorus was found, and all the intestines, among which was the colon, were, as it is reasonable to suppose, after so long an abstinence from food, contracted, from the beginning to the end. The spleen also was found, except that it was, in proportion, larger than usual, and, internally, somewhat pale. But the right part of the liver shew'd some roundish and white schirrh, about the size of small grapes. These tumours lay at a little distance from each other, on the surface, in such a manner, as to be, in some measure hidden, within the substance of the viscus; and when I cut into the liver, I saw one of them, which was intircly similar to the others, that was quite buried within the substance. There was a great quantity of bile in the gall bladder, which was extremely yellow, and had ting'd the neighbouring parts with the same colour.

The posterior surface of the left kidney had an oblique line upon it, to a considerable length, and of a whitish colour, made of a kind of tendinous substance, as it were, which, as I perceiv'd, when I cut into the kidney, was carried to a great depth, so as to reach to the tubuli, in which the papillæ are receiv'd. You would have been ready to suppose, that it was the cicatrix of a former ulcer, so much similarity had it thereto: but no where did there appear any mark of injury, though we look'd for it in the neighbouring tunica adiposa, and in the muscles of the belly.

The uterus was small, and low, and very much inclin'd to the right side, so as to be much nearer to that side, than to the left. But the round ligament was, also, shorter on the right side, than on the left. The cervix uteri, and still more the os uteri, were nearly in the same state, in which they are generally found, in virgins; for the former was internally mark'd, with its oblique, and prominent rugæ, and the latter had its aperture very round, and narrow. Nor was the ring of the hymen wanting, notwithstanding it was very low, and shew'd no traces of rupture. Yet behind it, were none of those roundish caruncles, and but

very

very few rugæ in the vagina, and these very slight, and the skin, which at the lower part of the abdomen, I observ'd to be, as it were, of a whitish colour, and spotted, did not greatly agree with what I had observ'd before.

The testes, in proportion to the age of the woman, and the bulk of the uterus, were large, and externally convoluted; but internally, the left had a kind of small and empty cells, wrap'd up in a white, and thickish membrane, and the other contain'd, in a cell, not much larger than those, a black, and half-concreted blood. The right falopian tube was pervious to the ovarium, but in the remaining part shut up; on the contrary, the left was open only to the uterus. It was surprizing in so lean a subject, except we allow for its being a female body, that there was so considerable a quantity of fat in the mesentery, and that even some remain'd in the omentum, and that in the interstices of the muscles, also, on the back, and the limbs, a much greater quantity was found, than those who prepar'd the body would have wish'd; and these muscles were of a very elegant red colour.

Beneath that yellow fat, with which the mesentery cover'd the vertebræ of the loins, and the trunks of the large vessels, that adher'd to them, some glands lay hid, which were enlarg'd to a great degree, and so closely connected to those vessels that they could not be separated, without great difficulty. All these glands were internally white, not very hard, but abounding with a purulent ichor. The others, throughout the mesentery, were not enlarg'd. But near the stomach, I observ'd one of the lymphatic glands to be grown much thicker, than natural, and harder, and to be of a lurid colour.

I then also saw, that the pancreas was universally thicken'd, and, at the same time, somewhat dry, and become a little hard, if you except a certain part of it, which had grown out into a white substance, almost like the thymus.

When we open'd the thorax, we, first of all, found the two lowest jugular glands to be of a whitish colour, and enlarg'd in every one of their dimensions, to the breadth of two inches, at least. These glands made up that hard tumour, on both sides, which I mention'd before; for they were also found to be hard, notwithstanding that on the inside, they contain'd a purulent ichor, part of which flow'd out, while the clavicles, under which, and the neighbouring part of the sternum, these glands harbour'd themselves, were taken away. The other jugular glands were, also, similar to these, in colour, and hardness, and in the ichor they contained. Yet these had not grown out into so large a bulk.

The axillary glands, however, had not been encreas'd in their bulk, nor undergone any other change whatever. On the other hand, those that are plac'd at the first division of the aspera arteria, were of a blackish colour, mix'd with white; and from a very small size, were become not less than middle-siz'd grapes: they were likewise pretty hard, and abounded with the same kind of purulent ichor, which I said was contain'd in so many other glands.

Yet the aspera arteria itself was found, even in the neck, as the whole tract

tract of the œsophagus was, in like manner, from the upper part, to the lower. Nor was any disorder observ'd in the lungs, which were somewhat turgid with air: nor yet in the heart, if you except some roundish tubercles, of a depress'd figure, made up of a somewhat hard, and compact substance, and so frequent, as to be almost contiguous to each other, which beset the whole borders of the mitral valves; and in one of the femilunar valves, a kind of small scale that had grown to it, but was not yet become bony.

Finally, the brain was not only not lax, but inclining to hardness, yet seem'd to be nearly in its natural state, unless that in the lateral ventricles, there was some quantity of a pellucid water, and the plexus choroides was pale. But the pineal gland was a little more firm, and globular than usual, and inclin'd more to a white colour, than it generally does. And, notwithstanding most persons, now, do not take this for a gland, yet I thought it might not be amiss, to take notice of this circumstance, in a body wherein so many glands were observ'd to be diseas'd.

13. The same observation makes us suspect, that the beginning of this long disease, which at last carried the woman off, was in some gland of the stomach, which being gradually encreas'd, and grown hard, afforded, by its tumefaction, an obstacle to the course of the blood, for which reason it burst forth, more than once, from the neighbouring vessels that were dilated, and particularly, in a woman who made a free use of generous wine, and salt provisions. And after that by this kind of intemperance, not only the bulk of the gland, and the extension of it, had been by degrees, more and more, augmented; but also the nature of the included humour had become more deprav'd, a purulent corruption, at length, came on, from whence, even before the tumour had any aperture in it, so great a quantity of ill-condition'd ichor had been thrown into the small veins, and the lymphatic vessels, that many other glands were infected with the same taint.

If the woman had liv'd some time longer, it is not difficult to foresee, by way of conjecture, what would have happen'd to the pancreas, and the scirrhi of the liver. As to there being a great quantity of bile in the gall-bladder, it is not at all surprizing, as I said in the preceding letter (1), that this should happen, where, for a long time, nothing had been contain'd in the stomach, and the upper part of the intestines, which by distending them could compress this receptacle. And as to the neighbouring parts being ting'd with the colour of the bile, this is a circumstance which happens so frequently, in dead bodies, that in regard to accounting for any disorder therefrom, it is somewhat more natural to follow the last scholium, which is subjoin'd to the sixteenth observation, in this section of the Sepulchretum, rather than the observation itself, especially in this case, where there was in the several parts of the body so great a number of real, and certain, appearances of disease.

However, if you should desire to have other examples of tumours, or abscesses, in the stomach, besides those which are to be found in this, and the next, that is the eighth, section of the Sepulchretum; you will find some to add to them, among the monuments of the Cæsarean Academy (m), and

(1) N. 6. (m) Dec. 3. a. 5. obs. 175 & a. 7. obs. 142. & cent. 3. obs. 13.

from other books besides, but in particular, from the works of Frederic Hoffmann (*n*).

14. An old woman had, already, lain some months in this hospital, on account of a tumour which rais'd up her belly, about the navel, and below it, but more on the right side, than the left. For which reason she could not lie down on her left side. The tumour was really large, but seem'd larger, for this reason, that the hypochondria, and most of the other parts of the belly, had subsided much, from a loss of flesh, which was universal through the whole body, but most considerable on the left side: could this happen because the woman always lay on her right? The tumour seem'd very moveable, if you took hold of it betwixt your hands, and push'd it to one side, and to the other. And it had scarcely any pain.

On the other hand, there was a perpetual complaint of a kind of uneasy sensation, in the stomach. For which reasons, some were ready to conjecture, that this tumour was in the omentum, by which means the stomach was drawn downwards, and troubl'd in its functions. With this uneasy sense in the stomach, there was sometimes a desire to vomit, but no vomiting. And now there was, besides these symptoms, a continual kind of fever, which continued, in conjunction with all the other symptoms, that I have spoken of, even to the very close of her life, that is to the middle of October, in the year 1735.

The belly being laid open after death, it was evident that the tumour was in the right ovarium: which had grown out into cells, full of a soft matter indeed, but not fluid, and of a cineritious colour inclining to yellow, but without any disagreeable smell. The tumour was increas'd, by the neighbouring tube being condens'd with it, which was, also, much enlarg'd, and become pretty thick; whereas the uterus, and the other parts that belong to it, were only of their natural size, and in a sound state. This tumour was connected to the contiguous side of the pelvis, and in some measure, also, to the nearest intestines, so that it could be more or less mov'd, by means of moving these parts. The intestines were livid from inflammation: yet they had no bad smell, nor yet the stomach, which was brought to me, by the person who dissected the body, and by whom, the other circumstances, that I have hitherto set down, were accurately related, that is by our Mediavia.

The reason of his bringing the stomach to me, was that I might, after having examined it, clear up a certain doubt of his. The cavity of it was very much contracted, on its internal surface, here and there inflam'd, in several places, and in the very middle of the neck, or upper part of the stomach, was an ulcer, nearly of a circular figure, which, in its diameter, was somewhat shorter than three fingers breadths, and of a very small depth, as in it there appear'd to be a great number of lenticular glands, of a middle size, and so very manifest, that I inserted a bristle into an orifice, which was seen in the center of them. Yet this ulcer was surrounded with pretty thick lips: and the substance of the coats of the stomach was become more thick, and hard, in that whole space which corresponded, externally, to the ulcer, than in any other part.

(*n*) Medic. Rat. t. 3. §. 1. c. 7, §. 26.

But as the stomach was entirely perforated, almost in the middle of the ulcer, Mediavia enquir'd of me, whether I imagin'd that this foramen could have been accidentally made, with the knife, in taking out of the stomach; for he affirm'd, that nothing had been found in the belly, besides a little serum, in the lower part of the pelvis, which could be suppos'd to have been extravasated, out of the stomach, whereas it seem'd that much ought to have been effus'd, in consequence of the patient having been, constantly, in a recumbent posture.

I however, although I thought it but little probable, if the stomach had really been cut by the knife accidentally, that this should have happen'd in that part, in particular, which corresponded to the middle of the ulcer, nor did the figure, and magnitude, of the foramen, which was almost capable of admitting a little finger, seem to be of such a kind, that they could properly be refer'd to the point, or the edge, of the knife; yet that I might satisfy both him and myself, as we were both equally desirous to know the truth, I examin'd with accuracy, a second, and a third time, the edges of the ulcer. And when I saw them to be not only callous, but unequal, and the more the foramen went towards the outside, to be comprehended in the less circumference, which two circumstances, the knife certainly could not have been the cause of, by having cut from without inwards; I judg'd that this aperture was not to be attributed to the knife, but to disease.

For as to nothing having been extravasated, from the stomach into the belly, that might have happen'd for this reason, that the external membrane was, by degrees, extenuated, and not entirely eroded, or perforated, till the disease was come to the last extremity, and life was at the close, at which time the stomach of the dying woman, being corrugated, and contracted, had nothing at all to pour out.

15. I lit, afterwards, on an observation of Mercklin, which you will also find to be related here, in the Sepulchretum (*o*), that is, of a foramen, big enough to admit the extremity of a man's thumb, with ease, seated, in like manner, in the upper part of the stomach, at which part there had been, for many years, a continual pain, not very considerable indeed, but always pretty troublesome. And that foramen was also suppos'd, by this learned man, to have been open'd after an old erosion, but only in the latter part of life; for he judg'd that life could not have been drag'd on so long, if the food that had been taken in formerly, had been effus'd into the cavity of the stomach, as he observ'd some, which was taken in the day before her death, to have been.

In the same manner, likewise, you will explain a much more recent observation, that you read in the commentaries of the illustrious Academy of Sciences at Petersburg (*p*), of a fissure in the stomach, through which nothing had been extravasated into the belly, and which, nevertheless, the credible, and expert dissector denied, upon his oath, having made with the knife: for that stomach was, also, manifestly eroded, particularly in the part which is opposite to the fundus, and had been the stomach of a man,

(*o*) Obf. 48.

(*p*) Tom. 7.

who

who had a perfect resemblance to a consumptive person, and who had died of constant vomitings, which no remedy, or art, could appease.

Neither was any thing found to have been effus'd, into the cavity of the belly, by Tyson (*q*), (who is even said to have found a perforation in the human stomach, three times) in an American, in whom he found the same kind of fissure. I do not, here, speak of those perforations, from which nothing could have flow'd down into the belly, either because they open'd into the colon, which was agglutinated, as it were, to the stomach (*r*), or because they were stop'd up by a part of the liver, which had grown to them (*s*). I also pass over those cases, in which it is not said, whether there was any effusion, or not (*t*). When there has been an effusion of the contents of the stomach, into the belly, I see that either a very speedy death was the consequence (*u*), or, at least, that frequently it was not delay'd more than a very few days (*x*), if we reckon the days of the perforation, from the day of the disease being become very violent, as it happen'd in an observation of the celebrated Baron (*y*), which certainly deserves well to be read, who, although he tells us that death did not follow till the eighth day, yet at the same time admonishes, that the foramen was in the upper, and interior, part of the stomach, so that it would have been very difficult for any thing that was drunk, to be extravasated into the belly, unless after some time, and in particular motions of the body. And I made use of the word *frequently*, for this reason, because I know that some observations are even extant, of the stomach being perforated, in which either that is not quite clear (*z*), or the contrary seems rather to appear (*a*). But you will compare these circumstances together, and consider them.

16. And although all, or the greater part of, these foramina, found in the stomach, relate to ulcers, which have sooner, or later, entirely pervaded the coats of this cavity; yet you have, here, in the Sepulchretum (*b*), many other observations of the same viscus being ulcerated, both internally, and externally, notwithstanding some are repeated, as the letter fifth (for the same number five is set down over again, through neglect) in the forty-third observation, article the fourth, and the sixth, in the twenty-seventh, under article the second. But although there are repetitions, also, of other observations, that relate to different disorders of the stomach, as of that which is under number twenty-six, article the fifth, in the twenty-fourth; there is no repetition that is more worthy of excuse, than where the twentieth is repeated, in the additamenta, under number two. For who would have imagin'd that the observation which had been propos'd by Blancardus, as if it had been taken from "a citizen" of his "city" of Amsterdam, was the same with that which Riverius had already given, as taken from a

(*q*) Vid. ast. erud. lipf. suppl. t. 3. f. 4.

(*r*) Sepulchr. f. hac 7. obs. 13. f. 1. & Brunner Gland. Duoden. c. 9. & Haller. opusc. pathol. obs. 23.

(*s*) Sect. ead. 7. obs. 5. secunda, & in addit. obs. 3. & eph. n. c. cent. 3. obs. 13.

(*t*) In schol. ad. obs. 3. modo cit. primo & tertio loco, & sect. ead. obs. 7. §. 1.

(*u*) Eph. n. c. cent. 5. obs. 43.

(*x*) Earund. cent. 3. & 5. obs. 120. & Sepulchr. l. 3. f. 21. obs. 25.

(*y*) Memoir. present. all' acad. r. des. sc. tom. 1.

(*z*) Sepulchr. l. 3. f. 8. obs. 14.

(*a*) Eph. n. c. dec. 3. a. 9. obs. 91. & cent. 1. & 2. obs. 151.

(*b*) Adde & seq. viii. sectionem.

goldsmith of Montpelier; unless any one who, having learn'd the ingenuity of Blancard, in transforming histories, and remembering a similar observation to have been given by Riverius, had compar'd both of them together, and not only found them similar to each other, but had found that they were, very evidently, altogether one, and the same?

But to return to those that relate to ulcers, among others, the forty-eighth deserves well to be read; for it is my opinion, that if this could have been extant, a hundred and twenty years before, it would have prevented Gesnerus, not to mention others, from being so ready to publish that which you have here under number thirty-six, of lizards for instance, and serpents, being generated within the viscera, and killing with the permission of the almighty, "about three thousand men" by the most cruel pains. For, to pass over the reasonings, and admonitions, of our Vallisneri (*c*), which I could heartily wish had been read, and duly weigh'd, by many of those who went on to publish observations of this kind, afterwards, without any doubt, or hesitation; at least, in that forty-eighth observation, also, which I just now quoted, the history of a man, is copied from Hartmann, who was so firmly persuaded of his having a lizard in his stomach, that he made no scruple to delineate the figure of it, and another is spoken of by Lucas Antonius Portius (*d*), who asserted that he had a frog in the same place, which sometimes croak'd, and if he drank any water, swam about in it, and not to use many words, you will find from Brunnerus (*e*), that a woman, by reason of a biting, and other sensations, which she felt in her stomach, was suppos'd to nourish a living animal there. Yet this woman, instead of her living animal, and the last of the two men, instead of a frog, and the first, instead of a lizard, had only tumours of the stomach, which were, for the most part, ulcerated.

I would, therefore, have you add to the Sepulchretum, the two more modern histories, out of these three, with their signs, whatever they are, and their dissections. For there are not only some others to be added, from the less modern histories, as for instance, that which you will read in Freherus (*f*), of the very famous cardinal Baronius, who was destroy'd by an insupportable nausea, which arose from three ulcers in the mouth of the stomach, but also from the more modern in particular, many, as one of Brunnerus (*g*), with an ulcerous tumour, as that of Basterus (*h*), which is, in general, not much unlike the former, as two of the celebrated Plancus (*i*), both of a callous ulcer, and others, in like manner, among which are some of the celebrated Haller's; for besides that of a scirrhus stomach from the abuse of vinegar (*k*), he has two others, one of which (*l*), describes many tubercles therein, full of pus, the other (*m*), describes the stomach, as being extremely deform'd with scirrhi, and abscesses, betwixt the membranes,

(*c*) Consideraz. int. alla generaz. de' vermi.

(*d*) Vid. act. lipf. a. 1704. m. Septembri.

(*e*) Gland. duoden. c. 9.

(*f*) Theatr. viror. erud. clar. p. 1. f. 2.

(*g*) C. 9. cit.

(*h*) Act. n. c. t. 8. obs. 16.

(*i*) Epist. ad. put. a. 1726. & epist. ad eund. de monstr.

(*k*) Opusc. pathol. obs. 21.

(*l*) Ibid. obs. 22.

(*m*) Ibid. obs. 23.

where it adhered to the colon, with which it communicated, by means of an ulcerated passage that lay open.

For, as you read over, attentively, all these observations, beginning with that of Hermannus, and adding another, moreover, of the celebrated Goritzius (*n*), you will readily observe, that there are but very few, in which there was not an injury, either in the pylorus, or near the pylorus; so that for this reason, also, the opinion of Frederic Hoffmann (*o*), may seem to be, for the most part, at least, not very absurd, or contrary to truth, I mean that the pylorus is primarily, and principally, affected in a cardialgia, especially, as in the next, and eighth section of the Sepulchretum (*p*), we read that the stomach was internally corroded, also, near to this orifice, and in this (*q*), that the orifice, itself, was not only very much swell'd, externally, and had vomicae fill'd with white pus, but was likewise scirrhus, on the internal surface, and beset with whitish, and indurated glands, more than the other part of the stomach.

Moreover, as you see that in the observations, which I have quoted from Hermannus, and Basterus, either glandular, or fungous, excrescences of the pylorus were join'd, in such a manner, with ulcers, of this part, that they might be suppos'd to have grown out from the ulcerated substance of the pylorus itself; you will without doubt, enquire, whether the other excrescences, which other persons, and I myself, also, have sometimes seen, both at this, and at other parts of the stomach, are all of them to be suppos'd to have proceeded from some ulcer of that viscus? For you see, by way of example, in the additamenta to this section (*r*), that two verrucae, or warts, were observ'd by Paulinus, in the stomach, about the left orifice, "adhering firmly together with their roots," one of them of the size of a small apple, the other of the size of a pretty large filbert, but that no mention is made of any ulcer, from whence they arose; although, some time before, a mass, equal to the size of an acorn, had been thrown up by vomiting, with a large quantity of blood: and indeed we generally see warts upon the skin, externally, without any ulcer.

But, as to what the Arabian Physicians have written, upon warts of the stomach, you will read it in Marcellus Donatus (*s*), and you have it in part, also, in the scholium to the appendix, which is subjoin'd by Bonetus, to the thirteenth observation of this section: although as the wart, which is there spoken of from Avenzoar, was of the bigness of an apple, it is not easily understood, how it was possible for it to get out of the stomach, and be thrown through the small intestines, into the large intestines; so that it is very natural to suspect this excrescence not to have been generated in the stomach, but in that part of the colon (*t*), which is contiguous to the fundus of the stomach, especially as vomitings are never said to have been observ'd in that patient, but, always, stools of a morbid appearance, sometimes bloody, and sometimes of various colours.

(*n*) Eph. n. c. cent. 8. obs. 20.
 (*o*) Commenc. litter. a. 1731. spec. 44. in
 fin.
 (*p*) Obs. 4.

(*q*) In Addit. obs. 6.
 (*r*) Obs. 5.
 (*s*) De med. hist. mirab. l. 3. c. 5.
 (*t*) Vid. etiam epist. 31. n. 21.

17. However in regard to what the Arabians have call'd warts, which, if they were not polypi of the intestines, or of the stomach (of which kind nearly, I should suppose that fleshy substance to have been, that is describ'd to have been thrown up after many vomitings of blood, in the appendix, of which I spoke just now) might be fleshy excrescences, as the verrucæ of Paulinus might also be, which in some measure resembled warts, that were pendulous from a root; if you choose to suppose that these ow'd their origin to a kind of ulceration, or erosion, I shall not be repugnant to your opinion. But I will rather enquire, whether you are to suppose the same thing of some others, as for instance, of that pretty large glandular caruncle, which was fix'd to the stomach, near the ring of the pylorus, by an oblong stalk, or radicle, which, as it is describ'd by me to you, in the sixteenth letter (u), you may compare with that which is given in the Sepulchretum, from our Prævot (*), which is said to have been annex'd to the same part of the stomach, by an oblong membrane, and was, I suppose, like mine, in this circumstance also, that it was not injurious.

For although it is thus said thereof in the Sepulchretum, "this body "falling into the pylorus, without doubt, all the exit of the chyle might "have been entirely prevented, and various symptoms might have arisen;" this exit is not, therefore, said to have been prevented, or these symptoms to have arisen; so that it by no means appears, why this title was prefix'd to the observation, "a consumption from, a glandulous caruncle adhering to "the pylorus." To me, I confess, excrescences of this kind, which are seen to hang pendulous from the skin, in some persons, and are number'd, by some, among the marks of the mother, seem to have almost a similar origin, which does not relate to ulcers.

Yet I would not deny, but it may possibly happen, that from accidental injuries, these marks may be broken, and ulcerated. So in one or two persons, and particularly in an old man, whom I shall describe to you hereafter (y), among those who died of a blow on the head, I saw a kind of membranous flap, or fold, hang from the ring of the pylorus, in a lacerated state, so that you could not doubt, but it had formerly been larger, nor was it as yet quite sound on the extremity of its edge. There are also, other verrucæ taken notice of by me, in the same ring, not pendulous, but sessile, or dwarfish, as it were, as in a porter, whom I shall speak of hereafter (z), as having fallen from a house, and broken almost all his ribs, and, in like manner, in an old man, of whom I shall make mention (a), when, in treating of the gonorrhœa, I touch upon the disorders of the prostate gland. For in both of these bodies, two roundish corpuscles, of the bigness of a vetch, adher'd to that ring, in the first of them, somewhat livid, in the second, of a red colour, and in both of a glandular substance. And indeed in the second, they discover'd, each of them, their separate little foramina, though in a somewhat obscure manner, which we could see in a more large, and more clear state, in the nearest lenticular glands. For these this man had very much enlarg'd in their size, in the continuation of the antrum

(u) N. 36.

(*) L. 2. f. 7. obs. 138.

(y) Epist. 52. n. 8.

(z) Epist. 53. n. 37.

(a) Epist. 44. n. 19.

pylori, through which, two or three prominent lines were drawn longitudinally, and terminated in those two roundish tubercles: and upon each of these lines, two or three glands adher'd, being disjoin'd by some little interval.

These lenticular glands, of the stomach, call back to my mind, another observation thereof, that relates particularly to this occasion, as it was not taken from a man, in whom no signs of a disorder in the stomach had exist'd, which, to the best of my knowledge, there had not been in those just now taken notice of, but from one who was taken off by short, indeed, but very violent, pains of the stomach.

18. A man of forty years of age, of a muscular habit, and much given to intense thinking, had, for some days past, been troubled with a pain in the head, and a sense of heat in making water, when after a supper, in which he had neither eaten too much, nor any thing that was unwholesome, he was seiz'd with violent pains in the region of the stomach. The pain of his head continued. Those of his stomach were encreas'd. A great quantity of green matter was discharg'd by the intestines, and by the mouth. And with these symptoms, he died at Venice, on the beginning of the third day, which was in the middle of August, in the year 1707.

When the stomach was open'd, the right part of it was found: and therein I saw, in conjunction with my learned friends, a great number of lenticular glands, in the manner I have describ'd in the third of the *adversaria* (*b*). The left side of this viscus was mark'd, in its fundus, with bloody spots, and these of a lively red: among which, some that began to be cover'd over with an ugly ferruginous little crust, shew'd that the disorder had already inclin'd to a gangrenous state. On the same side, where there were no spots, and where the internal coat seem'd to be found, I could easily press out the blood. The duodenum, and the rest of the intestines, even when examin'd internally, had no appearance of disease. The gall bladder was contracted at the distance of two, or three, inches from the lower part of its fundus, and was again dilated, before it terminated in a cystic duct, so that it might seem to be divided into two vesicles.

The lungs adher'd, by means of their own substance, to all the parietes of the thorax, being connected in the same manner also, to the mediastinum; they were found however; for as to their being red, on their posterior part, the back, and the posterior parts of the arms, were ting'd equally of the same colour. Nor was there any blood, either in the heart, or in the auricles. In the other parts, all of which I examin'd, except the brain, there was nothing worthy of remark.

19. No great error, or irregularity, in point of living, had been committed by this man, as had been by him, whose stomach the celebrated Koehlerus (*c*) found to be inflam'd, and beset with black spots: there was not the least suspicion of a medicine which had been of a nature not suitable to his stomach, as was the case in the history given by Klaunigius (*d*), or as you read, more

(*b*) Animav. 4.

(*d*) Eph. n. c. cent. 3 & 4 obs. 145.

(*c*) Commenc. litter. a. 1743. Hebd. 5.
n. 2.

than once, in this section of the Sepulchretum, of poison being either fraudulently, or accidentally, given. And some things had even preceded, as you might have observ'd, which seem'd to discover a considerable acrimony of the blood. Yet if you should happen to be surpriz'd at any thing, in this history, you will still more be surpriz'd, in that of a woman, which I have already promis'd you (e), and will at present give you.

20. A poor country woman, to appearance about fifty years of age, had been subject, at intervals, to a difficulty of respiration, join'd with a sense of streightness, a hard pulse, and a violent agitation of all the arteries, so that the alternate motion thereof, fell under the notice of the eye, even in her very hands, and not only in the neck, and the temples. When her respiration was extremely difficult, she came to this hospital, and having lost a large quantity of blood, which was somewhat hard in its consistence, she was freed therefrom. Thus she liv'd four years, when being seiz'd, at home, with pains of the stomach, she died there, within four and twenty hours.

Her body was given to me, that I might teach anatomy from it in public, before the latter end of January, in the year 1737. As we examin'd every part in its order, these things seem'd worthy of remark, in the belly. The stomach was large, and half-full, and when we came to open, and examine it, we were surpriz'd that the contents had not been thrown up by vomiting. For it was ulcerated with many, and various erosions, which seem'd recent, and were already affected with a gangrenous blackness. Some of them were very thick, and very small, at the upper part of the stomach, some of which kind were, also, seen in the nearest part of the duodenum: others were at a greater distance from each other, and larger, in the fundus, and more so, where the stomach began to expand itself from the termination of the œsophagus: nor was the œsophagus, itself, free from erosions of the same kind; so that they seem'd to have been caus'd by the food which had been taken in, though of what kind this food had been, there was no certainty, nor could we form any tolerable judgment, from the matter which remain'd in the stomach.

The spleen was somewhat larger than it naturally is, and more lax, being connected, in the greatest part of it, to the diaphragm, and in some part of it, to the stomach, which it is possible might arise from the encreas'd magnitude thereof. The uterus was very much inclin'd to the left side; and for that reason the round ligament was much shorter on the left side, than on the right. To one side of the cervix uteri, internally, a membrane of a pyramidal form adher'd, that had its upper part flatten'd, being small in its size, thickish and white, which I judg'd to be the remains of an hydatid, that was formerly distended with water. The urinary bladder, quite from the orifices of the ureters, show'd the sanguiferous vessels very conspicuous by their redness; so that notwithstanding they were very minute, the communications of one with the other, could not have been more clearly seen, if they had been fill'd by an injection of red wax. In this manner they were continued, in very great number, on both sides, into the urethra, the internal surface of which

(e) Epist. 14. n. 35.

was taken up with them in a still greater degree; but, for this reason, they were not quite so beautiful as in the bladder.

In the dissection of the mesentery, which abounded with fat, and that of a very good colour, and consistence, as the other parts did likewise, more than you would have suppos'd from first sight, I saw glands which were found indeed, but much bigger than usual, as many of them were even equal to beans of the largest size. The beginning of the superior mesenteric artery was common alio to the coeliac. The coronary of the stomach had a much larger diameter than usual. But the vena cava, while it was cut through, above and below the liver, as is the custom in anatomical theatres, did not pour out a single drop of blood.

Both cavities of the thorax had a little water in them, which was ting'd with no colour at all: the lungs were turgid with air, and connected to the pleura, on the back-part, and on the sides. In the heart, and in the jugular veins, in which there was a larger quantity of blood than in the inferior veins, was some appearance of a polypus. The parietes of the heart were, evidently, much thicker on the left side, than they ought to be, whereas, on the right side, they seem'd to be thinner than was natural. Yet there was no dilatation of the ventricles, or of the veins, or of the pulmonary artery, or, finally, of the trunk of the great artery. There was, indeed, somewhat of a hardness in the valves thereof, and in the trunk itself, both near the heart, and in other places up and down, in like manner, which were the marks of ossifications, that would have taken place, if the woman had liv'd longer, though discover'd, at present, only by a kind of yellow colour, and were even already grown very hard, a little above the diaphragm, where they were larger, and more protuberant: but the trunk was, every where, of its proper diameter.

Yet it was not so in all the branches of that trunk. For besides that coronary, of which I have spoken already, when I compar'd the carotid arteries one with another, a greater breadth was evidently to be seen, in that on the left side, than in the other. And as the left of these arteries, after having scarcely measur'd out an inch and a half in length, from its origin, was divided into two branches, by a very extraordinary instance, it was somewhat more dilated, where it began to divide, than arteries are accusom'd to be, in most persons, at their distributions: and the same thing I observ'd, at the first division of both the subclavians, into the larger branches.

At length, having open'd the cranium, on the twenty-eighth day, after the woman's death, the brain was not only without any morbid appearance, but had even no disagreeable smell, nor was found, in any respect, worse than others, that I dissected at the same time, which were much more fresh.

21. In the thickness of the parietes of the heart, on the left side, being preternaturally increas'd, you have a part of that cause, which so violently agitated the arteries, and in the several dilatations of these arteries, and the many beginnings of ossification, the effects of the same agitation: all which circumstances, you may compare with those things that I have already said upon the subject of spurious aneurisms, as Lancisi call'd them (f).

(f) Epist. 24. n. 35. & seq.

You have, moreover, which particularly relates to the present purpose, the causes of a most severe pain of the stomach, in the erosions of that viscus. And as I also found erosions, pretty similar to these, in a short time after, in the stomach of a drunken man, describ'd in the fourteenth letter (*g*); to omit those appearances, which I describ'd just now, as having been seen, by me, in that Venetian (*h*); I am much in doubt, whether to attribute them all to I know not what kind of food, that was taken in, or rather to some poisonous juices generated internally. Yet though I might perhaps do this, with some degree of colour, in one of these histories; it seems, however, less possible to suppose it in the last, in which the passage to the stomach, that is the œsophagus, was also beset with the same erosions.

But in regard to the effects of poisons, observ'd in the stomach, by means of dissection, as I should rather chuse to treat of them, at once, in their proper place, than here and there irregularly, as I see is done in the Sepulchretum; I shall, for this reason, refer to that proper place (*i*), what I forbear to add at present: as for a like reason I shall also defer to another occasion, those things which relate to the pain of the stomach, from a consent with other parts, and particularly with the kidneys.

22. But in regard to those pains of the stomach, which arise neither from poison, nor are produc'd from causes that lie on the outside of the stomach, if you enquire after such things, as you may add to those you have read above; I think you ought to add, in the first place, the observation of the illustrious Heister (*k*), in which he describes a most violent cardialgia, brought on by a great heap of worms, which had so injur'd the stomach, about the left orifice, where he found them adhering, that it was bloody, and, in a manner, eroded: and this in an adult woman; not in children, in whom it is less surprizing, that almost similar appearances were found by Bonetus, and by our Saxonia, as you have it in this section of the Sepulchretum (*l*). And although many examples (*m*) are given, in the same section, of a pain of the stomach, from calculi, that were form'd therein; yet you may add fresh examples from Lanzonus (*n*), from Contulus (*o*), and others. Farewell.

(*g*) N. 34.

(*h*) N. 18.

(*i*) Epist. 59. n. præsertim 21.

(*k*) Eph. n. c. cent. 5. obs. 86.

(*l*) Obs. 14.

(*m*) Obs. 29. 31. & 32.

(*n*) Aët. n. c. t. 1. obs. 64.

(*o*) De Lapidibus, podagra, &c. c. 9.

LETTER the THIRTIETH,

Treats of Vomiting.

1. **W**ITH the pain of the stomach, which was treated of in the former letter, is frequently join'd vomiting, of which I am to write at present. And this you may observe, not only by reading the last letter; but also by turning over the eighth section of the Sepulchretum, and comparing it with the seventh. For you will find many observations, in which both of these symptoms are describ'd, and not a few which are equally describ'd in both sections.

We however shall keep steadily to our former resolution, and shall not produce any one of those here, which we have either given already, or are to give hereafter. I select, therefore, out of all these of Valsalva, two only; one relating to a long-continued, the other to a short vomiting, but both of them to a vomiting which had fatal events. The first of these observations is as follows.

2. A man of about fifty-four years of age, had begun, five or six months before, to be somewhat emaciated, in his whole body, when in the beginning of the month of August, of the year 1689, a troublesome vomiting came on, of a fluid which resembl'd water, tinctur'd with foot. And the same kind of fluid was discharg'd by stool, sometimes, when the vomiting was upon the patient, and, sometimes, when it was absent, but this discharge was not constant. In the mean while, scarcely any pain was perceiv'd, in the region of the stomach. But the physician having prescrib'd salt of wormwood, it created such uneasiness in the stomach, that it was never given afterwards. At length the vomiting being very violent, with a discharge of the same matter, and the pulse growing, by degrees, very languid, death took place of life, on the thirteenth of November.

All the limbs of the body were flexible: which does not often occur in other carcasses. In the stomach, towards the pylorus, was an ulcerated cancerous tumour, and this seem'd to be made up of a congeries of glands, which, being press'd, discharg'd a kind of humour, like the male semen. And the stomach contain'd three pints of a matter, almost of the same nature with that, which was thrown up by vomiting. Betwixt the stomach and the spleen were two glandular bodies, of the bigness of a bean, and in their colour, and substance, not much unlike that tumour which I have describ'd in the stomach. These were the appearances in the belly.

And in the thorax, the right lobe of the lungs was somewhat inflam'd on the posterior part: but serum issued forth from both of the lobes, in eve-

ry part, when cut into. From the right ventricle of the heart, polypous concretions went into the pulmonary artery: and a small one from the left, into the pulmonary vein.

3. If you compare, one with another, the two tumours of the stomach, I mean this, and that which I also describ'd from Valsalva, in the former letter (a), both of which he call'd by the name of cancer, in the short references to his observations, and has said that both of them had a vomiting attendant upon them, by which a fluid, like water ting'd with foot, was discharg'd; you will perhaps wonder why the former occasion'd such severe pains, and this so slight, and why this, as, when press'd, it gave out a humour that was not fuliginous, could, nevertheless, be able to tinge so great a quantity of humour, with that colour. But that a very black matter has been thrown up, even by those who had no tumour of this kind whatever, you will not only perceive from the observations of others, but also from one of those which will be given below; so that it is by no means necessary to account for colours of this kind from cancers of the stomach, that are become ulcerated.

As to that difference of pains, however, unless you account for it, in the first patient, from the humours being more irritating, than in this, as the first was a pretty old man, and of a bilious temperament, although in the last, the pains became very troublesome, by the taking of salt of wormwood; you will conjecture that there had been slight pains in this latter patient, at first, just as there were in the former, but that after the tumour was so irritated, by the salt of wormwood, as to be at length ulcerated, they not only became more violent, but continued to the very close of life.

4. A nobleman of two and forty years of age, having come out of Germany into Italy, was seiz'd a few months after, with a double tertian fever, at Bologna, which was attended with pretty mild symptoms, in its first accessions; but in its fourth accession was very violent indeed. For the cold fit, which began about the twentieth hour, did but just remit at the third hour of the night: his thirst was very troublesome, his tongue rough, his breathing difficult, he felt a lassitude, had a small and weak pulse, a pain, and sense of fulness, in the stomach, and, finally, so great was his restlessness, and anxiety, that he scarcely remain'd two minutes together, in any one part of the bed.

All these symptoms continued without any remission, till, the heat coming on more violent, the patient had leave to drink a draught of distill'd waters, when they began to abate; but they abated only a little, and for a short time. For soon after all the symptoms were again exacerbated, and continued violent, through the whole night. Early in the morning he found that he had a vomiting coming on: but, at first, he could not excite it even by thrusting his fingers into his fauces; yet soon after, he threw up a fluid to the quantity of four pounds, and this fluid was like water, in which chocolate has been dissolv'd. In this humour floated some small portions of membranes, as it were, which had the very same colour: and the odour of it was of the same kind with that which generally exhales from the bodies of patients labouring under fevers.

Though the disorder of the stomach seem'd to be somewhat alleviated by this vomiting; yet the other disagreeable symptoms not only continued, but were even more violent than before. In the morning the physician order'd a vein to be open'd, and some blood to be taken away, and the blood, in the first cup, shew'd a crassamentum that was softer than it naturally is, a thin crust on the upper part, and a milky serum around; but in the second, all these several parts of the blood receded less from their natural state. This and other remedies being made use of, after a few hours, almost as much as before, of the fluid I have describ'd, was thrown up by vomiting: and the same thing happen'd again, and again, a little time after; so that the whole of the quantity, which was thrown up in this manner, on that day, was equal to about sixteen pints.

The night following, the same symptoms were violent, a tremor of the left arm coming on besides; which had a delirium preceding it, and often recur'd, but particularly while the arm was expos'd to the air: and in the morning, degenerated into a kind of epileptic paroxysm, in which, not only the arm, but the mouth, the eyes, and the left thigh also, were extremely convuls'd. These symptoms lasted for a great number of hours: at length, that arm was seiz'd with a palsy. Nevertheless, the epileptic attacks continu'd to return so frequently, that more than twenty were reckon'd within an hour. In the mean while, the vomitings were also more frequent, by which a matter of a porraceous colour was discharg'd, and in this matter fragments of small membranes, as it were, floated.

Moreover, a singultus, which had begun after the palsy I mentioned, about noon, began now to be much more violent. And, notwithstanding all these symptoms, seem'd to be somewhat more quiet after dinner, yet, when the evening came on, they were again exasperated; so that the pulse, and the strength, being more and more decreas'd, through the whole night, and the patient, being troubl'd with gentle vomitings, at one time, at another time, with the delirium, and singultus, but still more often, with dreadful, though shorter, spasmodic paroxysms, died at the twelfth hour in the morning.

The abdomen was tumid, as the intestines were also. These, and the stomach, on their more anterior surfaces, were ting'd with that same colour, with which I said the fluid had been ting'd, that was thrown up by vomiting. The stomach was internally inflam'd, all the small vessels whatever being very turgid with blood. The gall-bladder, although empty of bile, was nevertheless seen to be very turgid, but this turgidity, was from air.

In the thorax, the right lobe of the lungs adher'd closely to the pleura: and this, and the left, were ting'd with a black colour, and full of an ichorous matter. In the right ventricle of the heart was a slender polypous concretion.

5. The fatal event, which was indicated by the fourth day in this gentleman, was finally brought on, by the seventh. But if before so great an impetus of the disorder had fallen upon the stomach, the physician, whoever he was, suspecting from some discoveries of the former days, what was at hand, had made an early, and proper use of the peruvian bark, he might, perhaps, have been able to prevent the progress of the disorder, and thus have sav'd
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the patient. But these things happen'd, as far as I can gather from this, and the preceding observation, at that time, in which they were as yet afraid of using the peruvian bark, by way of a febrifuge, in the manner that we use it at present, and as it was first made use of at Bologna successfully, a few years after, by that very ingenious physician Dominic Gulielmini, in the case of a gentleman of a noble family, whom the next exacerbation, of a dangerous fever, would otherwise have carry'd off, as it had happen'd to others.

However, from whence the porraceous tincture arose, with which the humour thrown up was colour'd, is shown by the emptiness of the gall-bladder. But other juices were mix'd with the bile, in the stomach, and intestines, before, when the fluid, which was thrown up, had quite a different colour. But with which of these colours those viscera were ting'd, as Valsalva has not made it sufficiently clear in his papers, I was not at liberty expressly to determine, in the history.

6. But now I will give you other histories, which are likewise divided into two kinds, the one relating to vomitings of a long continuance, and the other to those of a short continuance. And of all these, that shall be the first, which produces an example of vomiting, than which not many of longer continuance will be found: and this is the same that I remember to have promis'd you, in particular, when I spoke of the palpitation of the heart (*b*).

7. A noble matron of Padua, who, from her very birth, had often thrown up the milk she suck'd, so that her nurse despair'd of her living; having nevertheless grown up to an age of maturity, was married, and became the mother of many children, and being now in her thirty-fourth year, began, in her lying-in, to be frequently troubl'd with a vomiting, from which, after two months, she believ'd she should be free for the future, as she had thrown up a kind of globular body, more than two inches in diameter, which, at that time, consisted of a pretty soft matter, but, being expos'd to the air, was, after three days, found to be extremely hard.

But the event did not succeed to her wishes. The vomiting continu'd, and notwithstanding it was contended with by many physicians, for a long time, sometimes by more mild, and, at other times, by more violent remedies, yet it continued to the very time of her death, that is for four and twenty years together. It return'd every day at two hours after dinner. It did not return after supper till the next day in the morning. And although changes were frequently made in the nature of her aliments, it always return'd in the same manner, and she always threw up a whitish matter, which was thick in its consistence, and ductile. And if the patient endeavour'd to prevent these vomitings, she suffer'd great uneasinesses in the region of the stomach, till they return'd, and the matter was discharg'd; but this did not happen without considerable strainings: however, after vomiting every thing was easy, and quiet.

There was no discharge from the intestines downwards, but by means of purgative medicines: and this could be easily brought about, at any time, without any injury to the patient, by a particular remedy, that is by St.

Fufca's pills, as they call them at Venice, a few of which, being kept on the stomach at night, gently mov'd the Bowels, as they generally do, but scarcely brought off any thing, besides watry discharges. Chocolate also staid on the stomach, and was of use to it. If you examin'd the region of this viscous with your hand, you perceived nothing there that was preternatural, nor yet in the other parts of the belly. To these symptoms that I have related, was added, about two years before her death, an intermission of the pulse. Yet the patient did not cease to perform the accusom'd duties of life, both at home, and abroad; till finding that she was not quite so well, and grown weaker, she was under a necessity of passing the last month of her life in bed. And there, every thing being now nauseous to the stomach, and amongst others, chocolate also, a fever was observ'd, which encreas'd every day in the afternoon, and augmented the nocturnal heat, though it made but little change in the pulse. The pulsation of the arteries was rather large, but according to custom intermittent. As she was extremely costive, she beg'd of her physician, that he would suffer her to take the usual remedy, that is the pills of St. Fufca; by which a very great palpitation of the heart was brought on: and notwithstanding this was alleviated, almost immediately, by taking away a few ounces of blood, from the arm, yet it soon after grew more violent again, and oblig'd the physician to order as many ounces to be taken from the foot, by which it was again diminish'd, yet not to so great a degree, as to suffer her to lie down on the left side afterwards.

There was no crust upon the top of the blood, that was taken away. Some days after, the patient being again costive, a gentle glyster brought on the palpitation. As external remedies were of no use against this disorder, and as but few internal remedies were admitted of, by the circumstances of the patient, who took scarcely any nourishment, and that unwillingly, among which remedies were the distill'd cherry water, and baum water, and a water made from compositions, wherein was a little castor, to which was once added a grain of opium, and there being nothing that either prevented the vomiting, or appeas'd the palpitation, the pulse growing very weak, slender, and creeping, on the last five days of her illness, and the palpitation continuing, stools came on without any means having been us'd to excite them, and that even to excess, so that they were frequent, and in great quantities, but at the same time, however, hard. Wherefore, the other symptoms continuing, and the extreme parts of the body growing cold, this very worthy matron ceas'd to live any longer, I say very worthy, on many accounts, but even for this one instance of her humanity, and virtue, she deserv'd to have enjoy'd a much longer life; I mean because she gave orders, in her last moments; which very few women have the virtue and resolution, to do; that her body should be open'd, in order to find out the cause of her obstinate, and long-continued vomitings, that if it should chance to be found out, it might be of some advantage to her children, against an hereditary disease; for she had a daughter, who already began to be affected with the same disorder, and her mother, who had been dead many years, had also labour'd under the same symptoms of vomiting. Being therefore desir'd in the name of the noble family, by my most respectable colleague Vallisneri the younger, to be present at the dissection, and having heard all the relation that I have given you, from

that very eminent physician Peter de Marchettis, grandson of Peter the Chevalier, who had attended this matron, for the last twelve years of her life, and treated her with the mildest methods of cure, as it was proper, in her disease, that he should; I took care, in presence of him, and other physicians, among whom was the celebrated Dominic Militia, formerly my auditor, that the dissection should be accurately perform'd, on the evening of the same day, on which the patient had died in the morning, that is on the eighth of April, in the year 1744.

The body was emaciated, but not to any great degree, and had no cedematous tumour of the limbs. The belly contain'd a considerable quantity of yellowish water: the omentum was furnished with but little fat, yet cover'd a great part of the intestines, and was connected to the peritoneum, on the left side: the stomach was contracted, and where it began to approach to the antrum pylori, it was still more contracted, so as to be, in some measure, divided into two cavities, as it were; however, in the thickness, and colour, of its parietes, if you examin'd it externally, it was natural; but on the inside, of a red colour, as if from inflammation. In the stomach were contained a part of the water, or broth, that had been last taken, and some pretty thick portions of that viscid matter, which was wont to be thrown up by vomiting. In the pylorus itself, and the duodenum, there was no morbid appearance, besides the colour of the internal surface, which was similar to that I have mention'd in the stomach.

The pancreas, which was, in other respects, of a proper magnitude, was so white, in every part of it, and when I order'd it to be cut into, consisted of lobules, so distinct, and so destitute of moisture, that if they had been a little harder, for they were pretty hard, I should not only have pronounc'd, that the pancreas was of a scirrhus nature, but that it was, already, quite converted into a scirrhus. The spleen, and the liver, were internally sound, although the former, on its whole external surface, and the latter, on its inferior surface, on the right side, were pale. But the gall-bladder had all its parietes so much thicken'd, that I never remember to have seen the like: for which reason, notwithstanding it was full of bile, inasmuch as it was in a person, who, for so many days together, had taken very little nourishment, and notwithstanding this bile was so black, as to have ting'd the interior surface of the gall-bladder with a black colour; yet the external surface of it was white. For the same reason that I hinted at just now, in the contraction of the stomach, the intestines, and particularly the small ones, were contracted also, to a very great degree, as even that excessive evacuation, by stool, which had so lately preceded, required. Out of all the intestines, the appendicula vermiformis alone, was a little more turgid than usual, and red on the external surface. In the mesentery, and the other parts of the belly, we observ'd nothing that was not natural.

But in the thorax, water was contain'd on both sides, and not in small quantities, nor a little bloody. The lungs, in like manner, though in other respects sound, were connected to the sides of the thorax, by many thick, and pretty long membranous filaments. The pericardium adher'd, very closely, to all the surface of the heart, to that of the right auricle, and of the large vessels belonging to the heart. Nevertheless, the heart had a proper thickness in its parietes,

parietes, and a proper capacity in its ventricles. Both of these cavities were likewise, full of blood, such as issu'd, in great quantity, from the vena cava, when cut into, black, and in great measure coagulated, and grumous, but without even the least polypous concretion. The valves that are plac'd at the venous orifices of the heart, although they seem'd to be white, were not however indurated. But out of the remaining valves, those that are situated at the beginning of the great artery, had their extreme borders not only much thicken'd, but of a cartilaginous hardness. The artery itself was in a very natural state, both internally, and externally: nor did any other marks of disease appear in the thorax, besides those which I have mention'd. There was no reason for us to go through a dissection of the head.

8. As to the disorders that were found in the pericardium, and the heart, how far they may relate to palpitation, and an intermittent pulse, I have already hinted in several places (*c*). But those which were found in the gall-bladder, and the pancreas, seem to me to have a reference to the vomiting. And perhaps I should think the same, also, of that contraction of the stomach, by which it seem'd to be divided into two cavities, as it were, if I had not describ'd the same structure to you, in two other women (*d*), neither of whom had been subject to a vomiting, nor yet a woman of princely rank, and others besides (*e*), in whom I remember that the stomach had the same appearances.

For it happen'd to me, when I saw this conformation of the stomach, to see it in women, as it did also to Valsalva (*f*): from whence I began to suspect whether these appearances might not be reckon'd among the other disadvantages, that they create to themselves, by compressing the upper part of the belly with hard stays, if I had not observ'd that the same thing happen'd to women of every station, and not only in women, but even in men, as has been observed by Riolanus (*g*), and by the very celebrated authors, Heister (*h*), and Fantonus (*i*). And not one of those observers, nor yet the celebrated Petschius (*k*), and Amyandus (*l*), who have seen it in women, have ever mention'd a word of vomiting, in these men, or women, though they might have mention'd it, and indeed some of them ought, in justice, to have mention'd it, if any thing of this kind had been observ'd.

And though you will find, in this eighth section of the Sepulchretum, an observation of Blasius (*m*), who met with the stomach double, in a man who had been long troubl'd with very frequent vomitings, you nevertheless will see, that he did not ascribe the vomitings to this double state, but to the great narrowness of the foramen, whereby one stomach communicated with the other: which kind of narrowness never was found, in those that I have observ'd. But if you read this observation in Blasius (*n*), you will find it to be join'd with another of the same kind, in which, although there was, not only a great narrowness betwixt the two stomachs, but “ a very great and

(*c*) Epist. 23. n. 21 & 23 & alibi.

(*d*) Epist. 16. n. 38 & epist. 26. n. 31.

(*e*) Epist. 37. n. 28.

(*f*) Epist. 36. n. 2.

(*g*) Anthropogr. l. 2. c. 20.

(*h*) Diff. sist. obs. med. miscell. obs. 6.

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(*i*) De observ. med. & anat. epist. 3.

(*k*) Syllog. anat. obs. §. 84.

(*l*) Vid. commerc. litter. a. 1734. hebdom. 25. in fin.

(*m*) N. 26.

(*n*) P. 4. obs. med. 9.

"excessive straightness," the man was nevertheless, except his being very hungry, "in very good health," and consequently not subject to vomitings.

Yet if you would choose to suppose, that this structure of the stomach, in the matron whose history I have now given you, had also contributed something to the production of the vomitings, inasmuch as it had, without doubt, existed from the first formation of the stomach, join'd with that deprav'd disposition of the gall-bladder, and the pancreas, which becoming more evident, as the patient encreas'd in years, brought on an incurable vomiting; I shall not violently contest the opinion with you. And there is not the least doubt, but so great a thickness in the coats of the gall-bladder, render'd it less obsequious to the pressure of the stomach, and the first intestines, so that, probably, a sufficient quantity of bile was not press'd out from thence, and this bile was likewise vitiated.

And as the pancreas was without any moisture, and inclining to the nature of a scirrhus, you may easily imagine, how much less juice it must, of course, secrete, and how much less fit that juice must be for the purposes to which it was intended, and you may, at the same time, gather, how imperfect an elaboration of the chyle there must have been, from the defect of both these humours, and the disorder in the duodenum, and how much gross, and viscid, matter must, consequently, stagnate there, which would irritate the coats of that intestine, in such a manner, and particularly in the motions, and agitations, of the body by day, as at length, to stir them up to an inverted motion. And if to these you are allow'd to add that peculiar structure of the stomach, which was, perhaps, not quite so proper to prepare, and act upon, the aliments, or at least to thrust them on, with sufficient dispatch, into that intestine, it will be so much the more easy to conceive the causes of this very obstinate, and long-continu'd, vomiting.

9. But to speak of one of these causes only, for the sake of brevity, that is, of the diseas'd state of the pancreas, you will see here in the Sepulchretum, besides the fifty-third observation, and those that follow, others, also, that are pointed out, and that not only above, but in particular below, under numbers fifty-seven (o), and fifty-eight (p), and other numbers; and you will find that a vomiting was join'd with the disorders of the pancreas. It is true, I am not among the number of those, who have suppos'd, that I know not what diseases, and even vomitings of blood, are to be accounted for, from "the pancreas alone" (q): and I even confess, that this viscus has been found to be diseas'd by me, and by others, without a vomiting being the consequence of it. Yet I cannot deny, that disorders of the pancreas have been seen, by me, to be join'd with vomitings, and that I have heard from others of the same thing having been seen, frequently, by them also.

But I shall have a more convenient opportunity to give my observations hereafter. At present I shall take notice of some observations from others. And in the first place, I heard from a follower of Malpighi, who was, when living, a learned physician at Bologna, and my preceptor, I mean Jacob Sandri, that he had made remarks upon many dissections of persons who had

been subject to vomitings, and particularly of a humour resembling tobacco in its colour; and that in all these bodies the pancreas had been in a diseas'd state. And Heraclito Manfredi; he whose praises I have already, with justice, proclaim'd; when I return'd to Bologna from Forli, the place of my nativity, where I had retir'd for some months, which I think was in the year 1704, related to me an observation of his: which I will here communicate to you; and that, rather, because it relates to the discourse which I have begun upon the pancreas, than to the order which I promis'd to observe.

10. A robust man, without any manifest preceding cause, was troubl'd with a continual endeavour to vomit, yet besides his medicines, and his food, none of which he could retain, he vomited but little at a time, and seldom, and what he did bring up was watery, and for the most part bitter. Besides this, he was troubl'd with a great thirst, with a kind of frequent swoonings, and, in particular, with a pain, just as if he were torn to pieces by dogs, at the common boundaries of the thorax and belly: which, if you examin'd it with the hand, had not the least hardness, or resistance, whatever. With these symptoms, and with a low pulse, he died within the eleventh day.

The belly being open'd, the liver appear'd to be very large, but sound. The intestines, likewise, and the stomach, were sound. And the mesentery, also, though not without some obstruction. But the pancreas was larger than its natural size, and universally unequal, with roundish tubercles of a considerable magnitude, and was itself almost of a cartilaginous hardness. In the thorax was much water, and in the pericardium, a very large quantity, like to that in which fresh meat has been wash'd. The heart was very small: and in its right auricle was something of a whitish polypous concretion.

11. The reason that tumours of the pancreas, unless they themselves are perhaps large, and the patient very much emaciated, are seldom perceiv'd by the touch externally, or, at least, not without difficulty, arises from the remote situation of the viscus, and from the interposition of whatever may lie betwixt that, and the hand, and especially from the stomach being turgid with flatus, or from the liver, as in this man, being much enlarg'd in its size. And as, in case of this difficulty, Riverius has hinted what signs we may make use of^(r), so he has not omitted, in the number of these, such as are to be taken from the pain of the neighbouring stomach, and from other symptoms. However, the pancreas may excite a vomiting, in many different ways, as when it irritates the contiguous stomach, which is of a peculiarly exquisite sense, by its hardness, and roughness, or, by an increas'd magnitude, prevents it from being sufficiently dilated.

For the discharge of all the ingesta, by vomiting, is the natural consequence of the impeded dilatation of the stomach, whether this viscus be the cause of the obstruction to its own dilatation, by reason of its coats becoming much thicken'd, and scirrhus, as in the observations of those celebrated authors, Laubius^(s), and Haller^(t); or whether, for the thing comes just to the same, there are other obstacles oppos'd to the dilatation thereof, as, for instance, large steatomatous tumours, which Verdriesius^(u) saw lying

(r) Prax. med. l. 13. c. 4.

(s) Eph. n. c. cent. 7. obs. 41.

(t) Opusc. pathol. obs. 21.

(u) Eph. cit. cent. 6. obs. 16.

near the stomach, or that large body, which, as you will read in the very excellent Heister (x), was likewise found in the same situation, in two women. And that the viscera themselves, which are contiguous to the stomach, may also be obstacles to its dilatation, if they are immoderately swell'd and hard, was prov'd some years ago, by the untimely death of a most learned archiater, who was my worthy friend, and whose incurable vomiting I heard was owing to the liver, and the pancreas, which, by their bulk and hardness, compress'd the stomach, that lay betwixt them.

But the pancreas; to go on to speak of that in particular, especially as it is so easy to transfer those things that are said of this viscus, to the liver also; the pancreas, I say, may excite vomiting, even when it secretes a juice, which, either by its acrimony, is troublesome to the duodenum, or by its inactivity, or any other defect whatever, is the cause of a bad concoction of the aliments, and consequently, of some gross parts thereof being left behind, to create uneasinesses in that intestine; or finally, when by the smallness of its quantity, it is unequal to the other uses, and among these, to that by which it moderates the force of the bile, that flows in with it, particularly when the bile is more acrid than usual, and prevents it from stimulating the coats of that intestine, too strongly, and inverting their motion: on which subject you may, also, consult Frederic Hoffmann (y), who supposes, this to have been the very reason, why the bile, and the pancreatic juice, are wont to go to that intestine, by one and the same orifice, and why the dogs of Brunnerus, when the pancreas was taken away, died of bilious vomitings. Therefore when the human pancreas is reduc'd to such a state as to secrete no juice at all, you see very clearly how much more easily those things that I have said may be the consequence. But a vomiting may be also brought on in a different manner by the pancreas, that is, if by its roughness, hardness, or encreas'd magnitude, it irritates, or presses upon, the intestine we have been speaking of (to which it is fix'd by its broader extremity) in the same manner as I have suppos'd of the stomach.

According to these positions, or others of this kind, you may, at your leisure, explain all, or the greater part of all, the histories that relate to this subject, and much more those which have a disorder of the pancreas, and the duodenum, join'd together at the same time, as this that I shall immediately subjoin, which was taken by that very experienc'd dissector, our Mediavia, about the beginning of October, in the year 1733; and communicated to me at the very same time.

12. A monk, who was noble both in his birth, and his manners, and one of the holy family of the capuchins, as they are commonly call'd, was carry'd off by a complication of disorders, but particularly by a dropsy, and a vomiting, when he was in the thirty-third year of his age.

There was some water under the skin of the carcase universally; for which reason the feet, also, were somewhat cedematous. But the belly was not greatly swell'd, nor had it any greater quantity of water, within its cavity, than about two pints. The liver and the spleen were larger than they naturally are, and the former of these viscera was whitish besides, and hard, and its lobules con-

(x) Epist. de pilis, ossib. p. n.

(y) Diff. de pancreat. morb. §. 4.

spicuous.

spicuous. In the stomach was nothing worthy of remark, if you except a plexus of two inches in breadth, and four inches in length, made up of crowded glands, less indeed than a lentil, but furnish'd with an evident orifice: that plexus was in the bottom of the stomach, near the antrum pylori. At the distance of an inch below the pylorus, the duodenum was black, and a little below that, was scirrhus. The pancreas also was pretty hard.

In both the cavities of the thorax, was a considerable quantity of water. The lungs were contracted. The heart was not without polypous concretions: and one of its valves not without a bony portion. But on the internal surface of the great artery, from the superior branches quite to the emulgents, were beginnings of future ossification. This artery, though in a body of a tall stature, was scarcely thicker than a finger of a moderate size: and the other sanguiferous vessels, also, were narrow in the same proportion.

13. As this great narrowness of the vessels, and particularly in a body of this kind, had probably been the beginning of all its diseases, so I do not doubt, but that the hardness of the pancreas, and still more of the duodenum, had been the cause of the vomitings. For whether that intestine is streighten'd by compression, as was formerly observ'd by Riolanus, whom you will see quoted here in the Sepulchretum (z), or whether, by reason of its coats being scirrhus, it is not able to constrict itself, the same effect follows, notwithstanding the causes are so opposite, that is the ingesta, which were about to be carry'd out of the stomach, as they are receiv'd into the intestine with less ease, or propell'd forwards with more difficulty, remain, the greatest part of them, in the stomach, and being there corrupted, or heavy, by the very delay itself, grow troublesome to the stomach, and bring on a vomiting, a very clear example of which has been even produc'd by the celebrated Molinelli (a).

The same thing must happen, when the pylorus is affected with disorders of the same kind. And you have, here, many examples in the Sepulchretum, as in the eleventh and seventeenth observations, and the greater part of those that follow, almost quite to the twenty-sixth, and again in the fifty-sixth, article the thirteenth, and in the additamenta, observations the first and eighth; and indeed in other places, as in book the first, section the ninth, and not only in the thirty-fourth observation, but, moreover, if you attend to those *subversions*, in the thirty-third. And among these that you will read in this eighth section, when you come to the twenty-first observation, which is not far unlike another from Johannes Bohnius (b), and find in that a vomiting of all the food, which was taken in, and death itself at length brought on, within ten days, by the pylorus being stop'd up, from a small piece of silver coin, which the patient had swallow'd down; it will, without doubt, make you call to mind that piece of silver coin, which was of a much larger size, and which the experienc'd surgeon du Luc (c) happily dislodg'd from thence, and even carry'd quite out of the body, not only by the help of other remedies, but, particularly, by the weight of quicksilver, urging it

(z) Schol. ad obs. 23.

(b) Eph. n. c. cent. 3. & 4. obs. 121. in

(a) Comment. de bonon. sc. acad. t. 2. p. 1. schol. inter medica obs. 1.

(c) Hist. de l'acad. r. des. sc. a. 1740. obs. anat. 4.

down, and by means of this last-mention'd metal *amalgamating*, as the phrase is among chymists, with the silver, whereby its size was diminish'd, notwithstanding slight pains, at the pylorus, had already begun to appear, together with an inclination to vomit.

But not to digress too far from these obstructions of the pylorus, which are produc'd by discafe, and not by accident, besides those observations which I have pointed out in the Sepulchretum, there are others, and those not few in number, which you may add thereto, as those, for instance, that are extant in the volumes of the Cæsarean academy (*d*), in the Acta Eruditorum Lipsiensia (*e*), in the commercium Litterarium (*f*), and any others besides, amongst the great number taken notice of by the very learned Trillerus (*g*). Out of all these observations, you will find some which, at the same time, confirm those things, that I hinted just now, when I spoke of the pancreas, and the duodenum, and some that even refer to the letters, which I have lately sent you. Of this kind are two even of the celebrated Fantonus (*h*), that ought by no means to be pass'd over here.

Nor, finally, am I wanting in observations of this kind, although they are not so extraordinary as the second of his is: one of these I have already given you, in the preceding letter (*i*), and for that reason shall not repeat it here: but another, which I made on the bishop of Brescia, I defer till I give you those that relate to tumours of the belly (*k*): and a third, that was communicated to me by Marianus, whom I have elsewhere commended, in which calculi, and callus, so closely shut up the pylorus, that it could not be pervaded, even by mercury, I shall send to you when I have receiv'd the whole of it. There is one observation, which may be produc'd here, without any great impropriety: it was taken at Bologna, in the year 1703, about the beginning of December, and I purposely preserv'd it for the present occasion, notwithstanding it agreed, in part, with another subject also, as you will perceive by the obscurity of the pulse, join'd with the greatest laxity of the fibres of the heart.

14. A priest of the famous order of St. Austin, whose name was far from being obscure, among the number of sacred orators, being somewhat more than forty years of age, began, after close studies, journeys, and other fatigues, to perceive a kind of tension, at the right hypochondrium, and this some months before any other symptom discover'd itself. At length a frequent vomiting came on, four hours after taking food. And other symptoms were of course added. Finally, in the last months of his illness, the case was as follows.

In the belly was great hardness, and in the right hypochondrium very great hardness; but no pain if you press'd upon these parts, whereas, on the contrary, a spontaneous pain arose in the other hypochondrium, and that very violent indeed, at the time the food was about to be digested. A humour was sometimes thrown up, which was ting'd with the colour of tobacco, as

(*d*) Cent. 7. obs. 87. & cent. 8. obs. 20. & cent. 10. obs. 10. & act. t. 4. obs. 107. & 135. & t. 6. obs. 151.

(*e*) A. 1711. m. sept. ex Dionis differt.

(*f*) A. 1743. Hebd. 16. n. 2. cum Hebd. 17. n. 2.

(*g*) Differt. de fame lethali, &c. §. 29.

(*h*) De obs. med. & anat. Epist. 2. & 3.

(*i*) N. 6.

(*k*) Epist. 39. n. 21. & seq.

it were, but the discharg'd fluid was, at other times, much more brown, and black, and sometimes, again, of a various colour, and in the greatest part of it, different from these: and some persons did not even scruple to say, that they had not only seen mucous concretions, in this ejected humour, but even that they had observ'd pieces of real membranes, as it were, swimming therein. These gentlemen, therefore, thought that the patient ought not hastily to give up the use of turpentine resin, as it was the only remedy that the stomach would retain, when all others were thrown up. But pills of aloes, gum ammoniacum, and vitriolated tartar, as it is call'd, which another physician had propos'd, they disapprov'd; though the patient himself, conceiving great hope from the effect of stools, as most patients do, eagerly desir'd them. These pills, therefore, being taken, very great vomitings were the consequence of them, and from that time every thing began to grow worse and worse. For the pulse which had been before obscure, was now extremely so, and there was a fever like unto a lypyria: and the urine was such as it is in a jaundice. Within a few days, therefore, the feet being somewhat affected with an oedematous swelling, and the pulse being quite gone, the patient reach'd the close of life, without any considerable difficulty of breathing, or any perturbation of mind.

When the abdomen was open'd, the liver was found to be exceedingly large, full of steatomata, and of a substance lying betwixt them, which resembled the thymus when boil'd, white, lobular, and hard. In the gall-bladder, together with a livid bile, were nine calculi, of different forms from each other, every one of which, at first, inclin'd to a green colour, but, after being dried, became yellow. The spleen was very small, so as scarcely to exceed the size of that silver coin, which we call a crown. The pancreas was so extenuated that it seem'd at first to be wanting. The stomach was, internally, distinguish'd with black spots: in other places it was flaccid, but in the pylorus it was callous, so that it could not yield properly, and be sufficiently dilated.

The viscera of the thorax were, also, flaccid and lax; so that the flesh of the heart could easily be drawn into pieces, by the hand. Besides these appearances nothing morbid was observ'd; so that there was no extravasation of any kind of moisture, either in the thorax, or belly.

15. Whether the spleen happen'd to be very small, in this priest, from the original formation, as is perhaps the most probable, or whether the course of the blood being diverted by the hepatic artery, from the splenic, into the enlarg'd liver, caus'd an extenuation of the spleen, and of the pancreas, at the same time, or finally, whether the bulk of the liver being increas'd more and more, together with its weight, and hardness, brought on this extenuation; you plainly see, that neither the liver could have sufficient assistance from such a kind of spleen, for the secretion of the bile, nor the duodenum a sufficient quantity of juice, to temper the bile, from such a kind of pancreas. The nature of the bile, therefore, being chang'd, for this reason, but still more on account of the disorders of the liver, which even the colour of it, and the calculi that had form'd themselves in the bladder, demonstrat-ed, consequently, the chile, and the blood, being chang'd, and the humours that are secreted from it, not only in other places, but particularly in the stomach,

stomach, the intestines, and the pancreas, it is by no means difficult, clearly to understand the origin of those things that happen'd to this patient, but especially of this very great variety of colours, which appear'd in the matter that was thrown up. For it is not surprizing, if preternatural colours arise from humours, which recede much from the ordinary appearances of nature; nor yet, if from the various secretion, mixture, and delay, of all and of each of them, in consequence of those diseases, and the strainings to vomit, at one time these colours, and at another time those, more particularly, arise. It is rather surprizing, if at any time, in those who have shown no mark of deprav'd secretions of this kind, a vomiting be suddenly brought on, of any juice ting'd with such a colour, as you would by no means expect. An observation of this kind, is that which was communicated to me by letter, in the year 1718, from the same person, whom I mention'd above (*l*), I mean the very learned Manfredi. This observation, however, relates to vomitings of short continuance, as you will immediately see.

16. A man, who was by trade a smith, went out from home in the morning, with a very slight pain of his stomach. Which growing very violent soon afterwards, the patient began to throw up a humour extremely similar to ink, and before evening he died.

The stomach contain'd two pints of a humour equally black, inodorous, and grumous. The internal surface of the duodenum was, almost universally, and the stomach, universally, ting'd with the same colour. The external coat of the stomach, also, on that part where it is turn'd towards the diaphragm, had a very black spot, of four inches in extent, every way: and it was surprizing, that the intermediate coats were no where ting'd with any other colour but that of tobacco, even in the parts thereof, that lay under this black spot, so that there they themselves were not black, notwithstanding they were intercepted, on both sides, with a very black colour.

17. This spot was perhaps of a gangrenous nature. And the only thing that prevents me from believing the internal blackness of the stomach, and the duodenum, to have proceeded from the same cause, is that humour, so exceedingly similar to ink, which was found in the stomach, and in part had been thrown up, and which was, of itself, sufficient to tinge these viscera, in that manner. And if you imagine this humour to be *atra bilis*, you will be the less surpriz'd at the patient's death, when you call to mind the aphorism of Hippocrates (*m*), who foretells death to any person whatever, who, to make use of the translation of Celsus (*n*), "has a discharge of *atra bilis*, in a recent disease, either by vomiting, or stool."

But from whence could this very great blackness arise? could it be from the bile, which was of itself very black, being extravasated into that intestine? For you may see in the observations of the celebrated Budæus (*o*), and Schöberus (*p*), that the gall-bladder was very large, and turgid with the same blackish matter, which the patients had thrown up by vomiting. Was the bile which had grown already blackish, made so much the more black, by

(*l*) N. 9.

(*m*) 22. f. 4.

(*n*) De medic. l. 2. c. 6.

(*o*) Eph. n. c. cent. 1. & 2. obs. 105.

(*p*) Earund. cent. 3. & 4. in append. n. 12. c. 1.

some other humours being mix'd with it, in that intestine? Or was something black also, added to it by the blood, which flow'd out from the small vessels, that were eroded during the very violent pain? Take care how you suppose all this humour to have been blood. For a blunder of this kind could not possibly happen, to so accurate, and experienc'd, an observer: nor, indeed, was the quantity of the humour discharg'd, if we suppose it to have been blood, sufficient to have destroy'd the patient, in so short a space of time. And even Hoffmann himself (q), describing a young man who died with black vomitings, and stools, notwithstanding it appear'd in the stomach, that many sanguiferous vessels were ruptur'd, did not, nevertheless, account for his death from the effusion of blood, which does not destroy so suddenly, even when greater, but from the putrefaction of the blood infecting the brain: and in his patient, death had not follow'd within a few, as in the present case, but within four and twenty hours, and the matter which had been thrown up, and that found in the stomach after death, were both of them, instead of being without any smell, intolerably foetid.

Nor was the matron of Budæus, nor the merchant of Schoberus, notwithstanding the latter was carried off in much less time than the former, snatch'd away by so speedy a fate, as the smith of whom I am speaking, and yet they had vomited up corrupt and foetid matter, and in so great a quantity, that only a little blood remain'd behind in the vessels. But of what nature this blood was while they were living, not only the foregoing symptoms, but the internal gangrenes which were found after death, and other things, clearly shew'd. Yet in regard to such a kind of blood, that either increases, more than others, that black humour, which the ancients called *atra bilis*, or degenerates into it, you may read what two very learn'd Archiaters have written upon the subject, I mean Schoberus whom I have already quoted (r), and the illustrious Vanſwieten, who is much more full, and clear, upon this head (s).

And you will believe that Hoffmann differs from them only about a name, when you have attentively read the case, and dissection, of the young man I have spoken of, and those of a woman soon after (t). For he deduces the black vomitings, of both these patients, and their black stools, from blood indeed, but from that which was putrid, and foetid, and explains the more speedy death of the young man, "in the same manner as he would that, "of those who are affected with a sphacelus of the external parts only;" for the spirits of the brain, and of the nerves, being infected by a blood of this kind, "they suddenly lose their strength, and their life." But if there was any other humour in this smith, it was certainly the most pernicious, and of the most destructive properties, by whatever name we may call it, or, rather, it was the result of such a mixture of humours, as may be compar'd with an in-bred poison. For it is not in the power of every black juice to bring on such violent tortures in the stomach, or to snatch off the patient by so precipitate a death: and this you will also learn, from the preceding seventh section of the Sepulchretum, when you read, that after a pain of the stomach,

(q) Medic. rat. t. 4. p. 2. f. 1. c. 3. obs. 2.

(r) Append. cit. c. 2. §. 5. & 6.

(s) Comm. in Boerh. aph. §. 1091. & seq. passim.

(t) C. 3. cit. obs. 3.

this cavity was found to be "half full of a black juice (*u*)," or that in the fundus of it was "a matter like ink (*x*)," and other things of the same kind.

18. Mention being made of bloody vomitings, and poison, you will perhaps ask me, why I produce no examples of real blood being discharg'd by vomiting, nor any instances of that which is the consequence of most poisons, that are drunk, or swallow'd; especially as in this eighth section of the Sepulchretum, so many of each kind are produc'd? But to what time I defer considering the effects of poison, I have declar'd near the latter end of my last letter (*y*). And the observations of bloody vomitings, except that which is given in the same letter (*z*), remain to be given in other epistles, and on more proper occasions. And there, perhaps, I shall not scruple, to declare, what we ought to think of the greater part of those observations, which, in this section, deduce the blood, thrown up by vomiting, from the spleen. For those which account for it, as coming from the lungs (*a*), are given with such a confession, at least, as gives you to understand, that they are not suitable to this section: which confession, however, is wanting in that place, where a vomiting of pus is deriv'd from a large vomica of the lungs (*b*). There is, on the contrary, where what was a true vomiting, as similar stools, about the same time, demonstrated, I mean of blood, mix'd "with pieces of flesh," or in other words, with polypous concretions, is accounted for, as coming, by divine permission, "from the heart, through the lungs, and the aspera arteria (*c*)!" and for what reason? why because the heart was found to be "fill'd with the same kind of matter," as was thrown up by vomiting.

Nor do I imagine you will expect from me, in this letter, those observations, which, notwithstanding they have a vomiting attending upon them, properly belong, either to the iliac passion, and those hernias that are call'd incarcerated, or to wounds of other parts, and in particular, of the stomach itself, or to other disorders of some of the viscera, with which the stomach consents. For I do not doubt but you clearly understand, to what occasions all the observations of this kind ought to be defer'd: and indeed you will observe, that most of the observations of this kind, are produc'd in such a manner, in this section, that we are expressly refer'd to other sections, where they are copied more at large. But besides a pretty great number of these, others may also be added, that are set down twice over in this section: and this you will perceive, by comparing the twenty-ninth observation, with article the fifth of the fifty-ninth, the thirty-eighth, with the forty-third, article the first, and the fifty-seventh, article the ninth, with the sixth of those you read in the additamenta, and perhaps others; and you may suppose the same thing to have been said of the scholia, in which observations are repeated, as those that are subjoin'd to the first, and the third, will show, if compar'd with the scholia added to the thirteenth, and, in like manner, to the fifth; and perhaps the same may be remark'd of others.

(*u*) Obs. 23.

(*x*) Obs. 26. §. 1.

(*y*) N. 21.

(*z*) N. 12.

(*a*) Obs. 75. §. 1. & 2.

(*b*) Obs. 65.

(*c*) In additam. obs. 10.

19. When I read over that first observation, which I just now mention'd, and those things which are upon the subject of throwing up polypous formations by vomiting, and on the subject of vomiting, in consequence of distases of the parts that consent with the stomach; some things were brought back to my mind which, if I add them here, you will perhaps not read with reluctance. Willis then, in this observation, affirms that "if a constant suffusion of bile happen, in the parts that are near to, or in contact with the stomach," a frequent "vomiting is excited," because the external coat of this viscus is, for that reason, frequently, and greatly, irritated, and that "he had observ'd this in many who were dissected after death." And I not only believe that this may have been seen by that very excellent man, but even confess, that there may be sometimes such an acrimony of the bile, and such a power of irritating, and penetrating, as to make it the accidental cause of vomitings, especially in those persons, who are endow'd with a very exquisite sense; and if the tincture of the bile extends itself very far, and reaches to the interior parts of the stomach: which Platerus, as you have it in the preceding seventh section, of the Sepulchretum (*d*), has particularly observ'd in those "who, when living, were troubled with continual heats of the stomach."

Yet there is more than one reason which has some influence in preventing my assent. For in the first place, I doubt, whether the particles of the bile that tinge the parts which lie round the gall-bladder, escape from thence while the person is living, or only after death, where the resistance of the coats is lessen'd, and the interstices which lie betwixt fibre and fibre, are relax'd. And in the next place, I have so frequently seen the neighbouring parts of the gall-bladder have a yellow hue in dead bodies, as I have likewise said in the preceding letter (*e*), that it does not seem to be the cause of any peculiar injuries to some persons, but the cause of those which are common to most persons while living. Finally, unless it be certain; and it is by no means certain; that when these gentlemen have ascrib'd such a tincture in that place, there was nothing else in the bodies, to which either the sense of heat, or the vomitings, might be imputed; there is a very great propriety in doubting, whether these effects are to be ascrib'd to that cause. An instance of this kind, which confirms the propriety of doubting, I will give you in a little whelp that I dissected, when I was a young man at Bologna. For it is much to our present purpose, and I see that observations taken from dogs, are not only produc'd in other parts of the Sepulchretum, and that frequently, but particularly in this very section (*f*).

20. A young whelp died suddenly after great vomitings. The antrum pylori, where it was contiguous to the gall-bladder, I found to be ting'd with a yellow colour, which had reach'd from the outer coats, quite to the inner; it stop'd, however, at the internal coat, so that the matter which was contain'd in the stomach, resembl'd even the white of an egg, in its colour. While I was enquiring whether there was any thing else which deserv'd remark, I saw that a part of the centrum tendineum of the diaphragm, was likewise yellow, which being very thin, and particularly, in that tender age,

(*d*) Obs. 16.(*e*) N. 13.(*f*) Obs. 68.

had transmitted this yellowness into the cavity of the thorax, in such a manner that some small contiguous part of it was yellow, though but slightly.

All the parts being now inspected, and found to be quite sound, it came into my mind to lay open the intestines, by cutting into them longitudinally. In their cavities was a great quantity of mucus, and in that mucus, near to the more extreme part of the small intestines, were ten round worms, all of them nearly of equal thickness, and of equal length also; and this length was about seven inches.

21. Would you rather choose then, to attribute those irritations, which, by vellicating, and convulsing the fibres, had brought on such violent vomitings, and, at length, sudden death, to this yellow tincture, although it had not only infected the stomach, but a tendon of that nature also, or to so great a number of worms of such a kind, whether they had crept into the stomach, or had continu'd where they were? You will hesitate at least, and will not affirm the first position for a certainty.

But you would hesitate still more, to go on to the second, if you should chance to believe, what is related in the additamenta, to this section (g), of the servant-maid of Altemburg, who discharg'd lizards, toads, and frogs, and sometimes even those that were not dead neither, but such as liv'd, by the special licence of heaven, "to the sixth day," from the mouth, and anus, and even, as she herself said, from the genital parts! It happens very luckily, that the learned gentlemen who have first written such absurdities, do not say that they were present, when these living beasts were discharg'd; left we should be under a necessity of concluding, contrary to our candid inclinations, that their eyes were deceiv'd, and play'd tricks with, by a set of juggling women. For I should suppose that, in fact, there was nothing real in the things of this kind, which the woman did discharge, but a sort of external, and accidental, likeness to those animals: and that the body, and consistence, of them, had been made up of polypous concretions, ting'd with the green colour of the bile.

It happen'd many years ago, that a virgin who was, herself, very virtuous, and honest, and born of honest parents, began, at the latter end of lent, to complain of a kind of troublesome sense of torture, and weight, with which the stomach was affected, and particularly at the time when digestion was going on. After this came on a pallid complexion, and an evident wasting of body. At length, about the end of two months, from the beginning of her complaints, she was seiz'd, a little before the middle of the day, with three very violent strainings to vomit, join'd with the greatest loss of strength, and a fainting; in the first of which strainings, she brought up nothing at all, in the second not a great quantity of a very bitter, and yellowish humour, and in the third, at which time the physician, who gave me this account, by letter, was present, she threw up a substance, which I shall describe to you, exactly in the same manner, that it was describ'd to me, by this physician.

It was a small plant, or rather a little herb, about an inch long, furnish'd with radicles, a stalk, and three leaves at top, one of which was denticulated, the others perfectly resembling a semicircle, and all of them being green.

The stalk, on its upper part, was white, and, on its lower part, green, except that it was distinguish'd with some very small, and bloody striæ. After three or four hours, the herb being now dry, had contracted itself, yet still retain'd its colour. Being accurately examin'd by many persons, and among these by some, who were skill'd in botany, before it was wasted away by frequent handling, and became almost friable; there was not one, among them all, who could say of what genus it was. The virgin, however, after the discharge of this substance, felt not the least uneasiness in her stomach, and indeed evidently recover'd her colour, and her flesh, when this account was sent to me, by letter, which was not many days after. It was enquir'd of me what I thought of so strange, and unheard of, a kind of vomiting. There was not any reason for me to imagine the same thing to have happen'd, in this case, that happen'd in the observations of some persons, as for instance, of Lentilius (*b*), who says that he had seen "lettices thrown up by vomiting, with the flowers of the Indian creis, borrag, and roses, little, or not at all, chang'd in their colour, which a woman of the first rank, had eaten fourteen days before."

For to take no notice of other things, this virgin could not endure to eat herbs, sallads, or succulent plants of any kind. One or the other, then, of these things remain'd certain, that she had either thrown up an excrescence in the form of a herb, or a polypus, from her stomach. And the preceding disagreeable symptoms, the vast strainings to vomit, the bloody striæ, observ'd on the body that was thrown up, and the whiteness of its colour; for whatever there was of greeness, that might have been brought on by the bile being mix'd with acid juices; all these things, I say, seem'd to confirm one or the other of these conjectures: but which it would be the best to follow, I thought would be best determin'd by the ensuing circumstances of the case, that is by there being new uneasinesses of the stomach, or none at all, or what not. And this is a summary of the answer, which I immediately return'd to the physician, who consulted me thereon: nor did I afterwards hear any thing farther of this virgin.

22. What I shall add, in the last place, of vomitings that relate to the diseases of those parts, with which the stomach consents, will perhaps be more useful to you. For that which prevents me from putting off the consideration of these vomitings, till we come to the disorders of those parts, as I have done in regard to other vomitings, is that I have no dissention to give you under this head. There was a colleague of mine, a very considerable man, the grandson of a celebrated writer, and himself also worthy of great praise: who, when he was sixty years of age, began to be attack'd with frequent and very troublesome vomitings, though they sometimes were quite at rest for a day. What he threw up had nothing particular in it. He was attended, out of regard to the dignity of the patient, by three physicians, who were thought to be the most skilful, at that time, and without doubt were so, or at least they were the oldest. As they did not doubt but the cause of the disorder was in the stomach, they applied such things as they thought proper to remove it, and these in great number, and variety, and for a long time to-

(*b*) Vid. append. ad a. 1. dec. 3. eph. n. c. in parall. ad obs. 92.

gether ; but every thing was in vain ; till at length the patient becoming more emaciated, and tir'd out with the slavery of taking medicines, determin'd, with himself, to have done with them all, and retire into the country ; whence having return'd again into the city, not long after, he was seiz'd in the evening, with a great coldness over his whole body, without any manifest cause, and on that very night discharg'd a great quantity of blood, with his urine. Soon after a great quantity of pus follow'd the blood, through the same passages. Wherefore bloody, and purulent, urines succeeding each other alternately, his strength was soon pull'd down, and within a very few days he clos'd the period of life.

From this event of the disease, it is natural, and easy, to perceive, that the cause of the vomiting was not in the stomach, but in those parts that serve for the secretion of the urine, and particularly in the kidneys, inasmuch as they are wont, so easily, to draw the stomach into consent, and excite it to vomitings. And, at the same time, it is understood, what was indicated, not by the stupors of the legs indeed, but by the pains, however, of which the patient had been accusom'd to complain very much even from the very beginning of the disease ; what was indicated by the unusual stimulus to make water, so that he could scarcely retain his urine, till he got the chamber-pot into his hand, and frequently, indeed, not at all, but especially in the night ; and, finally, you will perceive what conclusion might have been drawn, from a kind of hardness about the right epiploic region, as Glisson (*i*) call'd it, without doubt, these symptoms taken all together, notwithstanding the patient did not generally complain of his loins, might have given some hint to the physicians, particularly in conjunction with the inutility of every method of cure, which had been applied to the stomach, that the cause of vomiting was inherent elsewhere, than in the stomach ; and that in the kidneys, and particularly in the right, that some collection of morbid matter was probably made.

To this suspicion some weight might have been added, from this enquiry, that I would always have you remember to make, in cases where the causes of a disease are obscure, and uncertain, and obstinately resist a cure, I mean to what disorder the ancestors of the patient had been liable. For by this interrogation, it would have been discover'd, in the present case, that disorders of the kidneys had been very common in this illustrious family. And those things which naturally occur'd to my mind, upon hearing the case of my colleague, and from knowing the preceding symptoms, you will suppose are written, not to accuse any one, especially the dead, which is not the least part of my intention, but only to assist your studies. Farewell.

(i) Traët. de partib. continent. c. 2. n. 10.

LETTER the THIRTY-FIRST,

Treats of Fluxes of the Belly, with or without Blood.

1. **T**HOSE subjects that, in the Sepulchretum anatomicum, are distributed into four sections, “the cholera morbus, fluxes of the belly without blood, dysentery, and præternatural excretions of the belly,” all these, I say, I choose rather, should be comprehended in this one letter. And the reasons of this resolution are these. In the first place, the cholera “may seem to be a disorder common to the stomach, and intestines,” as Celsus rightly says (*a*); for there is a discharge by stool, and a vomiting at the same “time.” And as I have treated of the disorders of the stomach, and am about to treat of the disorders of the intestines, it is impossible but I must have already lit upon this disorder, which is common to both, or must light on it hereafter; so that there is not the least occasion to treat separately of it here, and slightly in particular; for Bonetus himself, who wrote the ninth section upon this subject, scarcely fill’d up three pages, and the greater part of them is taken up by the scholia, that are plac’d between.

You know, besides, that it is my determination to repeat nothing. But he taking quite a different method, was so far from hesitating, whether to make use of the same observations, here also, which he has made use of elsewhere, that even in this very short section, he has given one of them, and has not only interspers’d the twelfth section, with a great number, as well as the two remaining sections, but has even almost wholly made it up of them.

To this you may add, that parts of the scholia are not only repeated in different sections, as that which is given in the tenth (*b*), from de Graaf, is repeated in the twelfth (*c*), but even in one, and the same section; as for instance, when, in the tenth section, what is taken from Willis, and what is taken from Ballonius, and subjoin’d to the seventh observation, are both equally repeated, the former in the appendix that follows the twenty-eighth observation (*d*), and the latter immediately below this very observation. Besides, not to quit the tenth section, there are so many things added upon the transfusion of blood, & *chirurgia infusoria*, as it is call’d, under the sixth observation, that they exceed the whole ninth section.

(*a*) De medic. l. 4. c. 11.

(*b*) Ad obs. 25.

(*c*) Ad obs. 15.

(*d*) §. 2.

Finally, those bloody stools which are the immediate consequences of a wound, inflicted on the stomach, or the liver, certainly do not belong to the class of dysenteries, which is the title prefix'd to the eleventh section. Yet I see that two observations, of this kind, are produc'd, here, under number twenty-five. As I do not permit myself, therefore, to take pattern from any of these improprieties, there cannot be so great a quantity of matter, but it may be very well comprehended in a single letter. Dividing fluxes of the belly then, into those that are without blood, and those that are bloody, I will immediately produce two observations upon the first subject, from the papers of Valsalva.

2. A young man, who, through the whole course of his life, even when he was in the highest health, had frequent occasions of going to stool, having reach'd his twentieth year, was seiz'd with griping tortures of the bowels, attended with frequent bloody stools, that is with a dysentery. After twelve, or fifteen days, this was chang'd into a simple diarrhœa, with stools of a yellow colour, but without gripings: and this seeming to be somewhat mitigated, by the help of remedies; a simple tertian fever came on, which was put a stop to within a month. The diarrhœa still continuing, he was attack'd of a sudden, with an acute fever, which had manifest accessions. His pulse was frequent, quick, soft, small and weak. To these symptoms was added a stupor of the senses, a considerable deafness, and a peculiar kind of swelling of the anterior part of the thorax, on the left side. In this manner, he died about the fourteenth day, from the beginning of the acute disorder, at which time of the disease, what kind of stools the patient had, the attendants did not observe.

The belly, although it seem'd to be not at all swell'd, contain'd, nevertheless, a great quantity of sanious ichor, which issu'd out of the intestines, in many places, where they were perforated to some considerable extent. This tract comprehended the extremity of the ileum, and the nearest part of the colon besides, to the extent of two hands breadth. In that part the intestines were eroded, and ulcerated, and on their internal surface even affected with a gangrene, so that you see they might be easily perforated. Near to this tract some of the glands of the mesentery had grown out into a tumour, wherein was ichor, not unlike that which had burst forth into the cavity of the abdomen; but the very substance of this tumour was soft, and flaccid, and seem'd to incline to corruption. The spleen was three times as large as it naturally is.

The skin, and muscles, of the thorax, where the swelling was, discharg'd a great quantity of serum, when they were cut into, especially at the upper side of the sternum: for from thence, that is from the borders of the pectoral, and subclavian muscles, serum gush'd out, as if from several little rivulets. The lungs, however, were sound. Within the pericardium was a serum, like water in which fresh meat has been wash'd. If you touch'd the heart, you found it to be so lax, and soft, that it seem'd to be not muscular, but membranous. In the ventricles thereof was a fluid blood, and this was so frothy that it resembl'd the lixivium made use of by barbers, when agitated. And all the veins contain'd so great a quantity of air, that although they contain'd but little blood, they were nevertheless extremely

turgid, and in particular one branch of them that belongs to the spleen; for this branch, though it did not seem possible that it should be more dilated, had scarcely any remains of blood in it. Within the cranium was found a little serum: but the brain itself no where shew'd any marks of injury.

3. The great force of putrefaction (to begin from the latter part of the history, and to return to the former part immediately after) in this body, appear'd from the great quantity of air that had been discharg'd, the great laxity of the heart agreed very well with those small, and weak pulsations. I have frequently observ'd the spleen to be enlarg'd, after other fevers, especially when they had appear'd in different forms.

But to omit other things, and come to those, on account of which, in particular, I related this observation to you, at present; you see, in the first place, how much it, at length, cost this young man, to have his belly perpetually lax, that is, not moderately moist; for we are not ignorant of the aphorism of Hippocrates (e); but more moist and lax than it naturally is, and from an improper mode of living easily made still more so. On the lax intestines, therefore, an attack was made by vitiated and redundant humours, so that they were not able to bear up under it. They were first troubled with a dysentery. This left, according to the appearance of the case, the beginnings of ulcerations, which were the less attended to, because the intestines being then already more relax'd, were not so extremely sensible to pain, as they would otherwise have been, and because the sanious ichor was hidden by the yellow flux, which had succeeded to the dysentery.

The flux had succeeded, in consequence of a part of the deprav'd matter, being carry'd back, from the intestines into the blood, after having been vitiated, in the intestines, still more. And this being brought back again into the intestines, together with the bile, and the other juices, whose receptacles, and containing parts, were irritated by the mixture of this humour, the flux was not only kept up, but the erosions were also encreas'd; so that, at last, where these erosions were made, the intestines were not only seiz'd with a gangrene, but corroded, quite through their substance, by the most ill-condition'd ichor. And that this deprav'd matter was carry'd back into the blood, as I said just now, is not so much prov'd by the fevers that follow'd it, as by the tumour of the mesentery, which lay as near as possible to the ulcerated tract of the intestines. For these ill-condition'd ichors being continually taken up, from that tract, and carry'd to the neighbouring glands, by the chyloferous ducts, at length deprav'd their internal structure, so that the passage of these humours being now obstructed, they evidently stagnated in those glands, and rais'd them up into a tumour.

4. And from hence another cause was added, which encreas'd the flux, I mean the deprav'd ichor stagnating in the intestinal canal, which, before, had been carry'd off, by the passages that were now obstructed. This kind of obstruction, when it takes place in most of these passages, not only encreases fluxes of the belly, but is even the cause of them, and, in particular, of that which they call the celiac flux: with which take care not to confound the *celiacus morbus* that is describ'd by Celsus (f). For in this "there

“ is no motion to stool,” but in that, of which I speak, even the chyle itself is discharg’d, mix’d, beyond doubt, with recrementitious matter, so that the stools are render’d almost of a cineritious colour, and not white, as they imagine, who do not attend to this circumstance, that the chyle is not to be found separate from the other useless parts of the aliments, except within its own proper vessels. Nor have they, who assert that they had seen white stools, meant any thing more than stools of a whitish colour, I mean if they are compar’d with the natural excrements, or if they did really mean white, the whiteness was that of a purulent matter, or of a mucus similar to pus, or something else of that kind; as, for instance, if any one, troubled more with a lienteric, than a celiac disorder, should discharge by stool the milk that he had taken in, unchang’d.

For in the lienteric flux, the aliments are not concocted, and prepar’d, as in the celiac, whether the juices, by which they ought to be prepar’d, are unfit for performing that office, or the stomach, by too precipitate a motion, throw them out almost as soon as they are taken in, or whether the stomach itself being lax, and there being a total resolution, or, at least, but little constriction of the pylorus, suffers the aliments to slip out without digestion; although there was nothing lienteric in that old man, the orifice of whose pylorus I have describ’d to you, on a former occasion (*g*), notwithstanding it was not only, of itself, much larger than it usually is, but what is still more remarkable, furnish’d with no protuberating ring, in the greater part of its circumference. Nor was there even any thing of a celiac affection; nevertheless there are many learned men, who suppose that the pylorus is “ too much dilated,” in this disorder. I, however, do not suppose any peculiar cause to be latent in the stomach; but, sometimes, rather in the tube of the intestines, whether, by an accelerated motion, the ingesta are prematurely disturb’d, and carry’d off, before the chyle can be properly extracted from them, or by reason of the motion being languid and slow, that which has been extracted, is impell’d no farther; so that stagnating in the small roots, as it were, of its proper vessels, a farther absorption of chyle is prevented, just as it is prevented from going on, by an obstruction of the mesenteric glands, as I hinted a little above: not to add any thing upon the subject of cicatriz’d ulcerations closing up the mouths of the lacteal vessels; of which circumstance you will find examples in the Sepulchretum (*h*), as you will likewise of the obstruction of those glands, in bodies that, when living, had labour’d under the passio celiaca.

Observations of the lienteric flux, or of one that was nearly of the same nature, you will have to add to the others, from the volumes of the Cæsarean-academy (*i*), not indeed without obstructions, of these, and of other glands, but, at the same time, with the coats of the stomach being depriv’d of all their strength, and at other times with the parietes of the stomach, and of almost all the intestines, being reduc’d to the thinness of paper.

But let us return from this digression, into which I fell accidentally, and which nevertheless it may not have been altogether useless to have touch’d upon here, to the observations of Valsalva.

(*g*) Epist. 21. n. 15.

(*h*) Sect. hac. 10. Obs. 2. & 4. ac 5.

(*i*) Act. n. c. tom. 2. obs. 65. & cant. 6.

obs. 94.

5. An infant, seventeen months old, was seiz'd with a diarrhoea. To this a fever was added, with a cough, and a kind of itching of the gums, and the nostrils, which the child signify'd by a frequent friction, with his fingers, upon those parts. In the mean while the diarrhoea increas'd, and although the stools had, before, been yellow, or green, they now first began to be ting'd with a bloody hue, and, at length, to be chang'd into a black colour, and be attended with a singultus, which was about the seventh day. On the beginning of the ninth day, either spontaneously, or by the force of an astringent kind of remedy being apply'd to the feet, by the advice of an old woman, they were entirely put a stop to. However, seven or eight hours had scarcely pass'd, after this obstruction, but being oppress'd with streightnesses of the præcordia, and agitated with continual anxiety, and tossing of the whole body, he died on the same day.

The intestines being turgid with air, contain'd a small quantity of very black matter, such as had been before discharg'd. In the mesentery were many sacculi adiposi, and notwithstanding more than twenty-four hours had now pass'd, since the time of the child's death, they, nevertheless, contain'd very small particles of fat, which were agitated by a tumultuary motion, one with another. The lungs, on the back part, were somewhat black, and particularly the right: they were found nevertheless. In the pericardium was a little water: but in the heart was not the least appearance of any polypous concretion. In the brain was found a little serum.

6. A diarrhoea, join'd with a cough, and an itching of the nostrils, might have given a suspicion of worms in this little boy: none of which however were found. But the itching of the gums really shew'd that teeth were about to cut through them. For so he who saw the case judg'd, that is Valsalva, when he mark'd out this observation, in his little index, in the following manner. "A diarrhoea with difficult dentition, and convulsive motions." And how easily dentition may excite convulsions, you yourself are not ignorant, and I have, on a former occasion, confirm'd (*k*), by giving you two fatal cases of infants, at the same time pointing out where I shall demonstrate, by what means it also brings on a flux of the intestines, and by what means this, if it be moderate, prevents convulsions coming on. And from hence you perceive, how very dangerous it must be, for an intestinal flux to be suddenly and totally stop'd, at this time, in particular, as a sudden and total stoppage thereof, at other times, is never without considerable danger. But if the matter that has been discharg'd by stool is, moreover, of the most pernicious properties, this matter being confin'd within the body, may not only bring on death, but a very speedy, and a very violent one. And that the matter, in this case, was of a malignant and destructive nature, is not only shown by the colour of the stools, and the singultus, but by that very strange, and unusual, motion in the particles of the fat, whatever it was (for so strange it is, that I should credit few besides Valsalva, in this matter) is more than sufficiently demonstrated.

But to speak only of the colour; do not imagine, because that very black colour, of the discharg'd matter, succeeded to the bloody tincture, that the

(*k*) Epist. 9. n. 4. & Epist. 10. n. 9.

stools were nothing but blood. For Valsalva was not a man of this kind, that he could not easily distinguish blood, when discharg'd, or remaining behind, in the intestines, after death, if it had really been blood. Wherefore, either that tincture, which was suppos'd, by the women, to be owing to blood, was some portion of very ill-condition'd humour, then first beginning to burst forth, and to tinge the matter, that was before contain'd in the intestines, or if it was really bloody, it distill'd from some small vessels, which the more acrid part of this deprav'd humour had eroded. And this recent humour being encreas'd, by the addition of other juices, either in the gall-bladder, or in the cavity of the intestines, the nature of which you may, in some measure, guess at, by the experiment of de Graaf, which is also copied in the Sepulchretum (*l*), gave that very black colour to the whole mixture, and represented the atra bilis of the ancients, by its pernicious effects. How violent, and how speedy, a death it also brought on, in that smith, of whom I wrote in the last letter (*m*), you certainly remember. Nevertheless it sometimes happens, though but seldom, and with difficulty, that a person in these circumstances is sav'd. And as I happen'd to meet with this, in another smith, in the year 1710; I will not make any scruple to give you the heads of that observation, in this place.

7. A young man of a slender habit, but strong, both in regard to constitution, and years, nor less adust by means of his art, than by his temperature, being subject to hæmorrhages of the nostrils, and having been long without them, was seiz'd, in the beginning of the spring, with a fever of a malignant kind. Some persons of the first rank, in the place of my nativity, who were fond of this man, as a very ingenious artist, beg'd of me, that I would enter into consultation with his physician, who, though an elderly man, had no objection to this step. The reason of this desire was, that the case was reduc'd to a great extremity. For to the other symptoms had been added, on that day, so great a discharge of blood from the nostrils, that, as within five hours, it had been discharg'd to the quantity of seven pounds, nor could as yet be stop'd, by any means whatever; the man's strength and pulse were almost ready to fail.

We both of us, in conjunction, did all in our power to restrain this hæmorrhage, and to obviate the other symptoms. But scarcely had the blood begun to be stop'd, when what we were afraid of came on, that is the fever, being exacerbated, according to custom, about noon, renew'd the hæmorrhage. Being again busy'd in giving assistance to the patient, behold black stools began to be discharg'd. And although it was natural to suppose, that these were part of the blood, that had flow'd down by the posterior foramina of the nostrils, into the fauces, and stomach, the patient assur'd us that he did not perceive any thing to trickle down, from the fauces, into the gula: and this was confirm'd by the appearance of what had, in the mean while, been brought up by vomiting, in which there was nothing bloody or black. And having after that inspected all the cloths, upon which the discharges from the intestines were receiv'd, and seeing a black colour indeed, but nothing

(*l*) Ad. obs. 15. sect. 12.

(*m*) N. 16.

bloody amongst them; it not only brought to my mind the well-known predictions of Hippocrates, but also the case of that young man, mention'd by Ballonius^(u), who being affected in a manner very similar to that of our patient, and having discharg'd black stools, after too great a hæmorrhage from the nostrils, died on the seventh day of his fever.

And there was here so much the greater reason to fear, because, as Ballonius, nevertheless, suspected that the blood had flow'd down, from the fauces, into the stomach, we were, as I said before, but little at liberty to suspect the same, and indeed less and less so, the more we consider'd all things.

For as the ancient physicians, in the opinion of whom is Sennertus^(o), divide black stools into those which are bloody, and those that are owing to a natural melancholic humour, and, finally, into those which are from atrabilis, and teach us, that the two first kinds are attended with less danger, but that the last kind is extremely dangerous, that is to say, those that "are black, shining and acrid;" these which we saw were, certainly, very black, and shining, and, as the patient complain'd, acrid also. On the following night he had the same kind of stools, except that they were somewhat less fluid. Yet after that he had no more of the same kind: but the milk which was thrown up, by way of glyster, he discharg'd at first tintur'd with the colour of tobacco, and on the following days of a brown colour, mix'd with a slight yellow: yet whatever was discharg'd, had the most offensive smell. Notwithstanding this deplorable state of things, however, the patient, by the blessing of God, escap'd, and his former health was entirely restor'd; but he was not free from his black stools before the twenty-fourth day, and they had begun about the sixth day of the fever; nor was he, after that, without many various, and grievous symptoms, which for a long time afflicted him.

Amongst these, were pains of the belly, thirst, a roughness, and blackness of the tongue, and though he drank often, a dryness; and while he drank, there was a sound, as if he threw what he drank down into a deep place, his voice was hoarse, and low, he had a trembling of his hands, a subfultus of the tendons in his wrists, an inconstancy of the pulse, and often a smallness, and, if you press'd upon it, a great weakness, and sometimes a very considerable, and almost inexplicable, inequality, but always a frequency, and especially when the fever was very hot, and violent, which was very often the case; the respiration was various, so that it was sometimes deep, and even, sometimes, not without difficulty; his sleep was, at first, laborious, and after that there was an excessive, and almost continual, drowsiness, he even slept with his eyelids brought near together, and yet with his eyes not quite shut, he was sometimes not quite free from delirium, had a slowness in answering, a difficulty in forming his words, and a forgetfulness of giving notice, when he had occasion to go to stool, or to make water, besides being heavy of hearing, and lying on his back, as if the power of turning himself, on his side, was, at that time, taken away, whereas, at other times, there was, for

(u) L. 1. Consil. 98.

(o) Med. pract. l. 3. p. 2. f. 2. c. 10.

the most part, a greater power of exertion in the muscles, and a greater readiness to take nourishment, than that heaviness, and the other symptoms, I have mention'd, seem'd capable of permitting.

As many of these symptoms, and the worst of them, in particular, shew'd themselves more than once, and for a long time together, they caus'd us to be, for a long time, more in fear, than in hope, as to the event of the disease, while every other person whatever, who saw the patient, pronounc'd him quite desperate. But nothing seem'd to us, to be of so much advantage, as the great quantity of urine, that was discharg'd; for the sweats were but little, and not frequent, nor did they ever appear over the whole body, and what the intestines discharg'd, was generally but small in quantity, and not of such a nature as to be likely to give relief, notwithstanding a worm was, sometimes, observ'd in the stools.

8. But black stools, of that kind, are pernicious, not so much on account of their quantity frequently, as in their effects, and are always the proofs of a very ill-condition'd humour, which gives rise to them.

Yet other intestinal discharges, that are equally free from blood, as the yellow, the green, the watry, and others of this kind, are, sometimes, not destructive by the pain they create only; but by their quantity also. And all these excursions generally owe their origin to some stimulus, that irritates the intestines, by what means, or from what part, soever, it got down into them: for as we see that a great quantity of humours is discharg'd, by means of medicines violently purgative, so we may suppose that from some stimulating fluid, which is generated within this canal, or sent down thither, from the arteries, the same thing must of course happen.

For besides the pancreas, the liver, and the gall-bladder, there are, by reason of the very large extent of surface, in the intestines, innumerable passages, though very small indeed, through which any thing unusual may be separated from the blood. And these same innumerable passages, when the intestines are frequently, and for a long time together, stimulated, convey an incredible quantity of serum. Nor are we to suppose, with the common people, that whatever is discharg'd of a yellow, or green colour, is all of it bile, especially since from the experiment of Diemerbroeck, which you have also in the Sepulchretum (p), it is easily perceiv'd, with how small a quantity of bile, a great quantity of water may be ting'd. Nor is there any necessity for ascribing the griping pains, with which the patient is then affected, to the quantity of bile, which is mix'd with the stools, since Willis has describ'd diarrhoeas "almost watry, and limpid (q)," which he nevertheless chose, on account of the "griping tortures," that attended them, to call dysenteries. And those which attack'd many of the inhabitants of London, who were, the day before, strong, and in good health, particularly in the autumn of the year 1670, reduc'd their strength to so great a degree, within the space of twelve hours, that they seem'd just ready to die, and that not from the great quantity which had been discharg'd; for he says, "that if an equal quantity of

(p) In. fin. schol. ad obs. 3. §. 1. sect. 9.

(q) Pharmac. Ration. f. 3. c. 3.
" pure

“ pure blood had been discharg’d, it could not have produc’d equal weaknefs.”

But on the contrary, even the vast quantity of serum alone, that was discharg’d, not only brought on an immediate swooning, in the woman of whom Marcellus Donatus gives the history (*r*), but also brought down almost to the brink of death, the notary of whom Poterius speaks (*s*); for neither of these authors mention any thing of pains; but the former says, “ that by one excretion, so great a quantity of clear water was discharg’d, as to fill a vessel of a very large size, that was made use of to receive it,” and the latter, “ that through the whole of one day, more than forty pints of serous matter was discharg’d.” Yet I would not deny, that there might be some irritating matter in these discharges, join’d with a redundancy of serum in the blood, and perhaps with some laxity of the intestines. I only say this, that it does not seem as if the pains had been so severe, as to make them deserve notice, and that after so great a quantity of serum having been excreted, nothing else was wanting to explain what happen’d to both of them.

For the blood vessels cannot contract themselves so soon, as to embrace, closely, the column of blood that is greatly diminish’d, though this is extremely necessary, in order to put the blood into a proper motion, especially when it is in great measure depriv’d of its fluidity, and, of consequence, gives more resistance to the force of the vessels upon it, not to say any thing of the necessity there is of the same fluid humour, in order that those secretions, from the blood, may be speedily, and properly made, without which life cannot subsist, nor will I enquire, whether for these reasons, where the question is of a very great, and sudden, effusion from the vessels, it is of worse consequences for serum only, or for blood, itself, to have been discharg’d, at the same time; for notwithstanding serum may be more speedily and easily repair’d, yet the blood which does not remain in the vessels, without its necessary portion of serum, is neither unfit for the secretions, nor gives more resistance than before, to the causes which put it into motion.

9. And I could wish it had happen’d to me, rather to bandy about this question in dispute, than to experience any thing of the kind myself, in any shape. But in the year 1733, when in consequence of a letter from his eminence the cardinal Annibal Albano, to which it became me to be obsequious, I travel’d to and from Forli to Pesaro, and from Pesaro to Forli, on post-horses, for the sake of consulting with a certain physician, I was attack’d with so great a flux of the intestines, that within twelve hours, I discharg’d, at least, sixteen pints of almost limpid water. The pains were slight: the stools not very frequent, but very large: and I know not how long they might have continu’d, if a slight nausea had not put me in mind to try the effects of vomiting, by drinking a little quantity of warm broth. And although, naturally, I am by no means inclin’d to vomit, yet it succeeded so happily, that having thrown up a greenish little body, which seem’d to be a small leaf of a boil’d herb, the nausea, and the intestinal flux, were cur’d at the same time. But whether it was a real leaf, and if it was, where, or when, I had eaten it, I could not find out, unless this might have happen’d on my jour-

(*r*) De med. hist. mir. 1. 4. c. 20. 3

(*s*) Observ. cent. 2. c. 62.

ney, while I was taking some refreshment, in an inn, hastily, and just while the horses were chang'd; for in this manner I might have swallow'd it down, whatever it was, unnotic'd.

How much danger I had then been in, I better understood, when, on the day following, I perceiv'd that my body, and particularly my face, and hands, were grown thin, and lank, as if it had been from a very long, and acute disease, and felt so great a dryness in the mouth, and fauces, that although I wash'd them over and over again, I found no advantage from thence, and I saw that the water, which I had us'd for that purpose, when I threw it out of my mouth into a basin, was made almost black in the mouth. And these symptoms, together with a lassitude, lasted two or three days, and were, by degrees, diminish'd. But the loss of appetite for food of all kinds, and what you will be more surpris'd at, in such a dryness, even a loss of appetite for drink, lasted somewhat longer, till a broil'd fish, and a particular kind of wine, which, in its own nature, is bitterish, began to be desir'd by the stomach, and be well born by it. All which circumstances I was willing to recollect minutely, and write to you, as they were not receiv'd from any other hand, or observ'd in any other person, but taken by myself, and from myself; and these such as are not easily to be met with, among those who have written upon diarrhœas, not even Carolus Pifo excepted, who is said (†) “to have given a perfect description of this diarrhœa,” that is of the watery diarrhœa. For if you read over the whole chapter, which is at the same time quoted, and is entitled *De Diarrhœa serosa* (u), you will not find a case to compare with mine.

10. And if you enquire into the causes of this disorder, you see that the primary cause had been in the stomach: and I think you cannot doubt, but motion, and irritation, from which an excretion of serum is brought on, may be propagated to the intestines, from a stimulus affecting the stomach. Turn, in particular, to the observations of Jo. Riolanus, I mean the elder, which you also have here in the *Sepulchretum* (x): you will see that a matron died, within about fourteen hours, of intestinal discharges, “similar to white water, milky indeed, but liquid, and in such a quantity, as to fill a large basin, every time she went to stool,” and that the cause of this was found to be “an ulceration in the fundus of the stomach.”

But whence came so great a quantity of water? In regard to my own case, I will first say, that in the preceding summer, I had made use of it, to temper those generous wines, with which only, my native place, at that time, abounds, and had drunk water, in greater quantity than usual, some part of which, notwithstanding when I was seiz'd with that flux, I seem'd to myself, and to others, to be in very good health, might perhaps have remain'd mix'd with my humours in rather a greater quantity than was necessary. And on the three days, which had preceded the two days, whereon I travel'd, and on the very day in which I was seiz'd with that flux, there had been very great, and almost continual showers of rain, so that I might have drunk in a

(†) Vid. commerc. litter. a. 1734. hebd. 42. polt. num. iiii.

(u) Observ. de præteritis, hæten. morbis ab aqua oris sect. 4. c. 1.

(x) Sect. 10. obs. 18.

great quantity of water, from the moist air, by the absorbing surface of the lungs, and the whole body in general.

In the last place, this happen'd to me in the beginning of October; for you have seen, that the watery fluxes describ'd by Willis (*y*), and you may see that the flux, which I refer'd to, as describ'd by Poterius (*z*), happen'd in the autumn, and near to the same time of the year, that, likewise, which is spoken of by Marcellus Donatus (*a*), as did also the three first, which are taken notice of by Piso (*b*). For when the air begins to grow cool, at the decline of the Season, this watery humour, which flow'd copiously from the body, during the time of the summer heats, and not by means of sweat only, but by means of insensible perspiration also, is now retain'd, and added to that, with which, for certain causes, the bodies of certain men do, at that time, more abound; so that it is not to be wonder'd at, if where an irritation of the intestines comes on, as it did come on in me, with a great agitation, and concussion, of the body, and humours besides, from travelling very fast to and fro on horseback, and that for a long way too, it is not, I say, to be wonder'd at, if that does sometimes happen, which happen'd to me then.

11. But if you are not content with the many causes which I have hinted at, and think that some other ought still to be enquir'd into; that will be better, than if you were to acquiesce in one of them, I mean the autumnal season. For the same time, the same year, the same city, that is the city of London, had intestinal fluxes spreading through it epidemically, without blood indeed, but attended with griping tortures; yet so different were these disorders, that if you compare the descriptions of Willis (*c*), and Sydenham (*d*), one with another; you will be very much surpriz'd to find, that although both of them give you an account of the fluxes, with which the inhabitants of London were troubled, in the autumn of the year 1670, the one describes "watery fluxes," and the other "mucous fluxes," nor does the former take notice of so much as one that was mucous, nor the latter of one that was watery.

How could this happen? For my part I should suppose, that in a city of this kind, which is, perhaps, more than any other, large and populous, it had happen'd to each of them, according to their descriptions, so that the one met with none but watery fluxes, and the other none but mucous. And this difference I should suppose arose from hence, that as in various parts of a great city, there may be a various constitution, and mixture, of air, various arts, and occupations of men, and other circumstances of the like kind, some bodies may abound with a more fluid, and others with a more lentescens, and mucous, serum; so that, although there might be the same kind of irritation in the intestines of all; the fluid, nevertheless, which is press'd out from the internal surface of their tube, will not be the same in all.

But if mucus, or serum, are now and then discharg'd, ting'd with any other colour, whether this is added by the bile, or they appear in this manner of themselves, there are, and have long been, many physicians, who, following the example of those English gentlemen, provided there be frequent dis-

(*y*) Supra n. 8.

(*z*)

(*a*) Ibid.

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(*b*) C. 1. *ibid.* cit. n. 9.

(*c*) Vid. c. cit. *supra* ad n. 8.

(*d*) Obs. med. circa morb. acut. sect. 4. c. 3.

charges,

charges, not unattended with gripings, and pain, do not hesitate to call fluxes of this kind, though they are not bloody, dysenteries. So I remember, when I formerly liv'd at Bologna, that epidemic fluxes of this kind, which spread about at Modena, were call'd by the physicians of Modena, in letters that they sent to the physicians of Bologna, dysenteries, which appellation the latter did not disapprove. Letters of this kind, in particular, I read, that were sent to Albertini, by one of whom I have already spoken to you (*e*), I mean Jo. Francisco Bernardoni, and in these letters, I read amongst others, a history, which I think ought not to be pass'd over here, as it has the dissection join'd to it. For as, by reason of the same griping tortures having attended these fluxes, which attend dysenteries, a suspicion had arisen of blood being discharg'd, but conceal'd under other colours; Bernardoni was willing either to remove, or confirm, this suspicion, by dissection. And this was the manner, in which he related the case, in those letters, which he afterwards confirm'd in my presence, with his own mouth.

12. A priest, who labour'd under an intestinal flux, discharg'd various kinds of humours, and these discharges were attended with very severe pains of the bowels, but in them there appear'd neither any thing bloody, nor purulent. He died on the thirteenth day of the disease.

All the intestines being examin'd, closely, on their internal surface, and that more than once, shew'd no where any erosion, much less any ulceration. And what seem'd more surprizing still, they were not without that mucus, as it is call'd, with which they are naturally smear'd over.

13. But is it so likewise in bloody dysenteries? For I shall call them bloody here, to distinguish them from those that were without blood, which I spoke of last; though, at other times, and indeed presently, I shall call those that are bloody, dysenteries, without the addition of any epithet whatever, according to the custom of the Greek physicians; the ancient Latin physicians us'd to name them *tormina*. Both of which appellations you may, in particular, learn, from Celsus (*f*).

Celsus does not doubt, but that in a dysentery, "the intestines are ulcerated, internally," and that blood "is discharg'd from them, sometimes, with a kind of mucous matter, and that, at other times, some kind of fleshy portions, as it were, are discharg'd, together with the blood," following the opinion of the more ancient physicians, and amongst these, of Hippocrates (*g*), who had, nevertheless, call'd these fleshy portions, "a kind of caruncles." And indeed the intestines are often ulcerated: but not always. Both of which positions are to be demonstrated.

For, in the first place, there are some who assert, that this scarcely ever happens, and persons of this kind have even come to the knowledge of the celebrated Fantonus (*b*). And as he has given two of his own observations, in opposition to their opinion, so you may also add others, not only from this eleventh section of the Sepulchretum, but even some that are taken from other places, and particularly from the commentary of Brunnerus (*i*). For

(*e*) Epist. 23. n. 2.

(*f*) De medic. l. 4. c. 15. in princ.

(*g*) Sect. 4. aph. 26.

(*b*) De observ. med. & anat. epist. 4.

(*i*) In pancr. secund. c. 7.

Brunnerus saw, in a dysenteric woman, the mouths of the glands of the duodenum “eroded:” and in others, who had labour’d under a long flux of the intestines, he also found “ulcers of a cancerous nature, as it were (*k*),” and in one (*l*) who had been troubl’d with a cæliac flux, and in another (*m*), who had been afflicted with a lientery, “an ulcerous disposition,” in the last mention’d patient, of the colon; and in the former, throughout the whole tract of the intestines, he reckon’d up “more than sixty little ulcers:” and these things I was willing to take notice of, that you might know, what causes may sometimes happen, so that the intestines being irritated, where the ulcers are, by the contact of the ingesta, which pass that way, these ingesta may be so much the sooner expell’d, without giving time for the chyle to be perfected, or even extracted, and that you might at the same time conceive, if in these kinds of fluxes, the intestines are sometimes affected with ulcers, how much more easily they may be seiz’d with the same disorders, where the violence of the pain is a proof of there being so much a greater degree of acrimony, I mean in the dysentery. And lest we should seem to digress from our subject, attend to two observations of Valsalva’s, that is, not only the one which is describ’d above (*n*), of a young man, in whom a diarrhœa, without tormina, succeeding to a dysentery, he found the latter part of the ileum, and the first part of the colon, ulcerated; but this also which I shall immediately subjoin.

14. A man of thirty years of age, was seiz’d with a dysentery. This continu’d a long time, till at length he was seiz’d with a spitting of blood, and with death.

In the belly, the small intestines, indeed, were found to be unhurt: but the large intestines were, in some places, ting’d with a black colour, and had some of their glands entirely eroded, the remaining glands being all drench’d with a bloody humour, in the very excretory orifice. In the gall-bladder was but little bile.

In the cavity of the thorax, towards the inferior part, was no small quantity of blood extravasated. At the inferior part, also, the lungs were stuff’d up, and both lobes adher’d, on their sides, closely to the pleura, which was itself, likewise, evidently injur’d. The right ventricle of the heart contain’d a polypous concretion.

15. The appearances of disease, which were found in the thorax, refer to another subject. And, those in the belly, to the present. But as these things which Valsalva has remark’d, of the glands of the intestines, agree both with those that you will see produc’d from Peyerus, in this section of the Sepulchretum (*o*), and with those that you have seen in the first, from among the observations of Brunnerus, just now pointed out (*); that one thing only, in regard to little bile being found in the gall-bladder, would be contrary to the opinion of Spigelius, if he, as some learned men assert, had pronounc’d the gall-bladder to be “large in dysenteric bodies,” whereas he has only said, that he had “frequently” seen it so (*p*). Yet, if we examine this whole section narrowly, we shall see it observ’d but once by others. For Cummenus (*q*), was the only person

(*k*) C. 10.

(*l*) C. 7.

(*m*) Exercit. de gland. in duodeno. §. 6.

(*n*) N. 2.

(*o*) Schol. ad obf. 4.

(*) N. 13.

(*p*) De hum. corp. fabr. l. 8. c. 13.

(*q*) Obf. 1.

who found "the gall-bladder to be very large, and very full of bile," and in the body of a woman. Bontius (*r*), and Lamonerius (*s*), found it to be distended indeed; but the latter with pus, and the former with a white humour, "like a pulstice of starch, so that no traces of bile were left," whereas Spigelius has declar'd, that the increas'd size of it was owing to "the quantity of bile, with which it was fill'd." But Franciscus Platerus (*t*), not only found it not distended with bile, as others likewise seem to have found it, who say nothing upon the subject, but even "quite empty."

Moreover, the patient of Platerus had the intestines ulcerated, after a dysentery, which continued "some days;" and this I observe, lest you should be apt to imagine, that this did not happen, but after dysenteries of long continuance. And there were innumerable little ulcers, for they took up the whole extent of surface in the ileum, and were "the breadth of three fingers distant from each other;" so that this observation may be, in some measure, compar'd with the observation of the celebrated Bassius (*u*), who, after a dysentery, saw the same intestine distinguish'd with ulcers, "at the distance of almost a finger's breadth from each other, and sometimes, at the distance of a joint of the thumb, proceeding nearly in "one tract, or series," as the figure which he added (*x*), has also express'd (except that he seems rather to have represented the jejunum, than the ileum) confirming the description, in which the same opinions, of Peyerus, that I pointed out a little while ago, are strengthen'd by a probable conjecture, I mean that, as those bodies, which he call'd glandular plexusses, were wanting, and as every ulcer seem'd to occupy one of the seats of these glandular plexusses, it was very supposable, that the beginnings of the erosions, had been in the same plexusses, which were, at length, entirely consum'd.

Nay, indeed Brunnerus, in that observation (*y*), wherein he number'd more than sixty little ulcers, has testified that these ulcers, "had their situation in no other part, than in these plexusses." And certainly, that in intestinal fluxes, the humours are thrown upon the intestines, by these, or other glands, may be even argued from their magnitude being increas'd, as happens in all other glands whatever, while their secretions are greater than usual. Thus in the body, wherein, after a long intestinal flux, the same Brunnerus found ulcers, about the extremity of the jejunum (*z*), he not only saw "glandular tuberosities," in that part likewise, but also found the internal coat of the intestine, become much thicker, than it naturally is, and this coat "seem'd, from the beginning, to the end, to be entirely glandular and luxuriant with glands." And of his glands of the duodenum he says (*a*), "they are generally found to be much thicken'd, in those who die "of diseases in the intestines, such as a diarrhoea, or a dysentery:" and he says that the same glands, had even "become indurated (*b*)," in that dysenteric woman, in whose body he saw the orifices of them "eroded," as I have already said.

(*r*) Obf. 6.

(*s*) Obf. 19.

(*t*) In addit. obf. 3.

(*u*) Obf. anat. chir. med. dec. 3. obf. 7.

(*x*) Tab. xi. fig. 1.

(*y*) Supra ad. n. 13.

(*z*) C. 7. ibid. cit.

(*a*) In earum demonst. anatom.

(*b*) Ibid.

16. However, this last observation of Brunnerus, and the two which I related a little before (*c*), from Platerus, and Bassius, and a part of that which was given from Valsalva, in the beginning of this letter (*d*), even of themselves, sufficiently show it to have been too hastily pronounc'd by Panarolus, as you have it here in the Sepulchretum (*e*), "that an excoriation, and corrosion, could not be brought on in the upper intestines of dysenteric patients, as happens in the large intestines, and particularly in the colon." I confess indeed, that in most of the observations, among which are even those two of the celebrated Fantonus (*f*), it was found to be so, and I should readily believe Panarolus, when he says that it was equally so; in the dissection of all that considerable number of those "bodies," to which he refers: and I shall also agree with his reasoning upon the subject, that a corroding humour may very easily flow on, in the small intestines; but that in the colon, it as easily stagnates, by reason of the cells: and I would even add, that a corroding humour is often temper'd, and made much milder, in the small intestines, by the mixture of chyle, and more often by a mixture of the watery, and mucilaginous, portion of the remedies, that are taken in; but that the humour goes down into the large intestines, after these meliorating fluids have, chiefly, been taken up, by the chyliiferous vessels. All these things, I say, I see and confess: nevertheless, to omit other methods of reasoning, by which I might show, that the very opposite supposition may sometimes take place; there can be no force of reasoning sufficient, I do not say, but there can even be no number of observations, whatever, sufficient, to prove that what has been really seen, at any one time, cannot come to pass.

17. But whether there are ulcers in the small, or in the large intestines; it sufficiently appears, from all these observations, that the intestines were really ulcerated, in those dysenteric bodies, from which they were taken. Yet in those dysenteric patients, whom we have it not in our power to dissect, are we also to suppose ulcerations for this reason, that, as Celsus says (*g*), they have discharg'd some kind of mucous portions, with blood, and sometimes portions of flesh, as it were? it is worth while accurately to consider this question. And formerly, indeed, they did not doubt, but from the very beginning of this disease, some fat bodies were excreted, which they suppos'd to be the internal fat of the intestines. But this error was refuted, by those who demonstrated that the fat was not on the internal, but on the external, surface of the intestines, and with them by Caspar Hoffmann (*h*), who also show'd that a certain whitish body which had been discharg'd from the intestines, and was brought to him in a dry'd state, was taken for fat without reason, because it did not, in the least, take flame, when applied to a flame, and emitted a smoke which was perfectly inodorous. At present, however, as some substances, which were discharg'd in the same manner, have been found to be really adipose, from an experiment of this kind made by Tulpius (*i*), and Stalpart (*k*), there are not wanting learned men, who teach

(*c*) N. 15.

(*d*) N. 2.

(*e*) Obs. 15.

(*f*) Supra, n. 13.

(*g*) Supra ibid.

(*h*) Apolog. pro gal. l. 2. f. 4. c. 122.

(*i*) Obs. med. l. 3. c. 13.

(*k*) Cent. 1. obs. 61.

that they must, "without doubt," have proceeded from the fat, which is on the external cellular coat of the intestine.

Yet to me, where there is no suspicion either of consumptive colliquation, or of a deep ulceration of the intestines, it will seem less improbable to account for these discharges of fat, in concert with Stalpart, and Riverius, whom he quotes (*l*), from fat being plentifully eaten, and not concocted; though I might, perhaps, allow of fat being brought, quite from that cellular coat, when I have found that there are ulcers, which open a passage sufficient for this fat to get into the cavity of the intestines, provided it be certain, that this fat does not then come forth, in the form of pus, or ichor. But because the intestines are ulcerated; much more seldom in dysenteries, and much later in the course of the disease, than this white matter, which was suppos'd to be fat, appears; what shall we then say it is, or from whence shall we say it proceeds? Without doubt it must be mucous, as Celsus also call'd it, agreeably to what I have said a little while ago, and as the moderns call it, if it be not very thick; but if it be very thick, we must even suppose it to be polypous.

For, as the glands of the bladder, when irritated, secrete a greater quantity of humour, and not of the same nature with that which they secrete in perfect health, so the glands of the intestines, likewise, secrete a greater quantity of humours, and of a different nature; for which reason, in both cases, a white and mucous matter appears. But if there be, moreover, that disposition, in the blood, of easily coalescing into polypi, this humour will be more prone to concretion; and that so much the more, where blood of this kind having exsuded, or having been extravasated into the cavity of the intestines, has been added thereto. For thus, while a part of the blood shall remain in the cells of the colon, the watery part being taken up, and the red part subsiding, those fibres of the blood, as they are call'd, which will be left behind, may be easily compacted into polypous concretions, and by reason of their whiteness, when, soon after, discharg'd with the excrements, may be taken for fat here also, as they were, formerly, so often in the heart and the vessels, where they belied the appearances of vessels, and organiz'd parts, and deceiv'd the inspectors.

18. In either of these ways then, or in both of them, or even in any other way, among those that Lancisi has pointed out (*m*), according to the various constitution of the patient, and according to the various nature of the disease, and, finally, according to the time, place, and manner, in which the lentescient matter is retain'd, and dispos'd, not only the origin of those fat bodies, as they seem'd to be, but also of the shreds of membranes, and even of large membranes that are said to have been discharg'd, may be understood, and the origin of some of those bodies, that are call'd fleshy by Celsus, may be very easily accounted for, that is to say, if the whole portion of red blood be not press'd out, from its white, and coalescent, fibres. And from hence you may also perceive, how cautiously we ought to use that prædiction of Hippocrates (*n*): "if a person labouring under a dysentery, discharge a "kind of caruncles, as it were, 'tis a mortal sign:" nor, indeed, was this

(*l*) In schol. ibid.

(*m*) Diff. de tripl. intest. polypo.

(*n*) S. 4. aph. 26.

caution overlook'd, by him who treated, with great perspicuity, of polypi, I mean the very learned Paſta (o).

But that which we now call a mucous, or polypous, matter, the ancients were, in general, accusom'd to call pituitous, and viscid, and some of these were even us'd to acknowledge those things, which I at present insist on. Thus not to turn to the most ancient of all, I observe that Jacobus Berengarius (p) has written the following words: "and I myself have seen, that concretions, like pieces of thick leather, have been generated in my intestines, from pituita, and in like manner, a pituitous flesh, in some measure red, and equal, in size, to a pretty large nut." And Fernelius suppos'd the matter of a firm body, which was a foot in length, and pierc'd through with a middle duct, to be of the same kind; which body was discharg'd by the ambassador of the emperor Charles the fifth, who was, by that means, restor'd to his former health. I say nothing of Gabucinus and Platerus, whose opinion was taken notice of by Sennertus (r), nor was unknown to Lancisi, when he readily confess'd (s), that both of them had asserted that before them, were no instances of the tœnia, or tape-worm, which is a kind of intestinal worm.

But Sennertus himself, I commend still more (t), because he suppos'd that the membranes, which were discharg'd, from dysenteric patients, who recover, were nothing more than "mucous excrements, that receive this form in the intestines:" and that it was by no means necessary, to suppose that this mucus should always be excreted, either in its own proper form, or in the form of blood, mix'd with this mucus; but that it may put on another form; for, says he, "we see every day, that the fibrous part of blood, when thrown into warm water, grows white."

Yet you see how much nearer, that which Zollicofferus (u) did at length more expressly throw out, in the year 1685, comes to this point; I mean when discoursing of those polypi, which are found without the blood vessels, or reservoirs, and among them, of a polypus then found by Sponius, in the pelvis of the kidney, "to which class," says he, "even that pituitous concretion might perhaps be refer'd which Justus Lipsius discharg'd by stool, in the shape of the intestines, and believ'd to be the very intestines themselves." And this opinion was at length very particularly, and clearly illustrated, and confirm'd, by Lancisi, in many different ways, and not after the manner of one who had any doubts upon the subject.

19. It appears therefore, that in a dysentery, bodies consisting of fat in appearance, and bodies seemingly fleshy, and membranous, may be equally discharg'd from the intestines, without any ulcer having affected them: although Sennertus (x) denies, that he and Crato "could ever see such membranes, and jagged pieces of membranes, as others describe," even where there were ulcers. For these, certainly, had been seen, in those patients, whose recoveries describ'd by Meichnerus (y), and Saxonia, seem'd to him

(o) In not. ad hunc aphor.

(p) Super. anat. mundin. comm. 7.

(q) Pathol. l. 6. c. 9.

(r) Medic. pract. l. 3. p. 2. f. 2. c. 7. qu. 3.

(s) Diff. cit. epist. 2. ad Bianciard.

(t) Qu. cit.

(u) Diff. de polypo cord. §. 6.

(x) Qu. cit.

(y) Apud Schenck. obs. med. l. 3. ubi de dysent. cur. obs. 4.

but little credible. For the patient of the former, had often discharg'd, together with pus, membranes "of the length of a span," and the patient of the latter, a membrane from the ulcerated rectum, "of the length of an ell."

Indeed in this pantheon, which Sennertus quotes, I should suppose that what is publish'd under his name (*z*), deserves but little to be attended to, after the just complaints of Saxonia, against the publisher of it, Uffenbachius (*a*), especially as in the practical lectures of Saxonia, which were afterwards publish'd here, nothing of that kind has been found by me, but this only (*b*); with which Sennertus is also displeas'd; that Saxonia "had seen four dysenteric patients, in whom so large portions of the intestines were, every day, excreted, that they often exceeded the measure of three or four inches," out of whom two women recover'd. And one of these perhaps was she who, as Caspar Hoffmann (*c*) says, was shown to him at Padua, by his præceptor Saxonia, and who, in a dysentery, had discharg'd a part of the intestine to the "length of a span," that is, as I suppose, if all these excreted portions were suppos'd to be join'd together. Yet there Sennertus has done extremely well in openly confessing, "that many things might happen, which he had not seen." And indeed, if a very few years had been added to his life, he would have read the observation of Tulpus (*d*), who saw it happen from severe pains, and ulceration of the intestines, that the whole internal membrane of the rectum was separated from the intestine, in such a manner, that being pendulous from the intestine, it might be seen by him and by many physicians, for two or three days together, its total separation being for some time prevented, by a firm adhesion, to the parts about the anus.

It also happen'd to me here, on the first of June, in the year 1729, that I was earnestly desir'd to assist with my advice, one Jacob del Vecchio, a Jew merchant, on account of a similar case. This man had been attack'd with a very troublesome pain at the rectum, in the decline of a malignant fever, together with a sense of weight, and obstruction: and finally, a thickish kind of membrane; as it seem'd, had lately begun to come out from the anus, which I saw hanging from thence; its length was equal to the breadth of six fingers, and its width exceeded an inch, its colour was cineritious, degenerating into livid, like that of membranes, which are affected with gangrene: yet it did not fall off, in consequence of being continued within the intestine, and connected to it, as far as the surgeon could observe, by examining very gently; for although, from the time of its exit, the pain was become milder, yet the blood issued forth now and then, and the fever was more considerable at that hour, than it had been in the morning.

Wherefore, having settled what seem'd proper to be done, in concert with the physician of the patient, who was my senior, I departed. And from him I was inform'd, on the following days, that the membrane had come away, being rather ruptur'd, by the constriction of the sphincter, as it seem'd, than found: that blood, and an ill-condition'd ichor, had again

(*z*) Panth. l. 3. c. 23. ut citat. Sennert.

(*a*) Vid. Saxon. praf. ad libros 3. de Pulsib.

(*b*) P. 2. c. 19.

(*c*) C. 122. cit. supra ad. n. 17.

(*d*) Obf. med. l. 3. c. 17.

issued out; and that a singultus, which terrified every body, had come on: nevertheless, that he had some little hope remaining, for this reason, because he remember'd that the father of the patient, who, when he was pretty far advanc'd in years, had had a similar, but a shorter, membrane come from the rectum, escap'd with life under his care, though with this inconvenience, that he could never retain his excrements afterwards: and because the son, although in the father no malignant fever had preceded, and no singultus had come on, was as yet scarcely five and forty years of age.

Nor was this well-reasoning physician, whose surname was *Marina*, deceiv'd in his hope, with whom having again settled these things which, as the state of the case then was, were necessary to be added to the former, it happen'd that a great quantity of pus being discharg'd, I saw the patient out of bed, on the sixth day of July, now manifestly recovering his strength, colour, and habit of body, and not only retaining his fæces, but even healing injections, which were thrown up. There was some pain indeed even then; but this was evidently more slight, nor was it any longer very troublesome, in that same situation where it had been before. Wherefore this patient also, as well as that of *Tulpius*, and others, whom, for the sake of brevity, I purposely pass over, recover'd, and even was still living, and in good health, when I dictated this history, from my manuscripts, which was about the end of the year 1747 (e).

20. But although it is very certain, that these patients escap'd with life, yet if you ask me whether it is equally certain, that they discharg'd real membranes, I shall readily answer, no. Nor indeed do I see that the nature of them has been sufficiently enquir'd into, which perhaps it was not possible for others also to do, as it was not possible for me, in bodies that were corrupted, and rotten, with putrefaction. And I see, that even where the intestines are ulcerated, polypous concretions may be more readily form'd in that place, either in a round form, such as *Lancisi* (f) has affirm'd that he had seen discharg'd by dysenteric patients, equal to three or four spans in length, or flat, in the form of a membrane, one of which kind the celebrated *Joseph Ant. Pujatus* (g) saw discharg'd by a matron, who labour'd under an ulcer of the rectum, the length of which membrane was almost equal to a span, and which he suspected to be of the same nature.

But as I deny that it is certain those former substances were membranes, so I deny its being certain that they were not membranes, and especially those which seem'd to adhere to the intestine, more than polypi are wont to do. And to confess my opinion to you openly; I believe that any part of the internal coat, of the intestines, may be separated by the force of disease, and come away, just as we often see it happen to that thin membrane, with which the parts of the mouth are invested, from the contact of very hot aliments. And this is certainly done without any, or at least without any very considerable, effusion of blood, without convulsions, and other dangerous symptoms, which some fear from the innumerable small vessels, and nerves, that go to the internal coat of the intestines, if this be really suppos'd to be separated; whereas a very great number of small vessels, and small nerves also, go to the internal coat of the mouth in like manner.

(e) Imo vid. etiam epist. 65. n. 6.

(f) Diff. cit. epist. 1. ad Bianciard.

(g) Dec. med. obs. n. 6. obs. 1.

Nor would I have you say, that the thin membrane which is then separat- ed in the mouth, is a continuation of the cuticle, or is at least, proportion- ably, correspondent to it. For the same person who call'd this *epitbelia* in the prolabia and cheeks, shew'd that there was also a similar *epitbelia* in the gula, stomach and intestines; and this person was Ruych (*b*): wherefore, if you will not suppose me to speak of any other part, at least suppose me to speak of this, which the acrimony of the humours, or a superficial gan- grene, after an inflammation, has loosen'd from the remaining part of the internal coat, and left to be involv'd in the excrements, and carried down- wards. But sometimes, you will say, membranes which are deposited are "pretty thick," as Saxonia says (*i*); and the cuticle is thin. And so it certainly is, unless it be embrew'd with a large quantity of humours; for hence the celebrated Fantonus (*k*) judg'd it to happen, that we often see it grow so very thick, from the use of blistering applications, as to become from thence, according to his conjecture, divisible into many laminæ, or to consist of a spongy substance.

But if you contend, that even in this way, the matter is not sufficiently explain'd by me; I then beg of you, in your turn, to explain to me the ob- servation of that very experienc'd surgeon Benevolo (*l*), of a membranous canal being taken away from the anus, equal in length to six inches, as broad as the rectum generally is, and so thick, that the sphincter ani seem'd universally, or almost universally, to have come away with this canal: and indeed, it was necessary to make use of medical, and chirurgical, reme- dies, for almost the space of a year, in order to heal up the ulcer of the intestine, and to remove the other inconveniences, which depended upon the separation of this tube, as well as to obviate the incapacity of re- taining the excrements, which remain'd in consequence of this separation. For in the same manner that you imagine you can conceive, how so thick a part of the intestine could be separated, without destroying life, you will much more easily conceive, how the internal coat which is so much less thick, may have been sometimes separated. And if you readily allow of this even in those who have recover'd, how much more readily must you allow of it in those who have perish'd? And if you had been present with the soldier of whom Bontius speaks, or with those patients of whom Sylvius speaks, each in this eleventh section of the Sepulchretum (*m*), and had said that the membranes, which they, certainly, discharg'd in a dysenteric flux; that was fatal to them, were really pieces of the internal coat; do you think you would have had reason to retract your opinion upon opening their bod- ies after death? Not in the least. For you would have found, with Sylvius, that the internal coat of the intestine was, "here and there, abraded," and with Bontius, that it was "quite abraded."

But was this abrasion universal? What Bontius does not say expressly enough, Piccolhominus (*n*) says, in an observation, which, in whatever way it is understood, was certainly worthy to have been copied in the Sepul- chretum. For he saw, "in a dysenteric patient, who suffer'd very excruciat- ing pains, and who always shiver'd with a kind of horror, upon taking

(*b*) Thef. anat. 7. n. 40.

(*i*) C. 19. supra ad n. 19. cit.

(*k*) Anat. corp. hum. diss. 2.

(*l*) 18. delle quaranta.

(*m*) Obs. 6. & 16.

(*n*) L. 2. anat. prælect. 15.

“ the first morsel of food, the whole internal coat of the stomach, and intestines, from the upper parts to the lower, (wonderful to see, and to hear, and almost too wonderful to be believ’d) abraded; and that which was left, and appear’d, seem’d fleshy, from the mouth of the stomach, quite to the extremity of the rectum, so that you would say it was a kind of broad fascia, universally fleshy; and that the stomach, also, was a kind of bladder, as it were, universally fleshy.” But of this observation mention will also be made hereafter (*o*), in which, as those things, that he subjoins soon after, show, the author himself acknowledg’d an inflammation of the fleshy fibres.

21. Now then, as it is more than sufficiently shown above, that those bodies which are discharg’d by dysenteric patients, in the form of membranes, sometimes are real membranes, but often are false membranes, and that they are no proof of the intestines being ulcerated, unless they are found to be real membranes; it would remain to demonstrate the same things, in proportion, of those also, that are discharg’d with a fleshy appearance, if it had not been, already, sufficiently shown above (*p*), how polypi may, in like manner, resemble these fleshy excrescences, or caruncles, without any ulceration of the intestines. One thing only, therefore, remains to be demonstrated; I mean, that these bodies are not always entirely made up of a false flesh, and when it shall certainly appear, from the examination of them, that they are so, some ulcer of the intestines is then to be suppos’d, provided there is no sign of an ulcer in the stomach: and this exception I make on account of those verrucæ, as the Arabians call’d them, of which I have treated in the twenty-ninth letter (*q*).

For although I have said that fleshy excrescences may exist there, without ulceration; I have not, however, denied that when they are broken off, and come away, an ulcer is form’d in the place from whence they were torn; and indeed that an ulcer must happen in this case is a self-evident proposition. Moreover I spoke, at that time, of the stomach, in such a manner, as to allow what I said to be transfer’d to the intestines, and I even suspected that a certain verruca of Avenzoar’s, was not generated in the stomach, but in the colon that lies beneath it, on account of the bigness which it seem’d to have in the stomach, if you press’d upon the epigastric region. Which suspicion I am pleas’d here so to confirm, by examples of the same kind in general, as to demonstrate, at length, that which I have advanc’d.

Jo. Baptista Cortesius (*r*), producing a passage of Galen, from which it may be understood, not only that indurated feces, but also that “ a bulk “ of any body whatever, præternaturally existing in the intestines,” had already been reckon’d, by him, in the number of the causes that obstruct the bowels, has confirm’d the opinion of Galen, by this observation of his own, which was made upon the body of the Count de Caldarinis, a nobleman of Bologna. That is to say, “ in the cavity of the colon, was found a large “ portion of flesh, which, by its bulk, was the cause of impediment to the “ descent of the feces, and by a disorder of this kind, which was a consequence of that obstruction, the patient was carried off. Which cause, “ being, as the author himself says, worthy of particular attention,” I was willing to describe in his own words, for this reason also, because in the

(*o*) N. 26.

(*p*) N. 17. & 18.

(*q*) N. 16. & 17.

(*r*) Miscell. med. dec. 4. c. 8.

catalogue of those authors, whose observations are transfer'd into the Sepulchretum, I have in vain sought after the name of Cortesius, as I did that of Piccolhominus likewise: neither is this observation found any-where in the thirteenth section, which is entitled *De adstrictione alvi*; but instead of it, a certain observation is taken notice of from Willis (*s*), as if it were certain "that a kind of fleshy excrescences, which adher'd to the larger intestines, "like the ears of a mouse, coming out in great number, and in twins, from "both sides of the colon and rectum, and at certain distances from each "other, like the branches of a tree," as if, I say, it were certain that these were not on the external surface, as they seem to me to have been, and were, perhaps, nothing else but the adipose appendices of the colon, and rectum, in which, the fat being consum'd, the sanguiferous vessels appear'd red; for these things Willis observ'd in a consumptive man, and says that he had seen "somewhat similar to this likewise in another consumptive body."

But, just as if it had been certain, that these excrescences had been on the internal surface of the intestines, and thus had brought on an astriction of the bowels, the case of a little boy is subjoin'd in the scholium, who, having discharg'd a large fleshy mass, that preserv'd the mark, by which it had adher'd to the intestines, was freed from an obstinate obstruction of the bowels. But you, however, by turning either to Willis, or to the other book of the Sepulchretum (*t*), in which the history of that man is given more at large, will not only be convinc'd of what I have said, but will, in particular, perceive this, that in a man who was seiz'd "with a spurious palsy, which affected "every limb of the whole body," so that he had scarcely any power of moving himself, there was no great occasion to assign any other causes besides this, for the bowels being costive, unless irritated.

But to return to the excrescences, that certainly were in the cavity of the colon; besides that "fleshy" one, which I look for in vain, in the Sepulchretum, remark'd by Joannes Rhodius (*u*) in a monk, who, "being troubled with colic pains, together with a vomiting of chyle, discharg'd his "glysters back again, without any excrement," by reason of "the colon "being obstructed by this fleshy excrescence;" there is an example of one, which very peculiarly relates to the present question, in the second of these two observations of the celebrated Fantonus, which I only mention'd above (*x*).

In a man whom a violent dysentery had, at length, carried off, he found "the colon ulcerated, not far from the cæcum, from which flow'd a humour of a purulent nature, mix'd with blood; and there he found, besides this, a fleshy, thick and round body, almost eight inches in length, "which, taking its rise by a slender beginning, and being connected by "that only, as by a peduncle, to the ulcerated coat, had the other part of "it pendulous in the intestinal tube, and taking up the greater part of "that tube: you would have said, says he, it was a large polypus of the intestine; for the whole of this body exceeded the weight of a medical "pound." You see that this excrescence was attended with an ulcer, and

(*s*) Obs. 1. §. 4.

(*t*) I. sect. 13. obs. 1.

(*u*) Act. Hafn. vol. 4. p. 1. pag. 86.

(*x*) N. 13. & 16.

without doubt arose from an ulceration being continu'd through this long dysentery: and it could not be call'd a great polypus for this reason, that it had the nature of those polypi, which are spoken of above, but because it resembled a polypus of the nose, which is so call'd from its similitude to a polypus, not only in its figure, but in its nature also; for this that skilful and cautious anatomist pronounc'd to be fleshy.

22. Yet I do not doubt, but excrescences of the intestines may sometimes consist of both natures; as for instance, if to fleshy fimbriæ, which are not equal, or smooth, on their surfaces, particles of viscid pus, or intestinal juice, or extravasated blood, begin to adhere: and to these others, and still others, are added afterwards, so that the root and the nucleus may consist of real flesh, but the body of the mass that lies round it, or is added to it, and the appendages, may consist of that which has the appearance of flesh, and is not so in effect.

I was consulted, in the year 1736, for a nobleman, who, after having frequent discharges of blood by stool, join'd soon after, with a bilious flux of the intestines, and with a continual fever, which was, at first, slight, and after that acute, when this fever, and its violent symptoms, did not at all remit, from the use of the most suitable remedies, and even when that symptom, which was more violent than any of the others, I mean the pain of the belly, was of a sudden become extremely severe, had discharg'd, after a great quantity of blood, and by the help of the surgeon's hand, a certain body almost of the length of a span and half, but of a different thickness, and figure, in different parts. For on the upper part, it resembled an ugly head, as if that of a pretty large frog, with the mouth gaping; the other part of the body was almost round externally, internally hollow, and was two inches thick, till growing slender, by degrees, it terminated in a tail of a considerable length, and bifid, near its extremity.

If you remember what my opinion was, in almost the latter end of the preceding letter (y), of frogs, toads, and lizards, being discharg'd from the intestines, you will easily imagine what I thought, when I read this account that I have given you: nor was there any occasion, here, to suspect what you will read in the history of a certain miller (z), whose dissection is otherwise worthy of inspection, on account of chylous excrements having been constantly discharg'd, for a year and half together, and of being compar'd, for the sake of finding out the truth, with what I have hinted above (a), upon the celiac flux. But a toad was said to have crept in at his mouth, when he was asleep, and to have done much mischief within, till at length it was discharg'd by stool, in an over-grown state, and dead: which toad I could wish the excellent author of the observation had not been deter'd by the very filthy, and noxious stench, from attentively examining into, and not only by the eye, but with the assistance of the knife.

As far, however, as relates to our case at least, the learned physician, also, by whom I was consulted, made no hesitation, in contempt of vulgar opinions, to suppose that a body of this kind was of the nature of the polypi of Lancisi. Yet, as besides the external fibrous ligaments, by which it seem'd

(y) N. 21.

(z) Eph. n. c. cent. 3. & 4. obs. 163.

(a) N. 4.

to have been connected with the intestines, he describ'd a soft and distractile substance, almost of a black colour, whereof it consisted, and that made up of pretty strong fibres, with various glands lying betwixt them; and as he mention'd that the blood, which had flow'd frequently before, to the quantity of some pints, had ceas'd to flow, upon the removal of that body, and that purulent, whitish, almost cineritious, and extremely foetid, matter had succeeded, which sometimes preceded the discharge of the excrements, and sometimes follow'd them, and always with very great pain, and that these symptoms, and the acute fever, had continu'd, till, vulnerary remedies being given, which were afterwards succeeded by balsamics, these, and the other disagreeable symptoms, were first diminish'd, and at length quite remov'd; so that the patient (who liv'd many years after) desir'd nothing more of me, than to advise such methods, as might tend to preserve him from the return of this disorder: I was ready in my own mind to conjecture, that the beginning, and roots, of this body were excrescences, that had been form'd near the extremity of the colon.

For this situation was pointed out, by that very severe pain, which, without doubt, began below the navel, in the part where the colon generally has a kind of flexure, before it terminates in the rectum, and from thence, following the adhesions of the mesocolon, was extended quite to the back. I suppos'd therefore, that these roots, when they began to be eroded, ulcerated, and torn off, had pour'd out blood, and moreover, that when they were ulcerated pretty deeply, and all round about, the pain, and the other symptoms, had come on: and that, in the mean while, the fibrous and other viscid parts, of the blood, as it drip'd down, had adher'd to the excrescences, and increas'd their size, and by this means brought them into contact with each other, and form'd them into that shape, and appearance, which they had, when entirely pull'd away, and discharg'd. Yet as out of all the bodies of this kind, that I have read of, as being discharg'd from the anus, I can at present call to mind only one, and that spoken of by Peyerus (b), which was "furnish'd with blood-vessels;" and as where I plainly see any body to be furnish'd with these vessels, I shall pronounce that it is, certainly, to be refer'd to the class of excrescences; so, on the other hand, as I very well know, how easily we may be deceiv'd, and impos'd upon, in various ways, by polypous concretions, I shall answer only by suspecting, and conjecturing something of this kind, in regard to the others, which either are without these true vessels, or are not acknowledg'd for true excrescences, by the judgment of a cautious and experienc'd surgeon.

Thus I formerly gave credit to Valsalva, when examining, in conjunction with me, a bloody ichor that was discharg'd by a dysenteric patient, whose life was despair'd of, and finding therein a kind of little substance, which, if you consider'd only the colour, seem'd to be nothing but a small coagulum of blood; he, after enquiring into it very attentively, and considering it thoroughly, pronounc'd, without any hesitation, that it was a small excrescence of the ulcerated intestine. So, also, I should have given credit to the

(b) Exercit. I. de gland. intestin. circa finem.

very skilful Molinelli (*c*), if he had pronounc'd a hollow body, of a span in length, which a man who was afflicted violently, and for a long time together, with a dysentery, had himself drawn out from the rectum, to be "from the fungous flesh of ulcers," though he, in consequence of his great prudence, and caution, would by no means do this, but only said, that it was "not unlike" such a kind of flesh. And perhaps the celebrated Struvius (*d*) had his eye to nothing else, since, when he describ'd "a membranoso-carneous kind of mass," as he expressly calls it, of equal length with the other, of an inch in thickness, and "interwoven with a great quantity of fat," which was discharg'd from the anus, by a very violent straining; he was willing, as I suppose, to shew his own doubts, by prefixing this title, *De Massa Polypsa per alvum excreta*, to his observation: and yet such things had preceded, as might have given, as well as the dysentery itself, a just suspicion of a fleshy excrescence.

23. While I have been showing thus far, that in a dysentery, adipous, membranous, and fleshy, bodies may be discharg'd, and yet that the intestines are not ulcerated, for this reason, because these bodies often seem to be what they are not; I have fear'd now and then, lest you should, perhaps, wonder, that I do not seem to think an erosion, or rupture of vessels to be prov'd, even from the mere discharge of blood; so that an ulceration, either already form'd, or at least begun, must of course be acknowledg'd. But if you have wonder'd, you will immediately cease to wonder, when you attend to those things that I shall touch upon in a few words.

There is an observation of the celebrated Wagner (*e*), in which, he not only describes several appearances found by him, in the viscera of a dysenteric woman, and amongst these, that which ought to be remark'd in favour of Spigelius (*f*), "that the gall-bladder was turgid," but this also, in particular, that the intestines had, no where, any marks of disease, except that all "the small and large intestines were equally strip'd of the mucous humour, with which they are generally cover'd," and the rectum was gangrenous. But if he had observ'd any little ulcer in these parts, he then should not have look'd for the passages of the blood, which the patient had discharg'd, in those extreme orifices of the veins, that is to say, those which the scirrhus glands in the mesentery, and spasms, had constring'd, so that the blood "regurgitated immediately" through those orifices, into the intestines, in the same manner as a blue liquor, injected into the same veins, did then exhibit to him, "very evident marks of a blue sweat," within the intestines.

Besides, there is an observation of Wharton, given by Glisson, in his treatise of the stomach and intestines, which, as it is describ'd somewhat differently from the intention of this treatise, in the Sepulchretum (*g*), without referring you to any particular part of it, will, if you read it in the twenty-third chapter, under number eleven, show, that after an "enormous vomiting of blood, from poison, no vein in the stomach," which, even after death, contain'd a small quantity of blood, "had appear'd to be either ruptur'd or erod-

(*c*) Vid. Comment. de bonon. sc. acad. t. 2. p. 1. inter medica obs. 2.

(*d*) Aët. n. cur. t. 1. obs. 195.

(*e*) Eph. n. c. cent. 1 & 2. obs. 171.

(*f*) Vid. supra n. 15.

(*g*) L. 3. f. 8. obs. 7. in additum.

“ed, but that the internal coat being wip’d away with the back of the knife, “innumerable little bloody points had then gradually appear’d, on the de-
“terg’d surface.” But whether by a wiping of this kind, as Glisson thinks, a kind of cuticle, as it were, was abraded, and the poison acted in no other manner in the living body, as the internal coat itself was seen to be bloody, just as the cutis appears when the cuticle is abraded; or whether it be more probable that the extreme orifices of the arteries being dilated, by the quantity of blood, which the violence of the poison had brought together, had, a little before, pour’d out the blood, and the back of the knife, at that time, pressing out whatever blood remain’d in them, brought their orifices to view, I would rather choose you should judge, from what Boerhaave (*b*) has said, in more than one place, of anastomosis, than that I should determine.

Attend to the example which he there produces, and elsewhere also; as, for instance, when speaking of the menstruous blood, which was retain’d, being discharg’d by other passages, he says (*i*), “I have seen an hæmoptoe of “this kind, which had grown habitual, so that every month a florid blood “was spit up, without detriment to health, though join’d with a slight cough. “I have seen the blood thrown up by vomiting: I have seen that it has been “discharg’d by stool, and by sweat.” Compare, moreover, with each of these, the other examples, that the very learned Haller (*k*) adds, in a considerable number; and in whichever you find this to have happen’d, “without detriment to the health,” suppose it to have happen’d equally, without ulceration, just as when blood was discharg’d by sweat, you would have seen the skin, in that place, to have been very found, nor any other appearance thereon, when deterg’d, but “those innumerable little bloody points,” which Wharton saw on the internal coat of the stomach, when wip’d.

Now transfer these reasonings from the stomach, to the intestines, and you will conceive how blood may be discharg’d, in a dysentery, without any ulceration of the intestines, or, if you are a little in doubt on this head, put that observation of Wharton out of the question, at present, and besides the examples which I have given you, call to mind that of blood flowing from the nostrils. Are the veins, or arteries, always either ruptur’d, or corroded, in this case? or is the coat of the nostrils always ulcerated? If they are ruptur’d or corroded, how does it happen that the blood often stops spontaneously, without the least remedy being apply’d? If they are ulcerated, how does it happen, that no pus, I do not say, but that even no pain is the consequence? Now then suppose it probable, that the same thing may happen, on the internal coat of the intestines, which you suppose to have happen’d on the internal coat of the nostrils, especially as the fluids, that are injected by the arteries, are so easily carry’d through either of these coats, into the cavity of the nostrils, or intestines (*l*). Suppose, therefore, that the quantity of blood is increas’d, that the impetus of it is increas’d, and that the extremities of the arteries, on the internal surface of the intestines, are made more lax than usual, and particularly in those in whom they were, before, naturally lax,

(*b*) Prælect. ad instit. §. 707. 775, 814, &c.

(*i*) Ad §. 667.

(*k*) In not. ad cit. modo §.

(*l*) Vid. not. Haller. ad §. 497. earund. prælect.

either from a kind of paralytic affection, or from some other cause, as for instance, from having been too much moisten'd, in fluxes of the intestines; and you will easily conceive with Boerhaave, that blood is discharg'd from thence by means of anastomosis.

24. And you must not suppose any one of these circumstances only to take place, but many of them at once. For as Boerhaave thus teaches (*m*): "when the blood cannot pass through the vena portarum, and its branches, then pure blood itself may be extravasated by anastomosis, from the mesenteric vessels," if he had not immediately added "the orifices of which are dilated," any one might doubt upon the event, who had read that Ortlobius (*n*), when he made a ligature upon this vein, in living dogs, "could never observe that pure blood burst forth on the intestines, notwithstanding the whole coat of the intestines was dy'd, as it were, with a scarlet colour." In these dogs, without doubt, the mouths of the vessels were not dilated. But they were very considerably dilated, by reason of the laxity of the surrounding fibres, "in the sphacelated intestines" of that count, of whom this author speaks; for in the intestines of this gentleman he saw, "the meseraic veins having their orifices open, and fill'd with coagulated blood, as if they had been fill'd with wax." And these things I hinted, because in a dysentery, "sometimes there is a true inflammation, and a fatal gangrene follows," as Boerhaave has said a little after those things that I have related (*o*). And indeed the observations of many authors, in this eleventh section of the Sepulchretum (*p*), show that he has said what is true; and besides that which is produc'd above (*q*), this other of Valsalva's, also, confirms it.

25. A woman died of a dysentery. The intestines were found to be inflam'd. The left kidney was altogether deficient in this woman: but the deficiency was supply'd by the right, which was twice as large as it naturally is, and furnish'd with a double pelvis, and double ureter. And both of the ureters went to the right side of the bladder.

26. Setting aside those appearances which, as it is evident to you, must have existed from the original formation of the woman; the inflammation of the intestines relates to the dysentery. Now then call back to your memory, and join with this observation, and with others, that which I have describ'd above from Piccolhominus (*r*). For in that, whether the abrasion, which seem'd so far surprizing to the observator himself, was very great; or rather, whether a considerable inflammation of that kind was join'd with the abrasion, so that the whole coat of the intestines was red, as it was in the dogs of Ortlobius (*s*); there is no doubt but Piccolhominus, also, acknowledg'd an inflammation. And as this cannot happen, but the passage of the blood, through those branches of the vena portarum, must be suppos'd to be impeded; I have already said (*t*) what may be the natural consequence of this, if any other cause be added, even before the intestines, by the impetus of the blood still continuing, begin to degenerate into a gangrenous laxity.

(*m*) Ad §. cit. 814.

(*n*) Hist. part. & œcon. hom. diff. 8. §. 7.

(*o*) Ad §. 815.

(*p*) 3. 9. 19. §. 1 & 2.

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(*q*) N. 14.

(*r*) N. 20.

(*s*) Supra, n. 24.

(*t*) Ibid.

Thus Brunnerus (*u*), in a soldier, who had been carry'd off by very violent convulsions, which came on, when he already labour'd under a diarrhœa, found through the whole tract of the intestines, and especially the smaller ones, a considerable inflammation, from which even the stomach was not altogether free, and, at the same time, coagula of blood in the last-mention'd cavity, and in the intestines a red mucus, which was a very evident proof, that the diarrhœa had, already, begun to degenerate into a dysentery, although as yet nothing gangrenous appear'd in these viscera. And an inflammation of the intestines may easily pass over into a gangrene, and even into a sphacelus, as I have said: from whence it probably happens, as was related to me, by a very experienc'd physician, when I was a young man, that it is not uncommon for the fever, in dysenteric patients, to seem to be quite gone off, for a few days before death, so that a physician, if he did not attend to other symptoms, might be shamefully deceiv'd. However, in regard to that very fallacious disorder of the intestines, the sphacelus, I shall have a more convenient opportunity of treating of it hereafter (*x*).

Now in respect to membranes being discharg'd, either together with blood, or together with pus, or with neither, and these either in a dysentery, or when there is no dysentery, somewhat is to be added to those things that I have said above. Without doubt I have wish'd, that the nature of some of these membranes might have been examin'd into, more accurately. Lentilius (*y*) for instance, has exceedingly well determin'd, what intestine it was, from whence the membranes proceeded, which were excreted in the stools at intervals, with or without blood, and in a greater, or in a lesser number. But as to his supposing these membranes to be the valvulæ conniventes, every one is at liberty to give credit, or not give credit, to his supposition; and even to believe, or disbelieve, this very circumstance also, that they were real membranes. For it appears that he was absent from the patient, and could have seen nothing else, but that they were "of a different size, and that, when dried, they resembled the pellicles of a hog's bladder, when shrivel'd up with heat."

But Jo. Maurice Hoffmann (*z*), when he examin'd very attentively membranes that were excreted by another woman, which every other person had taken for the internal coat of the intestines, found them to be a viscid mucus, "coagulated upon the valvulæ conniventes, and condens'd into the form of a membrane:" nor does the opinion of the celebrated Trælingius, in the fifth volume of the *Acta Naturæ Curiosorum* (*a*), differ from this: for he, on examining a kind of tube, or sheath, discharg'd by the wife of a peasant, found it to be not really membranous, "although it resembled the figure of the colon, with its valvulæ conniventes." On the contrary, Apinus (*b*) made not the least doubt, but the membranes, which were discharg'd by another patient, were really pieces of the internal coat: and indeed he has produc'd many reasons, even from the inspection of them, why he should be believ'd: although the reason which he gave in the first place, that they were

(*u*) Exercit. de gland. duoden. §. 4.

(*x*) Epist. 35.

(*y*) Eph. n. c. dec. 3. a. 3. in append. n. 6.
ad obs. 68.

(*z*) Dec. ead. a. 9 & 10. obs. 60.

(*a*) Obs. 126.

(*b*) Dec. cit. a. 9 & 10. obs. 179.

"of a form exactly tubular," is not only render'd of no effect, by the observation which was just now quoted, but also by the observation of the celebrated Verduffius (c), who having examin'd, very closely, one discharg'd by another patient, found it, very evidently, to be nothing else but "a fistulous pituita, which had concreted together, and accommodated itself to the figure of the intestine, wherein it was contain'd."

But must we suppose, you will say, that the same thing happen'd within the intestine cæcum, which Beckerus (d) almost affirm'd formerly, his having seen discharg'd by stool; that is to say, "a membranous body, equal in length, and breadth, to the finger of a large man, open, and eroded, at one end, and at the other end shut? For he has immediately subjoin'd the following words, "made up of a threefold coat, thin, fleshy, and rugous." Nay, and to go farther, what shall we say to three other observations, in which not the appendix vermiformis, that is on the side of the intestine, for instance, but a considerable part of the tube of the intestines itself, is said to have been discharg'd by the anus? I heartily wish that George Francus (e) had been permitted (for his patient did not survive, as those of Beckerus, and others did, but died a few hours after the discharge of it) to examine the body, after death, in order to determine the situation, from whence, "an entire part of the small intestines, of the length of a span, and what was more, with a portion of the mesentery, still annex'd to it," had been torn away, which he, by reason of the valvulæ conniventes, wherewith it was internally furnish'd, suspected to be from the jejunum: although if a separation of this kind is to be wonder'd at, the coalition, which we must, of course, suppose to have taken place, in two other patients, betwixt those parts of the intestine, from whence the intermediate portion was torn away, is still more to be wonder'd at, since neither of these persons, if a passage had been left open, from the intestines, into the cavity of the belly, could have surviv'd.

But Jo. Peter Albrecht (f), and Andreus Westphal (g), when they produc'd their histories, ingeniously imagin'd, that an intussusception had preceded, or a prolapsus of the inverted part of the superior intestine, within the part next below; so that a tearing away of the prolaps'd part did not happen, by means of inflammation, and gangrene, before there was some conglutination in the place of the separation, betwixt the receiving, and the receiv'd intestine. For as to that which was discharg'd, being actually a portion of the intestine, although "many doubted" in regard to the first observation, and in regard to the second Bruckmann, and Hoffmann, suppos'd it to be, either only a coat of the intestine, or a mucus in the form of a coat; yet witnesses of the first being really so were not wanting, and other learned men, and in particular the magnific order of physicians at Gripswald, to whom what was discharg'd, in the second observation, is said to have been sent to be examin'd, have pronounc'd that to be real.

(c) Ephem. earund. cent. 1. obs. 92.

(d) Earund. dec. 1. a. 4. obs. 68.

(e) Earund. dec. 3. a. 5 & 6. obs. 177.

(f) Dec. ead. a. 3. obs. 129.

(g) Disput. quæ partem intest. jejuni, &c.

One thing I have observ'd, which may seem to correspond but indifferently, in either of them, to the suppos'd intusufception. For the valves, in the inverted intestine, should have been found not on the "internal" surface, as they suppose, but on the external surface, nor should any portion of the mesentery, or omentum, adhere "externally," but internally: although it may be said, that the surfaces were not spoken of, as they then were, but as they had been before, in their natural state, or that the intestine had been turn'd back into its former state, either while it was carry'd down, through the remaining part of the canal, quite to the anus, or while it pass'd through the freight passage of the anus itself, or at length, even by the hands of those who had examin'd it after it was discharg'd. Be this as it will, when you have read, and consider'd, all these circumstances, you will judge what credit is to be given to these observations: for in regard to me, you are quite at your liberty, to take part either with those who believe, or with those who doubt, or with those who, in some measure, consent therewith; and I suppose you will be less surpriz'd hereafter, if you hear that any dysenteric patients have recover'd, even after they have discharg'd real membranes, or caruncles, from the intestines.

27. Although I have written much more upon the subject of the dysentery, than I had determin'd in the beginning, yet before I come to a conclusion, I have a mind to add something on the subject of tenesmus; not in the manner I see it is here done in the *Sepulchretum* (*b*), where it is consider'd as arising from other causes, of which I shall speak on a future occasion, but only when it is brought on by the dysentery. I believe, indeed, that in the end of this flux, the cause by which the rectum is irritated to discharge its contents, does frequently not consist in the disorder of the same intestine, but proceeds from the remains of the acrid mucus, and blood, stagnating in the nearest cells of the colon, especially if there be the obsolete colour of this blood mix'd with the mucus, and it being carry'd down, by degrees, through this intestine, and, in like manner, through the rectum, to the lower part of it, which is very impatient of irritation.

It is surprizing to consider how long some substances, even when in no small quantity, nor in themselves viscid, seem to have been retain'd in the cells of the colon. Inquiry was made of me, in the year 1744, in the name of a learned, and ingenious, physician, where I thought that pease could possibly have remain'd in the belly of a man, five whole months after being eaten? For he asserted, that there was a man, in his city, who having eaten them frequently, and in large quantities, in the month of June, and being seiz'd in October with a dysentery, and singultus, could not be cur'd of these disorders, till, in the beginning of December, he had discharg'd by stool, two pounds of pease, which were so entire, that many of them were preserv'd as curiosities by admiring physicians. And it was said that the same thing had happen'd to the father of this man before, only they had not remain'd so many months. I answer'd, that if this relation were true; for as the story was well-known in that city, and testify'd by many, I could not fairly dispute the truth of it, especially as I had read histories, in medical authors, which

(*b*). Obs. 29. & seq.

were much more difficult to be suppos'd, and if these two men had the same structure of the stomach, and intestines, that others had, I did not see how they could so easily have adher'd, as by being dispers'd into many cells of the colon: for if they had been join'd together, they would have obstructed the passage through this intestine, and still more through the small intestines, and would have been very burdensome, and uneasy, to the stomach, as they were in so very considerable a quantity, and, as appear'd from the circumstances, unbroken with the teeth, and perhaps not sufficiently boil'd before, nor in a green, and tender state, but already grown old, yellow, and hard. That these cells probably were, in these men, naturally somewhat larger than they are in others, and consisted of more lax fibres, but that there was scarcely any doubt of very viscid, and tenacious, matter having been contain'd in the tube of the intestines, in considerable quantity, and that in consequence of their being accusom'd to masticate their food so little; and that the peas being entangled by this matter, and glued, as it were, to the parietes of the cells, had remain'd in this state of adhesion, till they were, at length, loosen'd, and remov'd, from thence, by the tormina of the dysentery, and the frequent strainings to stool.

28. But although in explaining that tenesmus, which succeeds a dysentery, I am often, as you have seen, so far of opinion with Sydenham (*i*), that I do not allow of an ulcer existing in the rectum; yet do not imagine that I so far adhere to his opinion, as not to fear sometimes, lest an ulcer, or some other considerable disorder, should be the consequence of a dysentery; as I was warn'd, even when I was a young man, by the event of a certain pain in that intestine, after a dysentery, upon the cause of which my preceptors had opinions different from each other.

For as in a woman of the first rank, a dysentery had ceas'd, of itself, after about fifteen days, and she always complain'd of a pain in the lower part of the intestine, when she had occasion to go to stool, and at other times also, join'd now and then, with a kind of troublesome pricking; one of them suppos'd that this arose, as it was in a delicate woman, only from a slight abrasion of the internal coat; and the other, that is Albertini, who observ'd a continual sense of weight to be join'd with that pain, besides a fever, not without a kind of consent in the thighs, and the lower part of the loins, but no tenesmus, or scarcely any; was afraid of something of greater consequence, till at length her fever, being increas'd, with a rigor, he openly foretold the speedy appearance of an abscess. Which prediction was soon confirm'd by the event, pus being discharg'd to the quantity of two ounces, and the physician who had dissented, as he was an ingenuous old man, not only confessing it, but what few can submit to, even commending the true prediction of the other.

But in regard to a very considerable disorder of the same intestine, and one that is less known among the common people, I shall have occasion to speak of it in the next letter (*k*). Farewell.

(*i*) Obs. med. circa morb. acut. f. 4. c. 3.

(*k*) N. 6. & seq.

LETTER the THIRTY-SECOND

Treats of Costiveness and of the Piles.

THE opposite disorder to that of which I lately wrote to you, I mean the disorder of costiveness, I have observ'd in many persons, without any evident detriment to health, notwithstanding some are accusom'd to have no discharges from the bowels, for weeks together, and even (as our celebrated Zeviani (*a*) has also observ'd) for a month together, and at other times, and that more frequently, join'd with manifest injury, of which death itself was the consequence. Nevertheless, I have but one observation of this disorder, which is join'd with a dissection, to describe to you here: for the other observations of this kind, as they were join'd with vomitings, volvulus, and other disorders of that kind, it did not seem proper to disjoin from them. And if the same thing were, likewise, done in the Sepulchretum, the observations of this thirteenth section would be greatly reduc'd in their number.

For you will see it remark'd in most of them, in what other section that part of the observation may be read, that has been taken away from this. But that there are others, in which the same remark ought to be made, three pages only, the hundred and ninety-third, the hundred and ninety-seventh, and the two hundred and third, if you turn to them, will clearly demonstrate. For if you read in the first, the second article of the third observation, you will naturally suppose that it belongs only to that place. But the third article will immediately show you, that the same is given twice over, and still more, that what is deficient in both, is to be sought for elsewhere, that is in the eighth section of this book, in observation the fifteenth.

A similar repetition will be prov'd, in the second of those pages I refer'd to, by comparing the second article, of the ninth observation, with the eighth article of the same; for we are not to suppose, that because by a shameful typographical error in the letter it is said "in the left side under the region of the liver:" the case is not the same which in the former is properly described, by saying, "in the right side," for that it is so, will be clearly demonstrated to you, by turning to the next, that is the fourteenth section, which is there refer'd to, and in which this history is given, somewhat more at large, under article the first of the eighth observation.

Finally, the third of those pages that I pointed out, will immediately show what is repeated, and what is nevertheless omitted, when you shall have

(*a*) Del Rato, &c. l. 2. c. 11.

compar'd article the ninth of the twelfth observation, with article the third, and both of them with the seventh section, to which you are in the letter desir'd to turn, where you will read the case describ'd more at large, under observation the thirty-third.

But let it be sufficient to have pointed out these repetitions, which are so near one to another. However out of the more distant ones, that I leave to be enquir'd into by you, I cannot help taking notice of one, which, by reason of the usual little arts, and deceit of Blancardus, is not very easily detected. Read, I beseech you, the sixth article of the first observation, and compare what Formius has related of the shoemaker, with those things which, in the third observation of the additamenta, Blancardus has said of the porter: and you will perceive that the history is the same in both places; but that the shoemaker of Formius was chang'd into a porter by Blancardus, that the trick might not be found out. And if in writing to you I frequently detect artifices of this kind, of which he has been guilty, I do it for this reason, that you may withhold your assent, when you shall read in the writings of an author, in other respects, learned, that Blancardus, indeed, "in his *anatomia reformatata*, had been guilty of plagiarism which was scarcely excusable . . . But that the *anatomia practica rationalis*, of the same author, "deserv'd a greater share of praise," that is to say the very book, from which those examples, that I produce to you here, are transfer'd into the Sepulchretum.

2. And yet other histories were not wanting, which related to this section, whether they were to be taken from the Sepulchretum itself, or elsewhere. For example's sake, our Saxonia (*b*) saw a smith in this city "who after a long suppression of stools, and great pains of the belly, partly by the use of acrid glysters, and partly by the use of other remedies, discharg'd many small stones of the bigness of a filbert, of a yellow colour, and so extremely hard, that they could scarcely be broken by violence." And this observation might have been very properly introduc'd in this section, and it would have been more particularly suitable in that place, where (*c*) costiveness is deduc'd from calculi of the gall-bladder; or if they should seem to be too hard, and large, to be refer'd to that class; although the biliary canals are sometimes found to be much dilated; yet in this section, at least (*d*), a calculus, of the bigness of a chestnut, which adher'd to the colon, is suppos'd to be the cause of a costiveness of the same kind, or as a great number of other observations which were already explain'd, pretty much at large, in other sections, are repeated in this; why is that wonderful history (*e*) of the maniacal man omitted here, who, though he devour'd every thing he met with, nevertheless sometimes discharg'd nothing from his belly, which was very tumid, for fifteen or sixteen weeks together? or not to digress far from this subject, as among the examples here produc'd of infants, who being born without any aperture from the rectum, could of course discharge nothing by that way, the observation of Holtzach (*f*), taken from one of them,

(*b*) Praelect. pract. p. 2. c. 19.

(*c*) Obs. 12. §. 2. 3. 7. 8.

(*d*) Obs. 9. §. 4.

(*e*) L. 1. f. 9. in addit. obs. 1.

(*f*) Obs. 11. §. 6.

who discharg'd the excrement of the bowels, by the penis, is repeated from the next section (*g*); why is another similar one omitted, which had been there produc'd (*h*), from Hildanus, or two of Mœbius (*i*), the first of which is very much like those, and the second relates to a little girl of six months old, who discharg'd the abdominal fæces through the vagina?

3. Of this last kind is the observation of my fellow-citizen Mercurialis (*k*), which is very much celebrated, if any other observation is, among the medical writers Daniel Sennertus (*l*), Thomas Bartholin (*m*), Johannes Rhodius (*n*), and others. But it is surprizing that Rhodius who resided thirty-seven years at Padua, collected his observations here, and publish'd them in the year 1657, did not enquire what had become of that same "daughter of a Jew, who went under the name of a German" whom Mercurialis saw "in this city," and who, being born without any natural passage from the rectum, "discharg'd her fæces by the vulva," and nevertheless, contrary to what might be expected by some, "surviv'd."

However as Rhodius was not ignorant, from a similar, and equally celebrated observation of Benivenius (*o*), that another girl had not liv'd beyond her sixteenth year, he would readily suppose that this Hebrew girl also, had perhaps died the same kind of death, not many years after Mercurialis had seen her, (and he had seen her before the year 1583), that is, had died from an excruciating pain of the intestines, probably from the excrements being, at that time, much indurated, and become so thick, that they could not be discharg'd by a passage which was not natural to them, nor yet perhaps proper to convey emollient, and lubricating, clysters commodiously to the intestines. But whether in the girl of Benivenius, this happen'd the more easily, because she had no discharge by stool, more than once in eight days; or whether the Paduan Jewess was more fortunate, Rhodius would certainly have found, had he enquir'd, that she was alive even then, and had pass'd her seventieth year, (and not only, as a certain girl whose history is given elsewhere (*p*), of twenty years of age): and indeed she even surviv'd Rhodius by many years, inasmuch as she, which is a very rare instance even among those that are most healthy, liv'd a whole century, as was testified to me, by one who had sometimes attended this old woman, as a physician, I mean Isaac Cantarini, when in the year 1719, he happen'd, as he was a learned old man, to be talking with me of Mercurialis. But she always bore up under her misfortune with patience, and without attempting to relieve it, well-remembering the advice that was given to her father, by Mercurialis.

And there is no doubt but where another passage is open'd by nature itself, through which you may make a sufficient discharge of the excrementitious matter, the inconvenience is to be prefer'd to the many and various dangers, which, unless necessity itself compels, are by no means to be enter'd into, or at least not from the advice, and countenance, of a prudent man.

(*g*) Obs. 24. §. 1.

(*h*) §. 2.

(*i*) Obs. 22.

(*k*) De morb. puer. l. 1. c. 9.

(*l*) Medic. pract. l. 4. p. 1. f. 1. c. 1. in fin.

(*m*) Cent. 2. hist. 63.

(*n*) Cent. 2. obs. 91.

(*o*) De abdit. morbor. caus. &c. c. 86.

(*p*) Eph. n. c. dec. 2. a. 10. obs. 75.

For unless the aperture of the rectum at the anus, be found to be shut up only by a membrane, so that by an easy and safe incision, an exit may be given to the excrements, that are urging from above, as the dissection of a little boy, describ'd by the celebrated Baverus (*q*), shows might easily have been done, an incision undertaken rashly will frequently hasten the death of the infant, and will make that remedy infamous and horrible, which would otherwise be advantageous to many, if prudently made use of. For suppose that the rectum has, in the whole extent of it, no passage at all, but is solid like a rope, as the eleventh observation, in this part of the Sepulchretum, describes it (*r*); or suppose, to omit examples of other disorders, that the whole of that intestine is wanting, of which you will find an observation in the same place (*s*). Is not the success of the incision, which you read there, the same with that which you read of in Schenck (*t*), when in the daughter of one Sichard an apothecary, the surgeon attempted the dissection indeed, but “did not find the rectum?” As another surgeon did not, in like manner, who perforated “to the length almost of the little finger,” in one of those infants, I mean, whom Ruych found to be entirely without that intestine (*u*).

Nor indeed are instances of this kind very rare; for the celebrated Heister (*x*) has affirm'd it to have been seen more than once by him also, and has describ'd one example fully (*y*): nor are we without another, besides these, which you may read elsewhere, though taken notice of by the celebrated Hoyer (*z*) only *en passant*: and indeed that sometimes happens, likewise, which may easily deceive the operator, that is to say, the lower part of the rectum is not wanting: for by introducing the finger per anum, for some little space, which is sufficiently pervious, he naturally conceives a hope of a successful incision, as if nothing but a kind of membrane, which was interpos'd, cut off the communication with the upper part of the rectum, and yet this remaining part is in fact no-where; but the other rectum is an intestine, which being full of feces, is inflected at a considerable distance from the anus, to the upper part of the os sacrum, and being shut up, and firmly concentered to that part, terminates there, as has been seen by the celebrated Peter Christoph Wagner (*a*).

It is true, I should not always blame the surgeon, if an infant die on the day after the incision has been made, as that did whose two little brothers had, also, been born with an imperforated rectum (*b*). For although I have read, that a great number of other infants, who were affected with the same præternatural disorder, have liv'd seven, ten, twelve, or more days; yet I have also read that some, in other respects healthy, and who had not undergone the least incision, did not live more than three days.

However, unless it appear from dissection, that the chirurgical operation has not been the cause of death, he, in particular, will not escape all suspi-

(*q*) Act. eorund. t. 4. obs. 147.

(*r*) §. 4.

(*s*) §. 17.

(*t*) Obs. medic. l. 3. ubi de intestino recto obs. 6.

(*u*) Advers. anat. dec. 2. c. 10.

(*x*) Inst. chirurg. p. 2. f. 5. c. 163. n. 1.

(*y*) Eph. n. c. cent. 3. & 4. obs. 193.

(*z*) Earund. cent. 6. obs. 59.

(*a*) Commenc. Litt. a. 1735. Hebdom. 46. n. 4.

(*b*) Eph. cit. dec. 3. a. 5. & 6. obs. 282.

cion of having hasten'd the death of the infant, who, without properly considering every circumstance, has run headlong to the incision, as if to a remedy that was not at all dangerous. Wherefore, when any other passage is sufficiently open'd, although attended with great inconveniencies, and it is not certain that the rectum comes down so far betwixt the buttocks, that its canal is cover'd only with the cutis, or a membrane of no great thickness; we must not search, in that part, for what perhaps terminates in another place, as for instance, in the upper part of the vagina. For unless the incision penetrate thus far, it can have no effect in removing the complaint; and if it does really penetrate thus far, two other dangers remain behind, besides that of hæmorrhage, or convulsions, one of which is, lest the passage open'd by nature, into the vagina, may never be quite clos'd up, notwithstanding the incision; and the second, lest that which is open'd artificially by another way, should from the want of a sphincter, to shut up the orifice, not remove, but double, the inconvenience.

4. But if there be no exit at all, to the abdominal fæces, a doubtful method of cure ought to be prefer'd to the certain death of the infant. For nature has not dealt with other animals, as she has with that insect, which is call'd by the French *Fourmi-lion*, and which according to the observations made upon insects, by that incomparable natural historian Reaumur (*c*), has neither any anus, nor any intestinal excrements that can be perceiv'd. And if the cow at Perinthus, of whom Aristotle (*d*) deliver'd down in writing, what he had heard, had no external aperture to the rectum, "in which " the excrementitious part of the food being attenuated, was discharg'd " through the bladder, and the anus being cut asunder, very soon clos'd " up again, so that the disorder could not be obviated by repeated incision;" I have no doubt but I may suspect, with some probability, that the last intestine terminated in the bladder; and the useless incisions confirm what I just now said, of the difficulty either of penetrating so far as there is occasion, or of shutting up a passage, which has been open'd by nature.

And I had the same suspicion formerly, when I heard that there was a virgin at Bologna, who discharg'd nothing by the intestines, but all by the bladder, dissolv'd in the urine. For that this intestine has, more than once, been inserted into the bladder, three observations, which you have join'd together in the Sepulchretum, testify (*e*), or at least two, if the third is the same as the first, which this twelfth section, being quoted in the former (*f*), seems to shew. But if none of those infants, that are describ'd in these observations, surviv'd; the cause of their death is, perhaps, to be ascrib'd, if not so much to the very narrow communication betwixt the rectum, and bladder, such as is describ'd, and delineated, by the celebrated Sandenius (*g*), yet at least to the narrowness, length, and winding, of the male urethra, which is, for these reasons, unequal to the task of discharging the urine for a long time together, as it is now very thick, on account of the excrements being mix'd with it (*h*).

(*c*) Memoir. pour. l'hist. des insect. t. 6. mem. 10.

(*d*) De generat. animal. l. 4. c. 4. in fin.

(*e*) L. 3. f. xi. obs. 24. §. 1. 2. 3.

(*f*) Vid. obs. xi. §. 6.

(*g*) Eph. n. c. dec. 3. a. 9. & 10. obs. 194.

(*h*) Vid. tamen epist. 65. n. 6.

Be this as it will ; as often as ever it appears, that no passage is open for the discharge of the fæces, from the intestines, we must not delay, till the long retention thereof, begins to be very injurious to the infant ; and, for that reason, renders it less fit for the operation ; but the cure must necessarily be attempted, having first declar'd to every one about the infant, the doubtfulness of the event ; yet the attempt must be always made with caution, and with skill, lest by one who is ignorant of anatomy, the bladder, or, in females, the vagina, be wounded, together with the other parts, especially where the instrument must, necessarily, be introduc'd very high up.

For besides a very thick membrane, a spongy flesh, sometimes, and fat, to the extent of two inches, may be interpos'd, as you will learn from the Sepulchretum (*i*), and even sometimes, as you will read in the same place (*k*), the internal coalition goes up so high, as to equal the length of "two joints of the little finger, of a moderately-siz'd man ;" and yet the child, "having lost but little blood," in the perforation, and a proper cure having succeeded, was preserv'd, so that being at length "an old woman," she died, as it seems, of quite a different disease, which you will learn from reading in another place (*l*), the conclusion of that observation, which is very improperly omitted there. And you will find that another liv'd till it was four years of age, and is perhaps still living ; I mean one whom Hoyerus (*m*), that I have commended above, cur'd by an incision, longer than the "joint of a man's thumb : " to take no notice of that, which the celebrated Huberus (*n*) shows it possible to have sav'd, if the father of the infant had suffer'd the *carneo-pinguedinous* mass which he saw in the dead body, and which had been already cut through with the knife, in the living body, "to the extent of almost two fingers breadths," to be cut a little higher ; for by this means, the incision would have reach'd into the cavity of the intestine, that terminated close to it.

5. But, although this kind of disorder may sometimes be cur'd, even when there seems scarcely any hope of a cure, many of them are, nevertheless, absolutely incurable, as when there is an occlusion, or adstriction, in some one of the higher intestines, of which case you have instances not only here in the Sepulchretum, but will also have other instances from me, at other times. And to these you will add, not only the large fleshy excrescence, said, in the preceding letter (*o*), to have been found within the colon, by Cortesius, but also the scirrhus ring, made up of glands, which the celebrated Haafius (*p*), found in the same place, and which left a foramen scarcely sufficient to admit a slender probe ; and, in like manner, the callus of the same intestine, which was almost cartilaginous, and which the celebrated Christian Wencker (*q*) describ'd, from the observation of his brother, as rendering the tube, in that part, extremely narrow ; nor must that be omitted which is describ'd by Laubius (*r*), of the colon, before it came near to the rectum, having its coats so contracted in a great part of the tube, as to render it not at all surpriz-

(*i*) Obs. cit. xi. §. 14.

(*k*) Ibid. in schol. ad §. 4.

(*l*) Eph. n. c. dec. 1. a. 3. obs. 257.

(*m*) Obs. 59. cit. supra, ad. n. 3.

(*n*) Act. n. c. t. 8. ob. 24.

(*o*) N. 21.

(*p*) Commenc. litter. a. 1742. hebdom. 45.

n. 2.

(*q*) Diff. sist. virgin. ventric. perforat. §. 5.

(*r*) Eph. n. c. cent. 7. obs. 41.

ing, that the fæces could not descend; and still less must we omit the same disorder, when it is, at the same time, extended to the greater part of the rectum, such as was seen by Waltherus (s), who was, when living, a very experienc'd man. And not to quit the subject of this last intestine, external compression is often the cause of an incurable coarctation therein.

Thus in the case given under the eleventh observation, of this section of the Sepulchretum (t), by whom could it be well-known, that a kind of glandular tumour compress'd the upper part of the rectum, on both sides; and I may, with much greater propriety, perhaps, say, by whom could it be cur'd? And I do not doubt, but the coalition of this intestine is to be deduc'd, rather from a tumour of that kind, than from "some very hot medicines (u)," which had been taken, and which would dry up, and contract, the intestine, just as fire is wont to dry up membranes; provided, however, that the coalition was really in the rectum, since a portion of a wax candle was introduc'd, as Donatus says, "to the length of a foot and a half;" for how this could happen in any man, I do not see, unless the candle was drawn away in an inflected state, or unless the intestines were differently dispos'd, from their usual, and natural situation. But let the coalition have been wherever you please to suppose, that it is to be accounted for, rather, from the cause which I have mention'd, than from any different cause, another history of the same coalition, which is transfer'd hither from Tulpus, will demonstrate (x).

For this author saw this intestine, of which I am speaking, so depress'd by two calculi of the urinary bladder, "that being streighten'd, and collaps'd, it produc'd many membranous filaments, which so closely interwove the internal parietes of its tube, as to prevent a possibility of its transmitting any excrement;" and in the same manner, he had seen, at another time (y), "that similar filaments had obstructed the gula, which was streighten'd by a cancer." But this coalition of the rectum was incurable, also, for more reasons than one, as you will learn from reading that observation, in the writings of Tulpus himself (z). Moreover, how much the intestinum rectum, when compress'd and made narrow, may obstruct the discharge of the fæces, even without any connection of the parietes, you will learn from other observations, which you may join to those of the Sepulchretum; as, for instance, from that of Riedlinus (a), who found, in a man, that had died of an obstruction of the bowels, "a mass partly fleshy, and partly glandular," which was larger than a fist, and compress'd the intestine, near to the urinary bladder; and in the intestine, also, were many "fleshy excrescences;" or from those of Jannellius, and Lancisi (b), who saw an obstinate, and insuperable, costiveness in a matron, from the colon, and particularly, in its lower part, being so dilated, and heavy, as to force the uterus towards the rectum, to confine it to a very narrow compass, and cause a great contraction of its canal: or finally, from that of the celebrated Haseñest (c), who

(s) Dissert. d. intestinor. angustia §. 20.

(t) §. 2.

(u) Vid. schol. subject.

(x) Obs. 14. §. 5.

(y) Vid. ejus. obs. med. l. 3. c. 1. in fin.

(z) C. cit.

(a) Vid. æt. erudit. Lips. m. jul. ubi ejus. curæ med. referuntur.

(b) Eph. n. c. cent. 10. in append. n. 4.

(c) Commenc. litt. a. 1740. hebdom. 30. n. 1.

observ'd.

observ'd many adipose appendages, hanging, externally, to the sides of the rectum, which, in their shape, resembled that of a small pear, and which, though in consequence of their softness they did not, indeed, bring on an obstruction of the bowels, "greatly prevented, nevertheless, a free discharge from that canal.

6. There is, besides, another disorder of the same intestine, of which I see that no mention is made in this section of the Sepulchretum. Ruysch in his *Observationes Anatomico-chirurgicæ* (d), and likewise in his *Adversaria* (e); describes it under the name of "a scirrhus thickening, and surprizing coarctation of the rectum," that is to say, with its coats almost exceeding the thickness of an inch, and so much indurated, that he was in doubt, whether to call them cartilaginous, or fleshy; and with its cavity so much diminish'd, in circumference, that a slender probe could scarcely be introduc'd sometimes, nor could the fæces be discharg'd, without the most violent strainings, and that either in drops; or in a slender substance, scarcely thicker than a stalk of grass. This disorder he asserts "to happen rarely, and for that "reason, to be known to few:" nor indeed does it appear, that it had been seen by him, in more than two cases; so that he put them in the number of those, which he suppos'd never to have been seen by Bidloo (f).

I remember that Valsalva was sent for to Faenza, to a very considerable man, who, as the same symptoms demonstrated, was troubled with the same disease, or, at least, with one which was very near akin to it. I accompanied Valsalva to that place, and he told me, that the same kind of disorder had been observ'd by him, before, in others, and by dissection also, as I suppose; for I find no such thing in his dissections: but only in other papers, as far as relates to two patients, whom he saw some years after, as the cases, which he has left in writing, together with the treatment of them, demonstrate. In both of them, he refers the difficulty in discharging the fæces, from the intestines, to the glands being become much thicken'd in the rectum, and in part ulcerated; and in one of them he says that a tumour, in the form of a ring, was perceiv'd to be prominent on the inside of the intestine, about three inches above the lower part of the rectum.

I myself was also consulted, in the preceding summer, for a noble matron, who having, for many months, discharg'd the intestinal excrements, compress'd into the shape of a flat border, or fillet, and imagining that she was troubled with no disorder, but that of the piles, had been lately found to have the intestine, about the upper part of the sphincter ani, swell'd all round, to the extent of two inches, and so much streighten'd, that the point of the finger could not be introduc'd, without force, and uneasiness. As this patient had, before, been subject to tumours in the glands of the groins, and the axillæ, and likewise, to pustules, and ulcerations, and as, even at this time, some pus was discharg'd before the fæces, though not in great quantity; I readily judg'd that the same thing, which Valsalva had perceiv'd in those patients, by means of the finger, was to be perceiv'd, also, in this matron, and wrote back this opinion, in my answer, to those who consulted.

(d) Obs. 95. & 96.

(e) Dec. 2. c. 10.

(f) Respons. ad Bidl.

me by letter, especially as I was led to the same way of thinking, by some observations of my own.

One of these which I still preserve, together with the dissection, I shall the more readily write to you, because I see that this disorder, or at least one very similar to it, is describ'd, as far as it could be, by observations taken from the living body, in the *Commercium Litterarium* (g), and class'd, "with justice, among those that are more rare;" but I find no anatomical inspection of the patient, who died, some time afterwards (h), of an iliac passion. And although I read, in another book (i), that there was, in a little boy, "such a disease of the rectum, as Ruysch in the ninety-fifth, and ninety-sixth, of his *Observationes Anatomicae*, describes by a twofold example, that "is to say, a disorder in which the sphincter ani was concern'd, and by "means of which, it had grown rigid all round, and contracted a very great "scirrhoty;" yet I observe that the same kind of disorder was common to the other intestines also, and this in particular, "that the bowels in the "beginning were a little costive, but after some time very lax; and that the "aliments, which had been but just taken in, were, for the most part, discharged, without the patient's being sensible of it." And for this reason I subjoin my observation which is as follows.

7. A woman who was more than fifty years of age, had fallen three years before from a hæmorrhoidal affection, as she herself said, into a much more grievous disorder of the rectum, on account of which she was, at length, receiv'd into the hospital of incurables, at Bologna, about the end of the year 1704. Valsalva having only ask'd questions of this woman, without so much as introducing his finger, to examine the rectum, immediately pronounc'd her disorder to be incurable, and, turning to me as I stood close to him, said, this is a disorder of a similar kind with that which I found at Faenza, some months ago, when you were there with me (k), that is to say, a glandular tumour occupies the circumference of the rectum here also. And this woman, although with the other symptoms of this disorder, she perceiv'd no pain, discharg'd, nevertheless, a great quantity of foetid matter, sometimes thin, and at other times pretty thick. Wherefore, being brought to the last stage of a consumption, she died within a month, or two, from her coming into the hospital, after fevers which attack'd her with a chillness.

The intestinum rectum being laid open longitudinally, and display'd, I examin'd it, and found it in the following state. At six or seven fingers breadths above the anus it began to become pretty hard, and thick, and to swell out, every where, from the surface, internally, into bodies, which, in their figure, and size, resembled very large beans. They were all smooth in their surfaces, but of a solid and compact substance. The hardness and thicknes of the intestine, and the bulk of those bodies, which were more nearly similar to conglobate glands, than to any other bodies, and in their colour also, as well as in their size, and figure, were proportionably increas'd, as you came nearer to the lower part of the canal. Yet the lower part of the intestine, as far as it could be cover'd with the breadth of a finger, was found,

(g) A. 1742. hebd. 35. §. 3. n. 1.

(h) A. 1744. heb. 2. §. 3. n. 2.

(i) Act. n. c. tom. 2. obs. 65.

(k) Vid. n. proximo superiore.

and from the very extremity of the anus hung two excrescences, at the same time that the cutis was slightly ulcerated about the anus.

8. Now in order to perceive that Valsalva's observations, and mine, differ less from those of Ruysch, than, perhaps, appears at first sight, compare them together, and you will find that the first patient of Ruysch, also, had excreted (*l*) the intestinal fæces, with "an ichorous, and purulent matter," and that the disease of the second (*m*), was, by some physicians, thought "to be the piles:" both of which happen'd likewise in most of our patients. And indeed I believe that one principal reason, amongst others, why this disorder, though, perhaps, not very rare, has been known to very few; nor has been found out, for the most part, till very late in the disease, when the finger was at length introduc'd, is that the patients, and the physicians, generally suppose no disease to be concern'd in the case, but the piles. And for this reason, in that second case of Ruysch's it was resolv'd, that they should be taken away by incision, which was even attempted, but of course without effect. And, indeed, even if that kind of disorder which I have describ'd, were of such a nature, that it could be remov'd by the chirurgical knife; yet the very seat of the disease, as it has been seen by Ruysch, and by us, is often so very high up within the intestine as to leave no room to admit of such a method of cure.

However, that ancient opinion, which is circulated together with the books of Hippocrates (*n*), does by no means escape me; I mean, that "the *intestinum rectum* may be cut, and repeatedly cut, may be sew'd up, may be burnt with actual, or potential cauteries, and may be slough'd away afterwards, and yet, notwithstanding these things may seem so very violent, they will have no mischievous consequences." But, at the same time, neither does it escape me, that this dogma is, by the most skilful surgeons, generally refer'd to that part of the intestine, from the more deep incision of which most of the ancient surgeons abstain'd, lest they should cut asunder the sphincter ani, and take away its power, and office, for ever. And if this fear had not been, in great measure, remov'd, by the observations of others, I could have assur'd you of my having heard Valsalva say that he, by making the experiment upon dogs, had found this sphincter, when cut asunder through the whole of its thickness, to have again recover'd its power, and perform'd its office, though not so strongly as before, and that he had observ'd the same thing, in the human body, on some occasions.

I have also read, in a certain paper of his, which was written after this time, that a man had been cur'd by him, in the year 1708, in whom an abscess, and a gangrene, that succeeded thereto, had eroded part of one buttock, together with that whole portion of the sphincter, which corresponded to it, so that the fæces were discharg'd involuntarily: that this man, though in consequence of these disorders, he was brought to the very threshold of death, had escap'd, and his ulcer being perfectly heal'd up, that the sphincter had return'd to its former state. But, notwithstanding the truth of these things, the farther you go up, above the sphincter, so much the more dangerous the incision will be, whether, some larger blood-vessel being hurt thereby,

(*l*) Obs. *ibid.* cit. 95.

(*m*) Obs. 96.

(*n*) L. de *Hæmorrhoid.* n. 1.

you may not be able to stop the flux of the blood ; or some nerve, being prick'd, give rise to that mortal pain, which our Fabricius has observ'd (*o*), and which seems to have proceeded from this cause ; or, finally, whether, neither the artery, nor nerve being wounded, you only perforate the intestine, and by this means open an exit for the fæces into the cavity of the belly : for who is able to avoid these dangers, in blind and dark incisions ?

9. For these, and for other reasons, therefore, which are of themselves sufficiently manifest, when there is not room to attempt an efficacious cure, it remains that with Ruysch (*p*), and Valsalva, we necessarily embrace that which is call'd *palliative*. The first commended emollients, and glysters, that alleviate pain. Nor did the other disapprove of them, unless they flow'd back immediately : for which reason, he rather recommended the injections of small quantities, and frequently, and even to bury in the rectum, as far as the patient could bear it, without uneasiness, the tube through which these clysters were convey'd, and which should be properly perforated, laterally, so as to suffer the fluid, that it convey'd, to come to the very seat of the disorder : he also, on the same plan, advis'd to use a bath of an emollient, and lenient nature, and to keep a pipe of this kind in the rectum, while the patient sat over the bath, so as to admit the fluid into immediate contact with the diseas'd parts.

However, the fluid that he recommended, to be us'd for this purpose, was different according to the different state of the disease ; sometimes he us'd lime water more or less diluted ; sometimes the water of that warm bath, which is above Bologna, and which he sometimes also gave for drink ; and, at other times, when he suppos'd there to be no ulceration join'd to the other disorders, he medicated common water, by boiling in it such ingredients, as he thought would be of most service.

So he also prescrib'd various remedies to be taken internally, and among those the turpentine-resin, after which was to be drunk a water, medicated with vulnerary herbs, (with which he sometimes mix'd this resin dissolv'd in the yolk of an egg, and us'd it for injections) ; but, sometimes, when the season of the year was very warm, he omitted the resin, and made use of water, in which the same, or other herbs, had been occasionally boiled, but in small quantity only, in proportion to the water ; so that a very free use might be made of it, almost like the warm bath waters ; and he would even have it drunk by way of common liquor : but in the winter he recommended wine at the table, and that of the domestic kind, in which, at the autumnal season, when it fermented in the cask, such roots, woods, and leaves, as he thought to be most suitable, had been macerated.

Hithertò I have follow'd the advice and example of both these gentlemen, in such a manner as to recommend some of these remedies, in preference to others, and, in general, to mix with them such medicines, as are effectual against the venereal disease, inasmuch as I have observ'd that a disorder, of the venereal kind, has been generally accusom'd to precede the disorder of which I treat ; and still less did I omit such things as I have known to be, sometimes, of great service, in dissolving hard tumours. For I believe that

(*o*) De chirurg. oper. c. de an fistul. in fin.

(*p*) Obs. cit. 96. in fin.

these ought to be us'd more frequently than those which are properly emollient, lest it should happen, that the fibres being too much relax'd, the parts yield to the matter that falls upon them, and the tumour being, by this means, increas'd, all passage for the excrements is intercepted: and, in like manner, we are to endeavour that these may be soft, lest, being hard, and large in their dimensions, they serve as an obstruction to their own exit, through a passage, which is already too narrow, or lest, if they do pass through, they should cause, by their violent compression upon the tumour, pains, and ulcers, or if there are any already, increase them; yet we must not, for these very reasons, use such medicines, in order to bring this about, as are either in themselves acrid, or may solicit a quantity of acrid humours towards that part.

10. There are two disorders, which are the consequences of that costiveness, upon which I have written to you this short letter, the one more frequently, which is the disorder of the hæmorrhoidal vessels, commonly call'd piles, and the other not very rarely, I mean the prolapsus ani. In regard to the latter, as you knew there was no section in the Sepulchretum, on that subject, it is for this reason, I suppose, that you have, so long since, earnestly entreated me to communicate to you, a long opinion which you had heard was written by me, and this, such as it is, I will send you in the next letter upon the hæmorrhoidal affection, however, there is a section in the Sepulchretum (7); but so short is it that, if you take away the scholia, it scarcely fills up half a page. For which reason I choose to add some things here, upon the subject of the piles, rather than, when I come to that section, write a whole letter upon it, especially as among the observations of Valsalva, or among mine, we scarcely find any dissections, which properly relate to these diseases. Therefore, as to costiveness of the bowels, frequently bringing on the piles, as I said just now, it is not to be doubted, and it is thus explain'd by Boerhaave (r), that in the straining necessary to discharge the fæces, "the intestines are compress'd, the arterial blood is circulated more briskly, the venous is retarded, and even stagnating in the vessels of the" *intestinum rectum*, putrifies, and by this means brings on a disposition to "the piles."

I am not ignorant, however, that the blood stagnates in the veins of the same intestine, from other causes also. For as the most internal of these veins, finally terminate in the trunk of the *vena portarum*; if it should happen that these veins, either in their passage, or in their termination, or even in this part, should be, for a considerable time, streightened, or press'd, by the convulsion, distention, or obstruction, of the surrounding parts; it is natural to suppose that the blood would, certainly, be too long detain'd in these veins: so if the mesentery be convuls'd, or if the intestines are too much distended with flatus, or if the liver be obstructed, the same thing may easily happen. And of this kind is the observation of Vesalius, which is the first, and at the same time the principal, of those three that you read in the very short section, which I just now pointed out.

(7) L. hujus 3. sect. 15.

(r) Praelect. in inst. §. 774. in fin.

For in him who had labour'd, at intervals, under a flux of blood, from the hæmorrhoidal vessels, the spleen was not the only viscus indurated, as you will perhaps suppose, from turning to the fifth chapter of the third book, *De Fabrica Corporis Humani*, from which, alone, that observation is copied in the Sepulchretum; but "the liver was surprizingly hard" also, as you will learn from the fifteenth chapter of the fifth book, where Vesalius gives the same case a little more at large, and, at the same time, you will understand, or at least in part, the real cause why the internal hæmorrhoidal vein "was equal nearly to the thickness of a man's thumb, at the extremity " of the colon, and through the whole length of the rectum;" which in his time he could not understand.

Without doubt, it was not very easy for the blood to pass through a liver of that kind. But why then, you will say, did it not stagnate, equally, in the other veins, which go to the trunk of the vena portarum? And for this very reason it was, that I said you would immediately understand it, or at least in part. Add therefore, to omit other things, the very great length, which is peculiar to this one vein among the others, so that it is much more difficult for the blood to be carry'd upwards, from this vein, than from the others, especially as the situation of the human body requires it, which, without doubt, is one of the reasons, why other animals are not subject to the piles. And if you ask why, in those bodies, in which there is any impediment to the quick motion of the blood upwards, the veins of the legs in particular are dilated into varices, you will find the same thing to be the cause, of them chiefly, which we assign for the piles.

You see, even in the Sepulchretum (s), that Walæus expressly asserts the piles "to be nothing else but varices of the veins of the anus." And you will find Boerhaave confirming this opinion, in another place (t), where he has declar'd the same things which I copied from him just now, but more at large, and without the least mention of putrefaction. And how much these veins may be dilated, I observ'd in a certain man (u) of a good habit of body, but inclin'd to be plethoric, who died at Bologna, in the year 1706, of a wound under the axilla, and whose body I dissected. The extremity of the intestine, in this man, appear'd to have been subject to the piles, as it was internally unequal with varicous knots of veins; and as I look'd upon the largest of these veins very attentively, I wonder'd that none but the smallest blood-vessels communicated with it, though itself was distended with a large quantity of grumous blood; so as to make it evident, that some very small vein had been expanded, into so considerable a size.

II. That these things therefore, may not happen, which it is well known do by no means happen, without severe pains; and especially at the time of going to stool, if these varices are really turgid, and not yet ruptur'd: or if they are ruptur'd, not without a hæmorrhage succeeding, which is sometimes immoderate, and leaves such consequences behind it sometimes, as have more than sufficiently shown us, that the piles are not greatly to be desir'd; in the first place a plenitude is to be avoided; for in men there are not passages pre-

(s) In schol. ad 1. obs. sect. cit.

(t) Prælect. cit. ad §. 112.

(u) De hoc vid. epist. 44. n. 22.

par'd by nature, for the superfluous blood to be conveniently thrown off, as there are in women, in whom it was necessary; but they must be open'd by disease, which is then sometimes salutary, but often dangerous, and always inconvenient.

In the second place such things ought to be avoided, as render the belly very costive; and I do not only mean to avoid taking in a great quantity of styptic, and astringent juices, which by crisping up the minute orifices of the glands, that moisten the intestines, and their contents, do not suffer a sufficient quantity of moisture to be discharg'd; but I speak even of the custom of eating, and especially of drinking, much more sparingly, than nature can bear. Thus we read in the life of Sarpi, that as he, when a young man, ate very sparingly, and drank nothing, even for many days, he fell into an obstinate costiveness, in consequence of which, he not only went to stool no more than once in three days generally, but sometimes only once in seven, and, in order to do that, was oblig'd to use such violent strainings, that brought upon him great pains from the piles, and a troublesome prolapsus ani, under which he labour'd for many years.

But if, notwithstanding those things, that I have caution'd you against, being avoided, and others of the same kind, the intestinal faeces still continue to be very hard, and the more frequent use of emollient food, is not of advantage against this costiveness; there is, perhaps, no remedy to be prefer'd, for preventing the piles being the consequence of these strainings, to that which I see is us'd by physicians of note, in order to prevent their being so painful, at the time of going to stool, when they are already form'd in the intestine. They inject, before the time of going to stool, an ounce of any emollient oil, and, in particular, linseed oil: which I have also been accusom'd to use frequently, and successfully, (when the hard excrements are to be soften'd, and the lower part of the intestine to be lubricated) nearly in the same quantity, or at least not in a much greater, lest it immediately flow back, and even that it may be for a long time retain'd: although I have sometimes prescrib'd olive oil in this manner, from the very time in which Ramazzini inform'd me, that in the case of a woman in child-bed, who, for seven days together, had never gone to stool, after a great number of different things had been tried in vain, it came into his mind, which he said, if I remember rightly, he had read in Martinus Rulandus, that two ounces of common oil should be injected every hour, and that by this means he had procur'd a discharge.

12. The mention of this remedy brings to my mind another, which I have heard was applied by an illustrious woman, who had been troubled, for a long time, with a tumefaction of the hæmorrhoidal vessels. As she came hither for the sake of consulting me, after I had examin'd them, I ask'd her, by what means she was able to put them up again as they were so swelled, without almost intolerable pain; she immediately answer'd, that she, after having made trial of a great number of things, had found nothing more useful, than the fat that lies about the kidneys of a dog, which has yellow, or redish hair. That with this fat, properly prepar'd for the purpose, she anointed the piles when they were push'd down, at the time of going to stool; and, by this means, had been us'd to push them up, for a long time, with-

out pain, or at least with much less pain than she otherwise could, from the very time that others, having made the experiment, communicated it to her as a secret.

Indeed I had before known that physicians, sometimes, made use of the fat of a dog, and not only the external, but the internal fat, yet the use of it for this particular purpose, and of that which is taken from a particular part of a particular dog, I do not remember ever to have heard of, or seen. It is much more easy to assign a cause for the utility of the two methods that I shall relate to you; for they are much more in common use, although not made use of, or at least in general, against the same disease, nor in the same manner. That is to say, I saw Albertini alleviate the violent pain of the tumid hæmorrhoids, in a certain nobleman, by applying to them the internal parts of gourds, or by injecting water in which these had been boil'd: and from another nobleman of the first rank, and character, who had lately held the office of vice-roy, when he came to me, to ask medical advice for his children, I heard, on occasion of the piles being mention'd, that flannels steep'd in warm water, in which linseed, and the slic'd roots of marsh-mallows, had, for a considerable time, been boil'd, being now and then applied to the parts, he had so far found advantage by them in this disorder, that they not only alleviated the pains, but if they were applied, immediately upon the beginning of them, did not suffer the hæmorrhoidal tumour to increase, and, consequently, did not suffer the piles to burst, and cause a considerable loss of blood.

But where this hæmorrhage was in too great a quantity, Valsalva, to return to the physicians, commended three things, in preference to others, from which it had happen'd that he had seen surprizing effects: the first, to anoint the umbilical region with fresh theriaca, in which opium has been mix'd in the proportion of four, or even of six grains, if the flux is considerable, to about six drams. The second was to apply vitriol reduc'd into a calx, which is call'd by chymists colcothar, to the part from whence the blood flows. The third, to take care that the patient should press the lower part of the intestine downwards, if perchance, as sometimes happens, the open foramen of the sanguiferous vessel may be brought into view: and then to apply a little piece of vitriol, fitted in the orifice of a pipe, as painters are wont to apply the hæmatites, to this foramen, and to continue it there for a little time, till it bring on a crust. And in this order, in which he propos'd them, he would have them be applied, one after another, that is to say, where the former had not answer'd their end.

13. And because the question is not here of new remedies, or of unusual methods of cure, but of those which, from the testimony of illustrious patients themselves, or that of grave physicians, have been found useful, and, in particular, of the method us'd by our Valsalva; I will also add this, as you desire to know it. If he happen'd to light on a patient, who was not very desirous to undergo any chirurgical operation, in order to prevent his being subject to an immoderate flux of blood, from the hæmorrhoidal veins, in the future, it was not his custom to follow, unless perhaps in a recent disorder, and indeed by another method of cure, I say, it was not his cus-

zom to follow the author of that little book entitled (x), *de hæmorrhoidibus*, which teaches us, "that we ought to leave no hæmorrhoid, or pile, unburnt, but to destroy them all by burning;" he rather follow'd the author of the sixth section of the aphorisms, who admonishes (y) "that if, in a person who is cur'd of piles, that have been of long standing, one of them is not preserv'd, there is danger that an anasarcaous dropy, or a consumption, may come on." For this he took great care of, even in curing ulcers of the anus. Thus, once when he show'd me a certain person who had labour'd, for sixteen years together, under these ulcers, and who was, even then, extremely well, though it was in the eighth year after his cure; one ulcer, said he, which was less troublesome than the rest, I purposely left untouched.

And I remember, when it was a matter of controversy whether the disorders, with which two knights, of distinguish'd rank, were troubled, were piles, or ulcers, that he immediately show'd them to be ulcers, in both of them. For in one of them, having introduc'd his finger, pretty high up in the rectum, he pointed out to the others, the certain situation of the ulcer, as the apex of his finger being receiv'd into the orifice of it, seem'd to be embrac'd around, with a kind of ring as it were; for in this manner he assur'd them, that the ulcers of the rectum, or vagina, were frequently found, so that a narrow mouth is dilated into a more capacious sinus. And in the second, without introducing his finger, he not only show'd that there was an ulcer, but also that it was not very high up; for there were some, among the others, who suppos'd that what was excreted, was a mucus press'd out from the glands of the rectum, which are pretty high up in the intestine. But these he easily convinc'd, even by the testimony of the patient himself; for as he confess'd that this matter flow'd from him continually, it follow'd of course that the original springs of it could not be above the sphincter. And as this matter, even in the opinion of Valsalva himself, whose judgment, in an affair of that kind, was known to be peculiarly excellent, was without any hesitation pronounc'd, and even demonstrated, to be purulent, there now remain'd no doubt at all, but it was to be accounted for from an ulcer. And they so much the more esteem'd his judgment, in this case, as it was well known to every one, that he was extremely clear, in regard to those things which are also taken notice of, in the scholia to that first observation (z) of the fifteenth section, of certain mucous, and whitish sordes, sometimes proceeding from the anus, which, although they have impos'd upon some, and been taken for pus, yet are known, by the most learned physicians, to be excreted from the hæmorrhoidal veins, just as a fluor albus (which was the comparison of Platerus, who is quoted in the same scholia) is often secreted from the vessels of the uterus, without any suspicion of an ulcer. And this will be easily explain'd by you, in the same manner that you see, an uterine fluor, of this kind, explain'd by me, in the fourth of the Adversaria (a), that is to say, if you conceive that the apertures of the vessels, which, when in a more dilated state, pour'd out red blood, being now more con-

(x) N. 1.
(y) Aphor. 12.

(z) Supra, ad n. 10.
(a) Animad. 27.

string'd, though not altogether, do not suffer the red part of the blood to escape any longer, but only the serum of it, which is, of itself, viscid in some persons, or becomes mucous by stagnation, and that this distills gradually, or passes downwards, when press'd out by the excrements. And thus far I had to add on the subject of the piles.

LETTER the THIRTY-THIRD

Treats of the Prolapsus of the Intestinum Rectum:

THERE is not only no section in the Sepulchretum Anatomicum, upon the prolapsus of the intestinum rectum; but even no anatomical observations are extant any where, as far as I remember at present, which relate thereto. And since upon these, as upon a firm basis, all the solid reasonings of physicians, about the internal origins of diseases, or their continued causes, are generally founded; it is for this reason not to be wonder'd at that no treatise has ever yet been publish'd upon this disease (for no such treatise has fallen into my hands at least, though treatises have been publish'd upon more rare, and much slighter disorders) which might serve as a guide to any one, whose business it was to write upon this subject, and lessen his labour; for this subject ought not to be handled in a hasty, and confus'd manner.

I never found myself more in want of a treatise of this kind, than when I was ask'd to give the opinion which I have promis'd, in consequence of your long-continued entreaties, to send you a copy of in this letter. And I send it to you just as I then wrote it, its translation from the Italian language excepted. And I know very well, that the discourses upon diseases, which are requir'd by way of opinion, either almost immediately, or, within a very few days, by the friends of the patients, can have, when drawn up by me, no merit but that of dispatch. For which reason I give copies of them to none, but to those for whom they are intended: and from these persons, must have come those copies of opinions of mine, which you tell me you have read in great number; unless some have been falsly and surreptitiously taken, by those whom I employ'd as copists, as I see has sometimes happen'd.

But, although this which you will have at present, is not very much approv'd of by me, and though I had rather have sent any other; yet if it will not serve to shew, how to distinguish those opinions which are really mine, it will, at least, show you the greater part of those things, which I would wish to have enquir'd into, by anatomists, in relation to this disease. For this purpose then, it was written, and in the following manner.

2. I wish

2. I wish the internal causes, by which the disorder of this noble, and very learned, man was first brought on, and by which it is still preserv'd, were as evident as the disease itself, and the cause which increas'd it; and, what is of still greater importance, I wish that the most effectual methods of remedying this disease, were as well ascertain'd as the disease itself.

The disease of which I speak is a prolapsus of the intestinum rectum: and the cause by which it was increas'd, was a violent and long-continu'd straining at the times of going to stool. But in what manner it was increas'd, by these strainings, from whence it had its beginning, and what its beginning was, and by what causes it is still preserv'd, or, as the language of physicians is, continu'd; all these circumstances, especially at so great a distance of times, and of places, it is very difficult for me to subjoin, and to know almost impossible. But if there were any one who had been able to observe the symptoms, and crises, of that obstinate, and troublesome fever, to which the beginning of this disorder succeeded; and to consider, accurately, at that time, and when it was afterwards increas'd, and at this time also, of what nature the upper, and lower, extremities of the tube, which came forth, were, and what was its *consistence*; it would perhaps have been less difficult for him to conjecture the true causes of the disorder.

3. These causes, if they are even only consider'd jointly, may be many, and very different from each other. That very learned fellow-citizen of mine, Hieronimus Mercurialis (*a*), and Ambrose Parey (*b*), assign one cause in particular, I mean the relaxation of the sphincter ani, which suffer'd the intestine to come forth. But medical experience does not easily suffer me to assent thereto, as thereby I am taught, that a prolapsus of the intestine does not, immediately, succeed to a true paralysis of that sphincter, but only after some time has been interpos'd: and in our patient, in particular, I understand, how strong this muscle still is, so that it resists every other even violent motion. But Joannes Riolanus (*c*); I mean the father; adds to the relaxation of the sphincter, that of the relaxation of the levatores ani also: and this the greater part of physicians admit. However, that this was the case in the present instance, and had been so from the beginning, I would neither boldly deny, nor for a certainty affirm. I only say this, that if it was so, it certainly was not the only cause, after the disease had continu'd some little time. For I know from anatomy, that the part of the intestine, which can remain without the anus, from this cause alone, that it is not rais'd by these muscles, is the lower part, and only of the extent of a few inches; and that the part which lies above this cannot hang out for that reason, to the extent of eight or ten inches in length, and even to sixteen or twenty, if it be consider'd, that, by being inverted outwards, it must be in a double state.

4. It becomes necessary therefore, to look out for other causes, and in particular that, amongst others, which was hinted at, by the learned physician who consulted me; I mean the separation of the intestine from the mesocolon, or some other cause, which amounts to the same thing, and which happens more easily; as for instance, a relaxation, gradually brought on, of

(*a*) De morb. puer. l. 1. c. 10.

(*b*) Oper. chirurg. l. 7. c. 18.

(*c*) Meth. med. sect. 3. ubi de Ileosi.

the latter part of that mesocolon, which serves as a ligament to the rectum, and to that nearest, winding, and moveable, tract of the colon, into which the rectum terminates.

It does not escape me, that, to some very modern professors of medicine, it does not seem probable, that the whole body of the intestine should come forth, considering the firmness of its ligaments, and its close attachment to the vagina uteri in women, and to the neck of the bladder, and the neighbouring parts, in men, and considering an observation, besides, which they quote from Cowper (*d*), of a man, who, after a long continu'd prolapsus ani, and, at length, a sphacelus of the prolaps'd intestine, from too great intemperance, although he had undergone an extirpation of the corrupt parts, which hung down, not only recover'd his former health, but even liv'd quite free from the prolapsus. They, therefore, and the celebrated Junckerus (*e*), believe that the whole body of the intestine is not relax'd, but only the internal part, and that this, being thicken'd, is inverted, and push'd out: and I would not deny, but that which is suppos'd to happen in the prolapsus of the uterus, or, rather, in the more frequent prolapsus of the vagina, that many improperly confound with the prolapsus of the uterus itself, which is indeed very rare, is favourable to their opinion.

But, although I am not unappriz'd, how much membranes, that are drench'd, as it were, with moisture, may be relax'd, thicken'd, and made long, yet when I read over what our Fabricius ab Aquapendente (*f*) asserts his having seen in some persons, that is to say, “a *procidencia ani* so long, as “to be equal to the length of the fore-arm, and so thick, as to be equal to both the arms join'd together” (which passage, perhaps, had escap'd Junckerus (*g*), when he judg'd that a prolapsus, mention'd by Muralt (*h*), of an equal length, “almost exceeded all belief”); when I read, therefore, such things, I seem inclin'd to believe, in some certain cases, with the celebrated Polycarp Schacher (*i*), that the thing happens neither in that first, nor in the second manner, but rather in the third which is propos'd by him.

That is to say, the lower part of the intestinum rectum, which I have said to be firmly connected with the neighbouring parts, being unmov'd, the other part, which is superior to this, falls within it, together with the fæces, and being inverted, comes forth on the outside of the anus. For it is sufficient that the mesocolon is there relax'd, where it confines the rectum; or if the prolapsus is very long, that it is relax'd in that place besides, where it belongs to the neighbouring moveable, and winding tract of the colon, which being, in some persons longer, and in others shorter, as I have said in the third of the Adversaria (*k*), so it may be more or less extended, and descend, and suffer the rectum to be prolaps'd. But if this additamentum of mine were not sufficient, I should then, moreover, think of another, as if besides those three methods mention'd above, a fourth might be propos'd, according to which, what I just now spoke of, in the third, might happen, and the internal coat besides, as was said in the second, being re-

(*d*) Anat. of hum. bod. 601. t. 39. f. 7.

(*e*) Consp. med. tab. 110.

(*f*) De chir. oper. c. de ani procid.

(*g*) Tab. cit.

(*h*) Eph. n. c. dec. 2. a. 1. obs. 113. in schol.

(*i*) Disp. de morb. a situ intest. p. n. c. 2. §. 3.

(*k*) Animad. 6.

lax'd, inverted, and falling down, might come forth through the lower extremity of the prolaps'd intestine, and increase the length thereof, by being added to it.

5. It is not my custom, indeed, to use very long harangues in the theoretical part of medical opinions, for I am not ignorant that most patients are like the empirics, who do not doubt, as Celsus says (*l*), "that these conjectures, upon occult causes, are very little to the purpose, because it is of "no importance what has produc'd the disease, but what will remove it." Yet in this case I thought proper to proceed differently, not only because the patient, who requires this opinion of me, is very learned, but also because, notwithstanding some animadversions, which I may deduce from those things that I have hitherto said, would not perhaps show the utility of what I have advanc'd, contrary to the opinion of the empirics (without doubt as the prolapsus of which I speak, may be join'd with one, or with another, or with many of the causes that I have hinted at, and as it is not in my power, for the reasons I gave in the beginning (*m*), without the greatest difficulty, and consequently without very great danger of erring, to determine with which it really is join'd) it is necessary, at least, to gather by a kind of induction, which is what I am at present doing, that it is always probable, whether there be, in this case, one, or another, or many, of these causes join'd together, that it consists in a kind of relaxation, and this a relaxation which began twenty years ago and more, as the effects of it show, and was afterwards gradually increas'd.

6. And as from this induction an indication arises, of restoring to the relax'd parts that first and proper measure of rigidity, or closeness of connection, their former situation, and firmness; so no person, whatever, who is even slightly vers'd in medical affairs, can fail immediately to perceive, that it is very difficult, not to say impossible, to bring this about. And if, as Galen has in general taught (*n*), disorders of the anus, or fundament, "are "very difficult to be cur'd," which was, perhaps, the reason why some physicians, formerly, plac'd all their study on the cure of these alone (*o*), with how much more difficulty must this disorder, which is so stubborn, and of so long standing, admit of a cure? Indeed I do remember to have read of other, more considerable, prolapsuses being cur'd, as that was which I have spoken of from Muralt (*p*). But I do not remember to have read of an inveterate prolapsus, or one which had afflicted the patient for twenty years, being got rid of. For which reason we ought to be satisfy'd in the present case, if as the relaxation cannot be remov'd, we can, by means of the palliative method of cure, as it is call'd, prevent the daily effects of it, or render them less considerable, and more tolerable: for these effects are not only of importance, by reason of the uneasiness they give, but because they increase the disease, and also because there may be the highest danger, at one time, or other, either from the prolaps'd part being very much increas'd, or not being early replac'd, or injur'd from being expos'd to the air, or finally, from its being

(*l*) De medic. in præf.

(*m*) N. 2.

(*n*) De comp. medic. sec. loc. 1. 9. c. 6.

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(*o*) Vid. l. Galen. adscr. de partib. art. med.

c. 2.

(*p*) N. 4.

Q

but

but little confin'd by the sphincter, which in a course of time may be relax'd, and particularly, at that time, when the strength of the constitution, being broken down by age, will be less able to resist this relaxation, or prevent that which is already present, from being farther increas'd.

7. But as I find that the most powerful medicines, whatever, have been in vain apply'd, to remove this relaxation; so I likewise see, that in the palliative method of cure, many and various instruments have been made use of in vain, against the effects of it; and that, for this reason, others are requir'd of me, and, in particular, a description of that which is said to have been invented formerly, by that very ingenious monk Paul Sarpi. But I fear lest all these which are known to me, may at length be refer'd to those, which have been already made use of; if we consider that which is the principal; and amongst these that of Sarpi also, since I find no description of it but this, which we read in Rhodius (*q*): "the piles being return'd back in-
" to their places, so as not to fall down again, let them be kept there with,
" an iron ring aptly applied: which many have receiv'd great advantage
" from, and ascribe its invention to Paul Servita, a Venetian, and a man of
" great ingenuity. This ring is enclos'd, on each side, with soft leather,
" which is fasten'd towards the perineum, and the buttocks, by bandages
" that are sew'd to each of its four heads, being connected with a linen girdle,
" that goes round the waist."

The instrument of Sarpi, therefore, is of the same kind with the rings that have been already made use of: and that which, not to mention the *tabula angustissima* " of Hippocrates (*r*)," is recommended by Riolanus (*s*), and by two others among the French, Blegny (*t*), and Dionis (*u*), and before the latter, even by Muralt (*x*), that is to say, a tablet pierc'd through with a foramen of such a kind, as not to suffer the intestine of the patient to pass through, when he goes to stool, is upon the very same plan: and this tablet Muralt order'd to be enclos'd in a blue cloth, dyed with indigo, not what comes from Madagascar, but from the Caribbé Islands. And what Pairey recommends, amounts, at length, to the same thing, though without the application of any instrument, when he says (*y*), " if the patient could discharge the fæces, in an upright and standing posture, the intestine would
" never be in danger of being thrust out, by the straining."

But as the patient, whose case is now propos'd to my consideration, cannot unload his bowels, unless, setting aside every kind of artifice whatever, he suffer the intestine to come out; I seem to be throwing away my time, if I do not endeavour to invent any other artifices of that kind, and do not rather inquire into the cause, why the use of instruments, of this kind, is, in the present case, without any advantage, so that this cause being known, either the ingenuity of some skillful surgeon may be excited, to find out one of a quite different nature, which might be useful, or if be it found, upon the inquiry, that this cannot be done at all, that the part affected may, hereafter, be troubled with no instruments whatever.

(*q*) Cent. 2. obs. med. 94.

(*r*) De fistul. n. 4.

(*s*) Sect. cit. supra ad. n. 3.

(*t*) L'art. de guérir les hern. p. 2. f. 2. c. 8.

(*u*) Cours d'oper. de chir. dem. 4.

(*x*) Schol. cit. supra ad n. 4.

(*y*) Cap. cit. supra ad n. 3.

8. And first, it is not to be suppos'd in the present case, that the intestine is, necessarily, to be suffer'd to come down, because the excrements are so thick and hard, that they cannot pass through those instruments which I have spoken of; for if this had been the case, it would have been provided against long ago, and absolutely prevented from happening, either by a suitable diet, or by solutive medicines, or by the injection of a small quantity of a liquor, proper to lubricate, and soften. It therefore remains, that the relaxation of the whole intestine, or of its internal coat, must be suppos'd so considerable, that the one, or the other, descending, when push'd down by the excrements, in a great number of large rugæ, laid one upon another, form something like a valve, especially as often as being retain'd by any kind of artifice, it cannot altogether extend, and unfold itself, and by this means give an open passage to the excrements. And if this be the real state of the affair, all artifices of that kind are to be remov'd; for as, by this means, that part of the intestine may be compress'd, betwixt the fæces which are increas'd above, and the instrument, no advantage can be expected from thence, but even a very considerable injury may, at some time or other, be fear'd.

Instead of these instruments then, a new one should be sought after, which might not only support the lower part of the intestine externally, as the former have done, but might, at the same time, reach so far, as to be able to support internally, and opportunely dilate, the relax'd parietes, that they may not, by being inverted, and push'd before the fæces, in the form of rugæ, or valves, stop up the passage of these fæces, when they are about to be discharg'd. It would be necessary, that this instrument should be of such a nature, as to render it easy of insertion, into the intestine, and should be moderately, and gradually dilatable, as soon as ever the necessities of nature may begin to require, nor should there be the least danger of its injuring the intestine, either laterally, or in the upper part of it, but particularly in the upper part: to prevent which danger, all the upper parts of the instrument might be invested, before its introduction, with the soft and fresh intestine of some little animal.

The well-known contrivance of those instruments call'd specula, which surgeons us'd to dilate the vagina uteri, and even the intestinum rectum itself, might perhaps, to a prudent, and skillful, contriver of instruments, supply a much better, and less disagreeable, idea of this instrument, with which it would be sufficient to keep that part of the intestine extended, that is easily dilated, I mean the part which is above the sphincter; and to leave no larger a passage open through this part, that most resists dilatation, than would be sufficient for the soft, and almost fluid, excrements to pass through; for care must be taken, by a suitable regimen, to keep them, constantly, in such a state.

But as I well know that most machines, when apply'd to their uses, generally correspond but little with the expectation of the inventors, and as in this case, in particular, I see what disadvantages might arise, not only if an un-experienc'd hand should introduce the instrument, and dilate the intestine, but also from the frequency of the introduction, and dilatation, and even from the very motion, and compression, of the intestine, while the fæces

should be expell'd; and as I cannot know, for a certainty, that the relaxation does not begin higher up, than the instrument can reach, I profess that I have enter'd into this discussion, with no other intention, than to excite others to look out for a more natural, and commodious idea: and if it were certain, that this could be reduc'd into practise safely, and without suspicion of any danger, it would then, indeed, be neither improper, nor perhaps useless, to make the experiment thereof.

9. But if, as I am very much afraid, on account of the causes just now hinted at, it should be taken for granted, universally, and not without reason, that in the palliative cure, there is no room for the trial of any instrument whatever, then nothing would remain for medicine to do, but to examine, whether in the methods of cure, which have been already made use of, in order to remove that relaxation, any remedy had been omitted, by which, if the disease could not be overcome, it might at least be in some measure diminish'd.

10. Many assistances were formerly taken from surgery against this disease. Riolanus (*z*) recommended two cupping-glasses, to be apply'd, one to each side of the lower part of the os sacrum, or to the buttocks, as Schacher (*a*) mentions, who expected some advantage from thence, when the chief cause of the disease consists in the muscles of the anus being languid. Yet I have no more expectation from this practise, than from two cauteries being apply'd to the lower part of the spine, which Mercurialis (*b*), following the sectaries of the Arabians, has propos'd, and Marcus Aurelius Severinus (*c*) has confirm'd; unless, perhaps, they ought to be apply'd in a person whose habit of body was very different from that of our patient's, and in whom the prolapsus had been brought on, or continu'd, from too great an afflux of humours to the part.

But as to the famous remedy of that ancient surgeon Leonida, whom the celebrated man, Daniel le Clerc (*d*), supposes to be the same with Leonides, the physician spoken of by Cælius Aurelianus (*e*), under the title of Episynteticus; I will neither omit the opinions of others, nor conceal my own. When diet, therefore, had been of no advantage, nor medicines had contributed any thing to the alleviation of the disorder, and the evil was now grown inveterate, Leonida judg'd it to be necessary, and not at all dangerous, to burn the external, and extreme, part of the anus with some cauteries; for that, by this means, a solid cicatrix succeeding, the anus would be constring'd all round, and the prolapsus remov'd. These things may be read somewhat more clearly, and distinctly, in Aetius (*f*), who has preserv'd, and handed down to us, this, and other curative methods of Leonida: and this method has been taken notice of by Fabricius ab Aquapendente also (*g*), and by Riolanus (*h*).

As to Severinus (*i*), he not only mentions it; not only confirms, by many observations of his own, that the actual cautery had succeeded very happily with

(*z*) Sect. cit. supra ad n. 3.

(*a*) §. 9. cap. cit. supra ad n. 4.

(*b*) Cap. cit. supra ad n. 3.

(*c*) De effic. medic. l. 2. p. 1. c. 50.

(*d*) Hist. de la med. p. 2. l. 4. f. 2. c. 1.

(*e*) Acut. pass. l. 2. c. 1.

(*f*) Medic. tetrab. l. 4. ferm. 2. c. 8.

(*g*) C. cit. supra ad n. 4.

(*h*) Sect. cit.

(*i*) Part. cit. c. 95.

him, when applied to this part, though in other disorders; but he calls the physicians timid, and slothful, because they would not suffer him to apply the same method of cure, to a gentleman of the noble family of the Surgentii, whose prolapsus, like that of our patient, was of twenty years standing, and had, like his, received no benefit from all kinds of medicines.

On the other hand, Blegny (*k*) entirely rejects this kind of cure, as not less troublesome, than unusual, in our present times. And Dionis (*l*) says, that he never saw it, calls the authors of it cruel, and the operation itself horrible, even to those who hear of it: and believes that if there should happen to be any medical practitioner, who would willingly try it, no patient, nor anyone else, certainly, would consent to it, and that with great good reason, because these disorders may be cur'd without it: although it does not at all appear, by what means he could prove this assertion, as he proposes no remedy that seems to be equal to the cure of this disorder, in our patient.

However, it is by no means necessary for me, here, to assent, either to the epithets of timid, and slothful, with Severinus, or to that of cruel with Dionis. For although I do not deny but the method of cure taught by Leonida, may be useful in a small relaxation, when it is pretty low down, and that this is, in some measure, confirm'd by the observation of Cowper, which is pointed out above (*m*); yet in this relaxation that I am speaking of, which is so very considerable, and seems to begin so high up in the intestine, I am very much afraid that it would not be of any great advantage, if it were of any advantage at all.

II. In the mean while, leaving to better judges than myself, the farther examination of these methods of cure, which were formerly made use of by surgeons, I go on to consider a more modern instrument, the author of which testifies its having been very useful in many prolapsuses.

This author is Blegny (*n*), whom I before mention'd, a man truly ingenious. He took the craw of a turkey-cock, and tied the orifice of it fast to one extremity of a short, and slender tube, made of silver; and at the other extremity, he introduc'd a stick, which was blunt, at its upper part, quite to the bottom of that pipe, and by this means, first introduc'd this pipe, and afterwards a proper part of the tube, daub'd over with astringent remedies, into the rectum; the remaining part of it he kept on the outside of the anus, in such a manner, that when he had taken away the stick, and, in the place of it, had inserted into the same part of the tube, the pipe of a small pair of bellows, and had driven in such a quantity of air, as was sufficient for filling the craw, the air could not return before the patient was willing, and being, consequently, retain'd, would support the relax'd parts, and cause by its frequent, and long-repeated use, that they should, as far as possible, recover their former situation, and strength. But it is better to see the accurate description of this instrument, its delineation, and the manner of fixing it, in the works of the author himself.

It is true I agree with Dionis (*o*), readily, herein, that even this instrument is not without its inconveniencies, nor does it answer the end of retaining the

(*k*) Cap. cit. supra ad n. 7.

(*l*) Demonstr. ibid. cit.

(*m*) N. 4.

(*n*) Cap. paulo ante indic.

(*o*) Demonstr. paulo supra indic.

intestine in its situation, at that time, when there is most need of it; I mean when the patient goes to stool; since it must, of course, be then taken out, and soon after be replac'd, when the intestine has been return'd back again. Yet I deny that this instrument produces, as he says, the same effect with bandages, and other external applications. And indeed, excepting the inconvenience, which is not very considerable, and that a cautious, and skilful, hand is requir'd to replace the instrument, I should suppose that it would be not altogether without its advantage, especially in the beginning of relaxations of this kind.

It might even be consider'd, whether, instead of that craw, it would not be better to make use of the soft intestine of any animal, which was furnish'd with slender coats, of such a proportion, as to length, and breadth, as it was convenient, or necessary, to introduce, having the upper extremity closely shut up internally, and being daub'd over externally, with that medicine which I shall recommend below (*p*), to be made use of after going to stool: this intestine being thus sufficiently introduc'd, and air being soon after injected, or even sometimes a liquor of a proper quality, it might be entirely distended, or at least to such a degree, as not to bring on a desire of going to stool.

It is not easy, perhaps, to find a more commodious, and at the same time a more innocent, remedy than this, in order to replace, and retain, in its native seat, the relax'd coat of the intestine, and even the intestine itself, so that by this means the ligaments of the intestine may be eas'd, and, the weight and extension being taken from them, they may have an opportunity of restoring themselves, in some measure, and regaining their strength. However, although I suppose, as I have already said, that in the beginning of the disorder some advantage might be hop'd from thence, and, certainly, more than from the tents, which others apply with the same view, impregnated and daub'd over, with astringent remedies; yet what use may be expected from it, in an inveterate disease, I confess, I do not see.

12. As to pharmaceutical remedies, it becomes me to be so much the more short on this subject, as I am inform'd by the letter of the physician, who consults me, that all the medicines have been already made use of, that could possibly be devis'd, whether of the agglutinating, vulnerary, or astringent kind, or such as help the nerves; and as I see that all the books, both of physicians, and surgeons, are full of remedies of that kind. And although I see that, in the same letter, fomentations, semicupia, injections, cerates, fumigations, and other external forms of medicine only, of the same kind, are taken notice of; yet I do not doubt, but internal medicines, correspondent thereto, were us'd at the same time. And, indeed, I very clearly conceive, that what could not hitherto be obtain'd by these remedies, is much less to be expected from them hereafter, as the disorder is, in the mean while, become more considerable, and the causes of it more confirm'd.

Nevertheless, as long as the life, and the strength, of the patient, are in a flourishing state, the cure, perhaps, ought to be repeated; for it is certain, that a long-continu'd, and vigorous, method of cure, repeated cautiously, and prudently, could never be of any disadvantage. And in this regimen,

should be included all the most corroborating medicines, which however should be taken from the class of those that assist the nerves, rather than from those that have strongly astringent properties; for the fæces being harden'd by these, the patient must, of course, make use of more violent, and a greater number of, strainings, in going to stool, whereby the disorder would be more and more increas'd. For which reason, likewise, all those medicines are to be rejected, that are call'd purgatives; for they lead to the injur'd part, and leave very troublesome, and noxious, irritations therein. But if it is necessary to loosen the belly, such things must be made use of, as will be presently taken notice of in the diet, or some things similar to them, that are quite innocent. And in regard to remedies, that are to be externally apply'd, I should greatly prefer, as to the form, the semicupia, and injections; as to the matter, the strengthening waters of warm baths.

13. It remains to speak of diet, as a proper regimen, in this respect, is altogether necessary, since it not only assists the effects of the remedies, which are taken from surgery, and pharmacy, but also because, if these remedies are not at all repeated, or repeated to no purpose, there is then no other method, besides this, remaining, by which we can endeavour, with the greatest ease, safety, and frequency, to render the disorder, at least, less troublesome, or lessen its danger. Mercurialis proposes such a kind of diet (g), as has a drying property: and there is no doubt but this regimen conduces much to strengthen the habit: but if we consider, and well-weigh, the very great, and frequent, inconveniencies, which would arise from the intestinal fæces being harden'd, by such a method of living; it will certainly seem to us, and especially after corroborating medicines have been so long made use of, to no purpose, that a mode of diet which is of a moist, and softning nature, is to be prefer'd to that which is so powerfully drying, as such a regimen would serve to keep the excrements soft, and, at the same time, correct their acrimony.

That very cautious physician, Francisco Redi (r), in his advice against a hæmorrhoidal flux, and pain, join'd with a prolapsus of the intestine, at the time of going to stool, order'd meat-broth to be drunk in a morning, to the quantity of half a pint, without any salt, and in this broth he order'd to be previously boil'd, a pretty large quantity of violets, and after these could be no longer had except in a dried state, he order'd, in their stead, succory, or borragé, or bugloss, or sow-thistle, fresh or dried prunes, quinces, or something of the same kind. He recommended the use of depurated whey, sweeten'd with a julep, made either from the tincture of fresh violets, or quinces. He also recommended the use of asses, or goats milk. At dinner, and supper, amongst other things, he order'd a pudding to be a constant dish, but this was to be very simple, and to consist chiefly of broth, in which apples had been boil'd, or some herbs of the number mention'd above, and sometimes also a little barley, or rice. He prefer'd boil'd meats more frequently than roast. And omitting aromatics, and wine, he order'd dinner and supper always to be concluded with a scalded apple, or a bak'd pear, drinking after it three ounces of water, sweeten'd with a syrup, made from citron peel.

(g) Cap. cit. supra ad n. 3.

(r) Opere dell' ult. ediz. t. 4. verso il fine.

From these things that I have related, as they stand in the opinion of Redi, I should not recede much in this case, or, at least, only so far, as to prevent the bowels from being too much open'd. But if that regimen of Redi's were not sufficient, for it ought, by being continu'd, to be sufficient to keep the belly so far lax, as to prevent there being any necessity for straining, or for sitting long when the patient goes to stool; then, indeed, I should not be against imitating Redi, also, in giving two drachms of the pulp of cassia sometimes, which should be taken in the morning before the broth, of which I have spoken, and repeated again, in the same quantity, a little before supper, if the former had as yet produc'd no effect. But if, in spite of this regimen, the excrements, nevertheless, still continu'd hard and dry, I should judge that they ought not to be discharg'd, by the means of straining, but by the assistance of glysters.

Yet these glysters ought not to consist of more than half a pint in quantity, that they may be retain'd, with the greater ease, for a proper degree of time, and ought to be made up of broth alone, or the barley emulsion, as it is call'd, or an emulsion of rice, which had been previously half-burnt, as it were, and boil'd, and this also in imitation of Redi. Who, finally, gives great commendations to a certain yellow ointment, (call'd *manteca*) and made from roses, such as was prepar'd by the perfumers of the grand Duke of Tuscany, affirming, that the prolaps'd intestine is much sooner, and more easily, replac'd, if the extremity of it is smear'd over with that ointment, by which, besides that the pains being alleviated, he says that the injur'd, and debilitated, part will be, not a little, corroborated.

However, the replacing of the intestine will be render'd less difficult, by the method of living prescrib'd, and the sparingness of diet. For by this means, neither a quantity of excrements will be accumulated in the neighbouring tract of the colon, which is a circumstance, that is generally a very considerable obstacle to the return of the prolaps'd intestine, nor will blood be generated, which either by its redundancy, or from any other disorder whatever, can tend to render the weak part preternaturally thick. And as this may, also, happen from violent motions, and excercises, it will be equally necessary to avoid these likewise; and, to comprehend the whole, in a few words, every thing ought to be diffus'd, which experience itself, much better than the advice of any physician, has, through the long course of so many years, demonstrated to be injurious.

14. These things I had to observe, in regard to the very difficult case, upon which my opinion was requested, hoping that the learned, and noble patient, on whose account they are written, will be so condescending as to excuse the hasty manner of putting them together, as I am, at this time, much taken up with many, and various pursuits, and that the very experienc'd physician who consulted me, will make what use of them he shall think consistent with his prudence, and the circumstances of the patient: and I beg of the almighty God that he will succeed whatever may have been, or shall be, determin'd upon.

15. You have, here, the opinion just as I wrote it, at the time, that is in the year 1725, on the thirteenth day of August. In which, besides the proximity, there are other things, wherewith I am not very well pleas'd, at present.

sent. But as it happen'd that I was to write on subjects little treated of, I could avoid neither the one nor the other. And I could wish there had been any one, since that time, whose anatomical observations would have set this affair in its desirable light. But these observations, as they were then unknown to the very learned Schacher (*s*), and to me, so they are still unknown. And what circumstances are to be inquir'd into, particularly, in the bodies of those whose intestine has been accusom'd to descend to a considerable length, will be shown by the foregoing opinion, yet perhaps not all. For who knows whether those ligaments, which resemble three small bandages, going from the upper part of the rectum, into the neighbouring colon, are not, sometimes, relax'd by too great moisture, or drawn asunder by the quantity of excrements, which is gathered together; or, by the violent and long-contin'd strainings, to discharge the fæces, do not only suffer, in consequence of this distraction, some of the last cells of the colon, but also a great number of those transverse rugæ, which are within these cells, to be extended, so as to increase the length of the prolaps'd intestine.

Care must be taken then, wherever bodies of this kind, which I still much wish for, shall happen to be dissected, to inquire, accurately, into the state of these ligaments, and cells, or if both of these parts are in their natural situation, to see whether the internal rugæ, at least, are not unfolded, and almost evanescent, which circumstance alone, would suffer the internal coat, wherein they are, to be so greatly extended downwards, that is, in consequence of being drawn, by the internal coat of the intestinum rectum, which is a continuation of that of the colon, and which, in my *Consilium* (*t*), I have suppos'd, following after the modern medical writers in particular, may be thus inverted, and prolaps'd outwardly. Yet, at the same time, I think it ought to be inquir'd in these very bodies, how far this inversion may really happen, or be allow'd of, as I have many doubts upon this head.

For the question is not at present, as it was on a former occasion (*u*), of one part only, and that to be compar'd, in some measure, with a kind of cuticle, as it were, which is separated, but of the whole internal coat of the rectum: and that this should be let loose from the muscular coat, so as not to be a dead part, nor yet to have any very violent symptoms join'd with it, is difficult to be believ'd among those who have observ'd the innumerable, I do not say, small fibres and nerves, but only the innumerable little arteries, and veins, by which one is join'd to the other.

Whether, therefore, these small vessels can be so relax'd, and extended, by degrees, as the great inversions of the internal coat particularly require, which many suppose to happen in this case; or whether the example of tumours, in which it is certain that a great extension of the vessels does really happen, takes place here, where the internal coat is said to grow thick indeed, but still to be preserv'd flexible, and in a proper state to be replac'd; or finally, whether these inversions, which are generally suppos'd to be of the same nature in the rectum, as in the vagina uteri, are in fact of the same nature, and how far, will never be learn'd with more certainty from any thing, than from a very accurate dissection of these bodies. Nor indeed can the opportunity of dissecting bodies of this kind, be very rare, and

(*s*) §. 3. cit. supra ad n. 4.(*t*) N. eod.(*u*) Epist. 31. n. 20.

especially in great cities. For this disease is fatal to many, that is, in consequence of inflammation, and gangrene, seizing upon the intestine, when the replacing of it has been too long neglected. But it also, sometimes, happens, in those who have been taken off by other kinds of death, that many things offer themselves, the examination of which may be useful, in respect to this matter, whether they have been liable to a prolapsus of the intestinum rectum, or whether, from any cause whatever, as, in a certain common soldier (x), “a prolapsus, or devolution, of the colon into the rectum,” occurs, which in him was “equal in length, to a span.” And Salmuthus (y) did not doubt, but the colon, as well as the rectum, might be prolaps’d, when to the observation of a sucking child (z), who forc’d the intestines out at the anus, in a violent epileptic paroxysm, “to a very great length,” he prefix’d this title, “a procidentia of the intestine colon from an epilepsy.”

I with he had dissected the body of that girl, who was about fourteen years of age (a), in whom, from the neglect of a very violent tenesmus, “the whole intestinum rectum, with a part of the colon, was forc’d out at the anus, to the length of two spans and more.” For as it could not be properly restor’d to its natural situation, and as a gangrene had already seiz’d upon the extremity of the rectum, she died, he himself being surpriz’d, how so great a portion of the intestines could have fall’n down, from the mesentery. But if many, and various, bodies could, at length, be accurately dissected, either of those who died of a prolapsus, that had then afflicted them, for the first time, or of one which they had been troubled with before, or of those who, as they had been subject to the same prolapsus, and that gradually increas’d to a great length (b), were differently affected with disagreeable symptoms, and different kinds of uneasiness arising from thence, of whatever disorder they may have died; it is not to be doubted, but it must be much more easy for physicians, to point out the causes, and cure, of this disease, when consulted thereon.

16. But as the conditions of the case then propos’d, led me, in the theoretical part, to some things which are perhaps not very probable, so in the other part also, they naturally led me to many, which may be much more easily with’d for, than brought about. But if the patient had not lain under that peculiar necessity, of removing every instrument, or artificial contrivance, from him, and suffering the intestine to be prolaps’d, when he wanted to discharge the fæces, assistance would not have been wanting, which I could propose, to keep the intestine in its natural situation, while the fæces were discharg’d.

There was, in the first place, the ring of Sarpi: in regard to which, besides what I have related above (c), from Johannes Rhodius, I also remember to have read these things, in the life of Sarpi; that when he had long labour’d under this disease, and had, at different times, tried a great number of remedies, but all in vain, he, at length, began to inquire after a kind of instrument, whereby he might retain the intestine, for which reason, after many attempts, he had, at length, found out one so proper to the purpose,

(x) Aët. n. c. tom. 2. obs. 103.

(y) Obs. med. cent. 1.

(z) 31.

(a) Obs. 30.

(b) Vid. Epist. 65. n. 6.

(c) N. 7.

that, although he labour'd under the disorder to the very end of life, he did not, for that reason, suffer an impediment of any action, any more than if he had been without the disease, and that the same was so simple in its contrivance, and so easily apply'd, that it had equally the same effect with others, to whom he had communicated it.

But if this life, by reason of the author's (whoever he may be now suppos'd to be, by a very great man, who will be commended in another place); I say, if by reason of the author's real, or craftily-pretended, ignorance of some things, so that in the *Epistolæ Anatomicæ* (d), I was willing to make no other use of this life, than for the sake of refuting by means of it, *ad hominem* as the phrase is, those who had laid this real or-pretended ignorance to his charge; if therefore it should be suspected in this point likewise; another instrument would not have been wanting, which I had seen taken notice of, in a certain opinion of our Valsalva's. That is to say, when the patient went to the close-stool to discharge his excrements, a cover for it was at hand, perforated in the middle, and there furnish'd with a leaden tube, which was firmly fitted to the aperture, and smear'd over with wax, externally, and on the upper border, not wider than two-third parts of the inch of Bologna, and about two inches long, but not to be admitted into the rectum above an inch and a half, nor without the assistance of a cautious surgeon, when the first experiments of it were made, so that if they succeeded happily, nor any thing was to be alter'd in the dimensions of the tube, the fæces might be discharg'd in this manner, and the intestine not push'd out.

But if neither of the instruments had answer'd our expectations; for you perceive, even from the hints I have given in my opinion, what injuries, not to say what uneasinesses, might sometimes arise from applications of this kind; there were still others besides these, that might be thought of. For you see, by way of example, what a kind of ring was invented, by the celebrated Bassius (e), which, "without being any obstacle to the discharge of the fæces," is worn without any trouble, as he says, and after it has remov'd the disease, may be as easily taken away; for he asserts that it had remov'd the disease, and that when it had been of long standing, in a short time, even within the space of two months. But let these things be sufficient upon the subject of the prolaps'd intestinum rectum. In the next letter I will go on to consider other diseases. Farewell.

(d) 15. n. 68.

(e) Dec. 1. obs. 4.

LETTER the THIRTY-FOURTH

Treats of Pain in the Intestines.

ALTHOUGH the greatest part of the observations, of which the fourteenth section of the third book of the Sepulchretum Anatomicum consists, relates to pains of the intestines; yet there are even many therein, which relate to other viscera of the belly, and in both these classes are some, in which, not internal causes, but such as came from without, blows, for instance, and wounds gave rise to the pain. This example I do not choose to follow, as I have treated, or am to treat, of pains in other parts of the belly, on other occasions, and of each in its proper place, and am likewise to write separately, hereafter, of blows and of wounds. And I am also unwilling to be troublesome by repetitions, which are so far from being avoided in the Sepulchretum, that, in this very section, we find many observations set down twice (*a*), and in the additamenta, to the same section, we find, by reason of not detecting the tricks of Blancard, three repeated under his name, that is to say, the fifteenth, the sixteenth, and the twenty-third, the two last of which had already been given in this very section (*b*), as the first had been in the preceding eighth section (*c*), in the names of their real authors.

Nor is it my intention to imitate the author of the Sepulchretum, in dividing my observations into two classes, that is into those which relate to the colic and to the iliac pain; not that I altogether disapprove this division; although Diocles Carystius, as Celsus teaches us (*d*), nam'd the disease, not of the smaller, but of the larger intestine, *εἰλεόν*; and Alexander Trallianus, as you have it in Salius (*e*), judg'd "that the iliac passion was nothing more than a heightening, and increase, of the colic affection," and Salius shews * that the primary seat, and cause, of the ileos might be in both of those intestines; but because it is not so easy as many imagine, to distinguish the pains of one intestine, from the pains of the other, and, consequently, not very easy, by means of the signs, that have been observ'd in patients, to divide the observations of this kind with sufficient clearness, and precision.

2. For in regard to the iliac pains being said to be more severe, than the colic pains, as without doubt they are, whether you suppose this to arise, from

(*a*) Confer. obs. 1. §. 2. & obs. 20. §. 14. obs. 1. §. 13. & obs. 24. §. 2. obs. 1. §. 14. & obs. 19. §. 4. obs. 2. §. 1. & 2. obs. 5. §. 2. & schol. ad §. 8. obs. 19. obs. 8. §. 11. & obs. 14. §. 3. obs. 28. & obs. 30. §. 4.

(*b*) Obs. 20. §. 12. obs. 3.

(*c*) In addit. obs. 5.

(*d*) De medic. 1. 4. c. 13.

(*e*) De affect. partic. c. 11.

* Ibid.

the quantity of vessels, by reason of which, the small intestines are more frequently found to be inflam'd, than the large, or whether you rather suppose it to arise from the number of the nerves, especially if the villi, with which the small intestines abound, to so great a degree, are to be refer'd to the class of papillæ; at least, there is no doubt, but one person is more impatient of pain than another, and the cause of pain is different in different persons, and in some less violent than in others; so that it is not easy to determine, which is really tortur'd with the most excruciating pain: and from hence, perhaps, it arose that Galen, some passages of whose works, that are contradictory to each other, Ballonius studies to reconcile, has in one place said, as you see in this section of the Sepulchretum (*f*), that the iliac disorders were the most violent, and in another place, that the colic disorders were the most violent.

But as to the vomiting, which he has asserted to be the most violent, and continual, in the iliac passion, you will find that those colic pains are justly excepted in the Sepulchretum (*g*), which have their seat in that part of the colon, where this intestine lies contiguous to the fundus of the stomach.

And not to lead you away from the Sepulchretum, you may likewise be warned from thence (*h*), how liable to exceptions frequently, and, for this reason, fallacious, that sign may also be, which, in other respects, seems to be the chief, I mean that which is taken from the very situations of the smaller, and larger intestines. For you will find the words of Franciscus Sylvius teaching, "that the colon is often carried, through " the " middle of the abdomen, to the navel, and sometimes even quite to the " bladder, by a considerable deviation from its more usual course." And if it be true, that when the colon deserts its own proper situation, it takes up that of the small intestines; you plainly perceive how much he may be deceiv'd, who depends greatly on the respective situations of these viscera, in determining the disorder. And not only they, whom Sylvius argues against, will be then deceiv'd, but they, also, who follow Sylvius. For when that part of the colon which generally runs in a transverse direction, to the direction of the body, and lies in contact with the stomach, is not really in that place, but is so remarkably inflected downward; there is no doubt but those persons must err, who deny that this part of the colon is seiz'd with pain, by reason, that the pain, and torture, do not run across the upper part of the belly, like a belt; and they also will, of course, blunder, who suppose, with Sylvius, " that a pain which has its seat in the circle, and " circumference, of the belly, is truly of the colic kind;" for the pain, which then arises, in the upper circle of the belly, cannot have its seat in the colon, which is not in that part.

3. And that what Sylvius has warn'd us of, does, in fact, frequently happen to the colon, not a few of the observations, both of Valsalva, and of mine, which have either been already propos'd, or are to be propos'd hereafter, will confirm: although I have not had, nor shall have, occasion to take notice of, in these letters, all the bodies in which I have found it thus; for it is long since that I began to observe this variation, even before I hap-

(*f*) Schol. ad §. 5. obf. 5.

(*g*) Schol. ad §. 2. obf. 25. in fin.

(*h*) Schol. ad obf. 41.

pen'd to light on this passage of Sylvius, as the second of the *Adversaria* will demonstrate (*i*). But in the third of the *Adversaria* (*k*), I have also observ'd another variety, in the lower situation of the colon, which is by no means to be pass'd over here: although there, in like manner, for the same reason, I could not, according to my custom, commend those who had observ'd it before me, Spigelius (*l*), and Riolanus (*m*); to whom, however, it seems to have happen'd, contrary to what has occur'd to Valsalva, and to me, that the colon has been, more frequently, winding in its termination, and has more rarely taken a pretty strait, and simple course.

But be this as it will, as these flexures not only extend the colon, in some bodies, towards the right groin, but, sometimes, as I have seen, raise it up by means of flatus to a turgid state, and particularly at the navel; it certainly appears from hence, how easily the pain, which is in that intestine, may be then, without reason, suppos'd to have its seat in the small intestine, of which this place is the common and natural seat. Both these species of variety then, are not uncommon, whether from the first formation of the body, or even from disease, as the words of Riolanus obscurely hint (*n*): these words are, "I have seen the intestinum colon, not stretch'd out, directly, betwixt the liver, and spleen, but inflected in the manner of an Italian S, and PRO-LAPS'D quite to the navel:" and Spigelius (*o*), speaking still more clearly, and more generally, says, that the same intestine "when preternaturally distended with flatus, in colic pains, is remov'd from its natural situation." But if you choose to suppose, that, for this reason, it was that I found, in an apoplectic woman (*p*), who had been subject to those pains, the colon not only with fewer cells than usual, but also writhing itself with larger turns than it generally does, in its extreme part, towards the navel, I shall not contend with you upon the subject, especially as I see, from the observation which, in this section of the *Sepulchretum*, is the fifteenth, and is read more at large in the ninth section, of the first book, where it is the forty-eighth, as I see, I say, that Franciscus Sylvius had suppos'd another woman to have labour'd under the same excruciating pains, not so much because the omentum did not, as he had remark'd, cover all the intestines, or because these were somewhat mov'd from their places; for the latter occurs pretty often, and the former very frequently; as, unless I am much deceiv'd, because he had found, in the same woman, both the species of variety which are just now explain'd.

However, if the situation of the intestine colon were chang'd, only from a cause of that kind, yet the danger of erring would be so much the more to be fear'd, as the question about these situations, is for the most part in those persons, who are wont to be subject to that cause. But in those persons, likewise, in whom the stomach is much dilated, and the liver enlarg'd in its size, that transverse part of the colon, which lies under these viscera, must be lower, in the same proportion as they are enlarg'd. Add to these, such causes as depress the stomach, and with it the colon, as I have seen it hap-

(*i*) *Animad.* 2.

(*k*) *Anim.* 6.

(*l*) *De hum. corp. fabr.* l. 8. c. 5.

(*m*) *Anthropogr.* l. 2. c. 14.

(*n*) *Ibid.*

(*o*) *C. cit.*

(*p*) *Epist.* 3. n. 2.

pen in a young man of Venice (*g*), from a very irregular inflexion of the spine. But besides diseases, there are also naturally different constitutions of bodies, and in these different constitutions, different situations of the colon. For even from the birth, as was hinted just now, it may be differently plac'd, and in gravid women, when the uterus is so much increas'd in its size, in the last months of pregnancy, that transverse part of the colon is higher, as Spigelius observes (*r*).

4. And these things being granted, and it appearing sufficiently from hence, why I do not divide the observations relating to pains, with which the bowels are tortur'd, in such a manner, as to class some under the title of iliac, and others under the title of colic pains; it remains to point out the division, which I choose to make use of. First then, I will give those in which there were pains from a cause that did not proceed from without indeed, but nevertheless was visible; and in the second place, those, in which the cause lay hid quite within the body. And these two of the former kind I give you from Valsalva.

5. A man of forty years of age, of a temperament partly sanguineous, and partly bilious, who had, sometimes, been affected with a slight hernia in the groins, was seiz'd with an iliac passion, after eating artichokes. A slight tumour appear'd in the groins: yet the patient denied his having any pain there; though he confess'd he had much pain in his belly, which was very much harden'd from the retention of the fæces. All remedies being without effect, he sank under the violence of the vomitings, on the seventh day of the disease.

The belly being open'd, the intestines appear'd to be turgid with air, and were livid and black, in that part where, not very far from the cæcum, they were doubled, and with the annex'd portion of the mesentery, which seem'd to be fleshy, as it were, descended into a hernial sacculus, which was four inches long, and had a very narrow orifice, so that they could not return back through it, into the belly, after they were distended by the matter, that had fallen down into them. This sacculus was in the right groin, and form'd out of the peritonæum indeed, that was produc'd and dilated, but not from a process of it; as many believ'd formerly; which accompanies the vas deferens, and spermatic vessels: and it even lay, anteriorly, upon this process, and these vessels, which were very tumid with blood: and was, internally, as the intercepted portion of the intestine was, of a blackish colour, or rather ting'd with a black that began to change into green, as if the colour had been given by a tincture of vitriol. And in the left groin was another sacculus, very much similar to the one I have describ'd, except that the membrane, of which it consisted, had its fibres, and vessels, not alter'd in their colour, or other qualities, from their natural appearances.

In the thorax every thing was sound. Yet in the heart were polypous concretions, of a yellowish colour, with grumous blood, one pretty large, in the right ventricle, and another smaller in the left; but neither of them was produc'd out of the ventricles.

6. There was an evident cause of this pain, that is, according to the common phrase, an incarcerated hernia. Of which there will be frequent men-

(*g*) Epist. 4. n. 16.

(*r*) C. cit.

tion made in this letter; but only as far as a part of the intestine being compress'd, is the cause of strangulation to the vessels of this compress'd part, and the parts nearest to it: and the manner in which pain, inflammation, and sphacelus, are brought on from hence, it is by no means necessary to explain. Other circumstances in regard to herniæ, and the portion of the peritonæum, which accompanies the spermatic vessels, I shall speak of elsewhere (s). But of the iliac passion, I shall treat at different times, in this letter, as much as will be sufficient for our purpose. But now you readily conceive, that where this disorder arises, as it for the most part does, when an intestine is intercepted, and compress'd, that then the upper intestines are of course distended, by the matter, which is heap'd up above the interception, and that from this distention another cause of pain arises, which is also increas'd by the very corruption, of the matter collected, which corruption, is the consequence of stagnation.

But how shall we suppose it to have happen'd, that in the history I have given you, the patient should deny the existence of any pain, in that part where the disorder was the greatest? Was it because a sphacelus had seiz'd the intestine which was intercepted, without any previous inflammation? For whether this could happen, we shall see on another occasion (t), or rather was this the reason of the patient's denying the pain, that the inflammation had already degenerated into a sphacelus? For there are other things also in that history, as it is written by Valsalva, which show that it was not very accurately committed to paper.

Yet he does not make the least mention of pain, even in the next history; though the very case will, of itself, sufficiently show, whether pain could be absent, or not.

7. A man in his fiftieth year, who labour'd under an enterocele, was seiz'd with an ardent fever, and, after some days, with a vomiting of humours, which seem'd to be ting'd with foot, as it were: he at first made water with difficulty, and after that made none at all. The catheter was introduced by the surgeon, but to no purpose; for when it came near to the bladder, it met with an obstruction. Wherefore being troubled with these symptoms the patient died.

The belly, and the scrotum, being dissected, the intestines, which were fallen into the scrotum, were found to be affected with an inflammation: and notwithstanding there was no ulceration in them, yet a little sanious serum was seen in their interstices. Some traces also of a sanious humour, of that kind, were seen in the pelvis of the abdomen. The bladder was full of urine, although it had no mark of injury internally. And the obstacle which was near the bladder, and had prevented the surgeon from introducing the catheter, was found to be nothing else but one of the foramina, by which the semen is discharg'd, dilated to such a degree, that the extremity of the catheter, naturally, fell into it: for the same thing happen'd to the probe also, which was introduc'd, in the dead body, through the urethra that had been in part, laid open, in order to examine into this very circumstance.

(s) Epist. 43. n. 6. & 7.

(t) Epist. 35. n. 19. & seq.

8. Is it not more probable, that this foramen was the sinus in the feminal caruncle, since describ'd by me, which, in this man, had been immoderately enlarg'd? For if it had been one of the feminal ducts, it seems that the man must have labour'd under a flux of this kind. And there is no doubt but the orifice of that sinus is sometimes bigger, and sometimes less, which has also been observ'd by the celebrated Henricus Bassius (*u*). But it never more happen'd to me, as far as I now can call to mind, from the time that I publish'd upon this sinus, in the year 1719 (*x*), though I shov'd it every year in the theatre, and sometimes in more than one body, that I found any feminal duct, which open'd into it, and still less that it seem'd to me, as it did to him, that "this hiatus was sometimes only a slight fissure, or sulcus, which appear'd after these parts had shrunk, and become flaccid.

But whether the caruncle within which this sinus lies, as well as the sinus itself, was enlarg'd; and whether, by this means, the orifice of the sinus might, perhaps, be able to obstruct a very slender catheter, and likewise cause a suppression of urine, although the supposition is probable, yet as Valsalva has added nothing besides, I shall the more readily leave it undetermin'd: because; to say nothing of the cause taken notice of by Waltherus (*y*); when the neighbouring parts are greatly affected, it is not very unusual, for the bladder to be drawn into consent, and not expel its contents, so that Sennertus (*z*) recounted this among the signs of inflammation of the intestines: and indeed Cælius Aurelianus (*a*) plac'd, formerly, among the rest of the evils that attended the ileos, "a total suspension of the offices of the bladder and belly." But of the suppression of urine I shall speak hereafter.

Now let me subjoin to these two observations of Valsalva's some of my own.

9. A young man whose occupation was that of a husbandman, had had a rupture of the intestine into the scrotum, in the right side, but as the intestine, was remov'd from thence, replac'd, and retain'd, by means of a bandage, or truss, he suffer'd no injury from thence till the use of that retentive bandage was omitted. This however being at length omitted, it happen'd, after he had been troubled with an intermitting fever, for about two months, and had lately fill'd himself with hard flour dumplings and other gross food of the same kind, that the intestine fell down again, into the same place. And from that very day, which was the last of October in the year 1705, he began to be seiz'd with a vomiting of a bitter matter. On the fourth day of the disease, a singultus came on, and a pain of the scrotum. A fucus of warm lixivium being applied to the scrotum the pain seem'd to be somewhat alleviated. But as the vomiting and the singultus continu'd, and he was, besides, troubled with pains of the belly, and a thirst, he was brought, on the sixth day, into the hospital of St. Mary de Morte at Bologna.

But there the hand of the surgeon was not of any advantage; and the remedies of the physician gave only a little alleviation. For the singultus was

(*u*) Dec. 1. obs. anat. 5. §. 9.

(*x*) Advers. 4. animad. 3.

(*y*) Differt. de collo viril. vesicæ &c. §. 3.

(*z*) Medic. pract. 1. 3. p. 2. f. 1. c. 2.

(*a*) Acut. pass. 1. 3. c. 17.

remov'd, as the vomiting was also ; but the latter only for a short time, when the *emplestrum de crusta panis*, as it is call'd, was apply'd to the region of the stomach, and a glyster was thrown up made of the oils of linseed and violets. I first saw him on the seventh day. There was a slight pain in the scrotum. I heard that the pulse was less frequent, than it had been the day before : but it was lower, and more weak, than was suitable to so young a man. His thirst still continu'd. Nor did he discharge any fæces, except when the oils I have mention'd were injected.

And, indeed, after they had, on this very day, made use of a carminative decoction, as it is call'd, by way of glyster, to which some clarified honey was added, with two drams of the electuary, that is known by the name of *benedicta laxativa* ; the vomiting of bitter matter return'd, in which there was a round worm ; but the glyster did not return till after many hours. On the eighth day, another worm was discharg'd. The abdomen being tense, and resounding, as it were, under the hand, after the manner it does in a tympanites, which I had also observ'd the day before, it did not suffer any pain from pretty rough handling, not even in the epigastrium, where the patient felt a kind of little biting pain. When I ask'd him whether he felt any heat likewise, he answer'd in the negative. The pulse was, in other respects, similar to that of yesterday, but much more frequent. His tongue was dry. His urine had a saturated colour. Under his eyes was a lividness, and, even without this, his face had a very unfavourable appearance. The night following was restless.

On the ninth day, every thing was in the same state : the countenance and pulse were even worse. For the latter was still more frequent, but when you press'd it, it gave little or no resistance. And the former was nearly of the same kind with that which you call the facies Hippocratica. And though the patient had been troubled with an anxiety on the preceding days, had a feeble and lamenting tone of voice, and was every now and then changing the situation of his body and his limbs, yet all these symptoms were still more remarkable on this day. For, besides a pain which continu'd constantly in the whole belly, the sensation of biting, as it were, recurr'd at times, in every part, but particularly in the epigastrium. There was no pulsating pain, for this I particularly ask'd, nor any pulsation in any part. Nor was the pain, which he felt in the scrotum, or in the neighbouring part of the belly, in these last days, of any great moment.

However, when I felt the pulse, I found that the skin was really rough, and dry, and yet not hotter than was to be expected. Having taken some food, he found himself a little better. He also said that he had been reliev'd by the glyster of oil, that had been given him the day before, and this he had also said, at the time of its being given. But on this day another being thrown up, of broth in which the seeds of coriander had been boil'd and sugar, he threw up the food he had taken while the glyster came away. In the evening he slept. Being ask'd after his sleep how he was, he answer'd that he felt a strange kind of pulsation in the epigastrium, and that there was some sense of heat in the belly. In the mean while, he was troubled with a vomiting of a more fluid matter, than he had been heretofore, which was at intervals, also, of a yellowish colour. And this vomit-

ing.

ing continuing through the whole night, together with the rest of the symptoms that I have mention'd, he expir'd in the morning, that is on the tenth day of the disease.

The belly contain'd a great quantity of extravasated matter, of the same kind with that which had been thrown up by vomiting: and the stomach, and small intestines, were very much distended with the same, quite to the hernia: but in the whole of this tract, was no more than one worm, like the two others which had been thrown up by vomiting. The large intestines were empty, white and found. The stomach was also found. But the adjoining intestine, which receives the biliary and pancreatic duct, was so livid, in consequence of inflammation in that part, that it had already a gangrenous smell. An inflammation more slight, and not yet livid, affected the jejunum in several places, and the much greater part of the ileum. For the remaining part, I mean that which lay most contiguous to the colon, was affected rather with a gangrene, than with an inflammation, as the description of the hernia will shew.

The sacculus was of the form of a pear, and consisted of a coat, which was not less thick, and firm, than the pulmonary artery. It was cover'd not only by the scrotum, and the dartos, but also by the cremaster muscle, and with that membrane, upon which this muscle lies, in common with the testis, and the vessels that go thereto. The testis was under the sacculus, and the vessels adher'd externally, on the internal side, and went to the belly, near to the orifice of the sac, but not through that orifice. This orifice was like a pretty thick ring, which the peritonæum; and the surrounding tendon, form'd: and it admitted, besides the intestinum ileum, and a small part of the mesentery, which was annex'd to it, the omentum also, of which I, for that reason, had seen scarcely any part covering the intestines, on the left side, because it was drawn towards the right side, to the hernia: nor did it only go down to the fundus of the sac, but forming itself into a round body, which I should not have known to be made up of the compress'd substance, of the omentum, if I had not cut into it, return'd up again from thence, and connected itself to the intercepted ileum, not far from the orifice of the sacculus.

But whatever part of the omentum was contain'd in this sacculus, I found connected thereto, by a redish kind of body, that was interpos'd, and was flaccid in its substance, so that it could easily be separated from the omentum, and the sacculus; nor did it seem to be any thing else but membranous cells, full of serum and blood. The ileum, however, was neither connected to the sacculus, nor did it reach to the bottom of it; but curving itself in the manner of an arch, a little below the orifice, it return'd into the belly, by the same way it had come down; so that if you dispos'd it regularly, you would find that no more than four or five inches of the intestine was intercepted. All this part was affected with a gangrene, and of a black colour; but still much more so, where it was constring'd in the orifice of the sacculus: and the circumference of this orifice was no less black and foetid, as the neighbouring upper part of the ileum was; and this was even so tender, or rather rotten in its substance, that it could not support the force of the humour, which distended it, but being perforated with one

foramen of a pretty considerable size, pour'd out its contents by that way, into the cavity of the belly. Among the remaining viscera of the belly, which, as well as the intestines, were as yet considerably warm, notwithstanding it was thirteen hours after death, before the body was open'd, the liver had also contracted a disease; for it was black on its edge, and on the hollow surface, together with the gall-bladder, which was of a moderate size, somewhat black.

In the thorax every thing was found, although in the right ventricle of the heart, there was a polypous concretion, of a yellowish colour, and soft; which extended its almost-white appendages from thence, quite into the jugular veins.

10. In regard to the many things that might be observ'd here, some I shall hint at more properly below, and others I shall touch upon, as soon as ever I have given you another observation, which I took about four months after the former, in the same hospital.

11. A woman of more than fifty years of age, who had already labour'd under two herniæ, for the space of two and thirty years, both of which were on the left side, one at the navel, and the other at the pubes, having, by chance, fallen from a place that was not very high, was not at all hurt by her fall, except that she receiv'd a contusion about the top of the scapula and the shoulder bone. From this contusion she easily recover'd, but in the mean while, began, at the interval of a few days after her fall, to have a very great costiveness, and a little after to throw up, by vomiting, a yellowish, and fluid matter, which had exactly the same smell, as the excrements, discharg'd from the rectum, generally have. The vomiting came on at different times, but more particularly two or three hours after food had been taken in. The pulse was neither frequent nor devoid of resistance, when press'd under the fingers; it was extremely small, especially after vomiting, and grew less every day. As glysters were of no use, mercury was given twice, to the quantity of two drams, the first time without any effect, but the second time with such an effect, that the patient had three stools, solid excrements being discharg'd the first, and the second time, and the third time fluid. Nor did it seem that this remedy had done any mischief. Yet the woman died about twelve hours after taking mercury the second time, on the fourth, or fifth day, after the vomiting had begun, and half an hour after the time in which she had last vomited; whereas, through the whole course of the disease, she had neither labour'd under any evident fever, nor convulsion, and had born the pains of her belly with so little complaining, that I have no remark made upon them.

When the abdomen was cut into, and its cavity laid open, a very strong smell of putrefaction issued forth. The intestinum jejunum, and the neighbouring part of the ileum, were universally distended with the same kind of matter, which had been thrown up by vomiting. But the remaining part of the ileum, and the large intestines, were contracted. The jejunum being distinguish'd, in some places, with lines of a lively red, and in a longitudinal direction, was in other parts of a brown colour, mix'd with red, as the ileum was likewise, almost in every part. But I found this last-mention'd intestine, not far from the jejunum, to be much more considerably affected, to
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the extent of three or four inches; which was the very part of it, that together with the annex'd mesentery, went down into the sacculus of the lower herniæ, curv'd into the form of an arch. For although this prolaps'd part of the intestine, was neither connected to the sacculus, nor to the orifice of it, which resembled a kind of ring, as it were, yet being seiz'd with a gangrene, it was of a bloody colour inclining to black, and wept a bloody serum from its surface. However, no intestine, but only a part of the omentum, enter'd the upper hernia, which when look'd upon externally, was divided into two little mountains, or risings, as it were, and internally it was made up of one sac, into which the peritonæum had been extended.

As, besides the intestines, we look'd over the other viscera of the belly; for the thorax and the head were not open'd; we observ'd the liver to be somewhat hard, the spleen lax, and externally livid, but only in some places. The ligaments of the uterus were black: but the uterus itself was very small, and its parietes were very thin. And these being cut into, the substance of them appear'd to be so livid in the middle, that it seem'd to be inclin'd to a gangrenous state. As I had observ'd the uterus to be seated a little lower than usual, it came into my mind to inspect the vagina, that I might see how low the uterus had fallen down, into that cavity. And it happen'd, that no sooner had I laid the labia aside, and discover'd the orifice of the vagina, but a certain body appear'd to be pushing forwards, which at first any one might have taken for the os uteri. But as I had, just before, seen the uterus not to be in so low a situation, that if it were even extremely large, it could have reach'd thither; I dissected that and the vagina, immediately after taking them out of the body, and found the glandular body of the urethra to have become so thick, and to have drawn the vagina, which was in other respects lax, and without any rugæ, downwards in such a manner, that the extremity of it, which is perforated to make an orifice for the urethra, might easily be taken for the os uteri falling downwards, and easily impose upon a surgeon who was not well-experienc'd, not to mention that it might easily impose upon a midwife.

12. But these last circumstances relate to another subject. Let us now attend to what relates to the present. As to the woman's having scarcely complain'd of pains in the belly, and being without a fever, through the whole of the disease, do you think that these circumstances can be accounted for, from supposing the iliac passion to have been produc'd in her, "by reason of the expulsive faculty being abolish'd," as Salius says (*b*); or by reason of "an atonia, or loss of tension, from the nerves of the intestines being obstructed," as the opinion of Ruysch (*c*) is? The former of these authors says, that such is the state of the case, "when attended with no pain;" and the latter did not at all doubt, but for this reason it was, that the ileos, in a certain woman, had been attended "with no remarkable pain or fever."

But not to enquire now, into what we shall see below (*d*), whether, when the intestines are in such a state, the several contents thereof can be thrust back, and driven upwards, into the stomach, so as to be thrown up by

(*b*) C. cit. supra ad n. 1.

(*c*) Obs. anat. chir. 91.

(*d*) N. 30.

vomiting; and not to discuss this point, whether the other signs of that constitution, which Salus enumerates, did really exist in the woman whom I have describ'd, it is past a doubt, that neither Salus, nor Ruyfch, suppose an inflammation of the intestines to exist at that time; for both of them mention this separately, and the first of them expressly supposes, in case of inflammation "a fever, and together with it, violent pains, whereby the patients are violently excruciated." Is it possible then, that there could be an atonia in the intestines of this woman, where it is manifest there was, at the same time, an inflammation? Be this as it will, it was certain that none of the many causes of this disorder, which Salus enumerates, had preceded. But in regard to the question, whether a fever may sometimes be absent from an inflammation of the intestines, I shall have another opportunity of determining that hereafter (e).

13. But now if we consider what are the consequences of inflammation, in the two histories I have given you, it will be easy to conceive, how much it behoves every physician, whose intention it is to prevent the progress of this disease, to admit of no delay; and what remedies he ought to be suspicious of, when the disorder has already made some progress, leaden bullets, for instance, and mercury. For if the intestines, being rotten from sphacelation, as in that young man, who was a husbandman (f), do not resist even the matter which they contain, we must beware of increasing their contents, by suffering the patient to take in more than is absolutely necessary, and still more must we be cautious, how we make him take in the most ponderous substances, which would open a passage for themselves, through the substance of the intestines, instead of opening the natural passage, and by this means accelerate death. And this happens much more easily, where there is, at the same time, such a constriction of the intestine, as suffers nothing to pass through it, till the intestine is replac'd.

For the same constriction, by vitiating the intestine that lies immediately above, renders it unequal to supporting the distention, and the weight; and, at the same time, the matter which distends, and loads it, is obstructed, in that very place, where the intestine is most weak, and diseas'd. But yet Hoffmann (g), you will say, sav'd a woman in a volvulus, from the intestine being intercepted in a bubonocoele, by giving quicksilver to the quantity of half a pound; although those are not wanting who think this case almost incredible. To me, however, it seems the more credible, because Alphonsus Khonius (h) had, long before, remov'd the same disorder in a man, from an intestine being intercepted in an oscheocoele, or scrotal hernia, by giving him nine ounces of quicksilver. But altho' the symptoms, in both cases, were violent, yet the constriction of the intestine might be less, and it is certain the disorder had not yet proceeded to a sphacelus: as it is, likewise, certain that this was not the case, in the great number of patients who, as we read in several authors, were cur'd of a volvulus, by taking even a much greater quantity of this metal.

In respect to those patients then, in whom the intestines are as yet firm, and strong, I had never any fear of this kind; for it first arose from seeing the

(e) Epist. 35. n. 20.

(f) N. 9.

(g) Medic. rat. t. 4. p. 2. f. 2. c. 4. obs. 3.

(h) Eph. n. c. dec. 3. a. 9. obs. 79.

state of the intestines, in that husbandman, when dissected, which put me on supposing how much the intestines might be weaken'd in others, also, when the disease was much advanc'd. And I wonder'd, from that time, to this very day, on which I revis'd this letter, that I had, to my knowledge, lit on no writer in practical medicine, who, when he spoke of this remedy, against the disease in question, as most of them have done, gave us the least warning of this probable danger, besides one whose opusculum (*i*) I have lately read, I mean that eminent physician Mead, who very seriously admonishes us, "that we ought not to delay long" the use of quicksilver, in the ileos, if other remedies are of no advantage, "because it is to be fear'd, lest a gangrene should succeed the inflammation, as frequently happens, by which the coats of the intestine, being corrupted, suffer the ponderous metal to escape through them, into the abdomen."

Nor do I suppose that you would think of objecting to this caution, the observation of the celebrated Wahrendorff (*k*), which relates to the history of a patient with an iliac passion, in whom half a pound of quicksilver, which had been given, had reach'd quite to the colon, and had not burst through the corrupted stomach, or the duodenum, which was affected with a sphacelus. For as the patient died "three days after" he had taken the mercury, you easily perceive, that in this space of time, the inflammation, which was still in the jejunum, and the ileum, might have degenerated, in the duodenum, and stomach, into a sphacelus, which did not exist before. And I suppose you would make use of much the same kind of answer, if any one should object the observation of Schroekius (*l*), who in a patient that died of an obstinate obstruction of the bowels, found about two pounds of quicksilver, at the beginning, and termination, of the intestinum ileum, and saw it adhering to the coats of this intestine divided into very minute particles, without these coats having been perforated thereby, notwithstanding the intestines were not inflam'd indeed, but so extremely weak, that, being handled a little roughly, they were burst through "in several places." For there were more than twenty days betwixt the last time of taking the mercury, and the patient's death, so that the intestines being distended with air, and with fæces, they might, at length, become corrupted, in the latter part of the time; nor is it certain whether they were, in fact, thus rotten in those places, also, in which the quicksilver had stagnated.

14. You will perhaps ask, why in the patients whom I have describ'd, the intestine was not replac'd? And why, as it was not replac'd, a part of the contents, nevertheless, escap'd from the small, to the large intestines, in some of the cases. In regard to the first enquiry, suppose that some were brought into the hospital, much later in the disease than to admit of this operation, that others were brought in early enough, but at that time, when scarcely any of the surgeons, in the greater part of the cities in Italy, were daring enough to make use of the knife, in order to lay open the narrow passages, which prevented the intestines from being replac'd, by any other means.

In regard to the part of the matter contain'd in the intestines having pass'd

(i) *Monita medica* c. 7. f. 2.

(k) *Act. n. c. t.* 3. obs. 131. ante fin.

(l) *Eorund. dec.* 3. a. 5 & 6 obs. 299.

through these narrow passages, in some patients, I would first have you observe, that the *fæces*, which I have said was discharg'd by means of glysters (*m*), had been below the place of constriction, before the intestine was constring'd; and that it may happen in volvulous patients, not only by the assistance of art, but by the help of nature, that the contents of the intestines, which are below that part, may be discharg'd, Salius (*n*) has confirm'd, in opposition to the common doctrine at that time, not only by reason, and his own experience, but by the experience of Hippocrates (*o*) also, in the woman who lay ill at the house of Tisamenus, except that he asserts this to happen, while the disease is coming on, and not when it is already form'd.

But in the woman whom I have describ'd (*p*), it is evident that this happen'd near the close of a mortal disease, and that not only the contain'd matter which was below the constricted intestine, had been, more than once, discharg'd by stool, but finally, perhaps, even a part of that which lay above the constriction, and especially the mercury; unless you should suppose that this remedy given in its simple state, in a very small dose, and without any purging medicine being join'd with it, had a power of propagating I know not what irritation through the intercepted parietes of the intestine, which were not yet seiz'd with a sphacelus indeed, but were affected with a gangrene. Yet as this is not easy to suppose, it will seem very probable, that the intestine was less closely constricted in this woman, than in the young husbandman (*q*), so that the weight of the mercury, assisted by the change of situation in the body, by the agitation of vomiting, and by the pressure upon it, might have been able to pass through that short tract of the intestine, and after that, by the help of the sound intestines, promote the discharge of the matter which was contain'd below the constriction. But I will now give you one of those examples, in which the intestines did not cease to make some little discharge, through the whole course of the disease.

15. Mary, the wife of Antony Franciscati, a carman at Padua (for the very extraordinary number of valves, that I found in the pulmonary artery of this woman, made me enquire, very particularly, into her name, and other circumstances relating to her) aged thirty-nine years, of a moderately good habit of body, not a bad colour, and much less of an icteric complexion, having had many children, the last of which she had given suck to for six months, when she was seiz'd with this fatal disease, and having been subject to no other, except a little femoral hernia, from which this last disorder, at length, had its origin, and which she, having been accusom'd to replace of herself, whatever part it was that fell down from the belly, had attempted to replace now, likewise, for several days together, but not being able to succeed, was seiz'd with a fever and vomiting, and the other symptoms which generally attend this disorder, except that she could always make some little discharge by stool. She was at length brought into this hospital, much later than she ought to have been, where, though to all appearance she was like a person who was about to die very soon, she nevertheless drag'd on her

(*m*) N. 9.

(*n*) C. cit. supra ad n. 1.

(*o*) Epidem. l. 3. f. 2.

(*p*) N. 11.

(*q*) N. 9.

life, for many days together, and even on the last of them, seem'd to be somewhat better, and to be eas'd by the glysters which were thrown up, till, at length, on the twentieth day of November, in the year 1704, she died.

The belly being open'd the day afterwards, and the hernial sacculus, at the same time, laid bare, which was thick, and easily divisible, into many laminæ of coats, as it were, it was observ'd to be quite disjoin'd from the ligamentum teres of the uterus, but connected to the crural vessels, to which it lay contiguous, on the internal side: nor had it a narrow orifice; but all the confinement which the hernia suffer'd, was owing to the lower border of the external oblique muscle of the abdomen, that lay upon it, which border is call'd the ligament of Poupart, or, rather, the ligament of Fallopius; whereas it is in fact only the tendon of that muscle (*r*); in which opinion very skilful men agree with me, and amongst these Heister (*s*), and if you read him attentively, Platner also (*t*). Under this border then, was intercepted some part of the neighbouring intestinum colon, yet in such a manner, that a passage remain'd sufficiently open through it, only the paries thereof was shut up, which had lain in contact with the orifice of the sacculus. This paries, cohering with the sacculus, was black and corrupted; and the nearest part of the intestine, which lay without the sacculus, was green.

The internal parietes and the belly were green also, and smell'd very strong in most places. Yet in the viscera of this cavity, I remark'd no morbid appearances, except in the gall-bladder, which was somewhat larger than it ought to be, and with a bile, that was not of a black colour, contain'd sixteen calculi, which scarcely differ'd from each other, in magnitude, being all of them small indeed, but not very small, externally yellow, and made up of many smooth surfaces. And having apply'd one of these calculi to the flame, in the moist state, in which it then was, I saw that it burn'd, not without sparkling, and melted, but that it did not cherish and preserve the flame.

As we dissected the remaining part of the body, on the same day, and on the following days; for the other viscera were very proper for demonstration, and the muscles were extremely red; nothing offer'd itself to our observation, in any other part, which can be suppos'd to relate to the present subject, except that in the medullary substance of the brain, were a great number of bloody points, and a great quantity of blood, which gave rise to these, as both the venæ cavæ, and the veins that flow into them, and especially the vena azygos being distended therewith, signify'd; and the whole left lobe of the lungs was, on one side, connected to the pleura, and on the other, to the mediastinum, and, finally, the thyroid gland was somewhat thicker than it naturally is: although many other circumstances occur'd which are not unworthy of being notic'd in another place. One of which I will not pass over at present, as it had never before occur'd to me, nor had I ever heard, or read, that it had been seen by any one, nor did I even hear afterwards, from very learned foreigners, who came with great politeness to visit me. And this was the reason, why, in pointing out some of my observati-

(*r*) Advers. anat. 3. animad. 1.

(*t*) Instit. chir. §. 793.

(*s*) Compend. anat. not. 4.

ons, to the celebrated Morand (*u*), in as few words as possible, as my custom is, and particularly passing over the rest, as they had been made by others, as well as by me, I excepted this one.

That is to say, in a woman, who had been subject to no disorder, which related particularly to the circulation, and had reach'd to the age which I have mention'd above; and in whom, every minute part of the heart, and the adjoining vessels, being accurately examin'd by me, show'd no diseas'd appearance whatever, nor any thing preternatural, I found at the orifice of the pulmonary artery, instead of three valves, four valves, and demonstrated them to a crowded circle of learned men, and of students who were present, being similar, in their appearance, to those that are generally found there, except that one was in every dimension considerably larger than usual, as when you come hither, you shall, some time, or other, see; for I still keep them preserv'd in a proper liquor: and this was seated anteriorly, and towards the left side, in respect to the others. But when I revis'd this letter, I was pleas'd at my having said above, that this was a very rare observation, indeed, but not that it was the only one. For, at length, among that great number, and variety, of observations, which are publish'd by the celebrated Jo. Zacharias Petſche (*x*), as being taken in concert with his preceptor Casſebomius, I lit on one of another woman, in whom "the pulmonary artery had four valves, that is to say, three large ones, but the fourth "a less." We also read that the aorta, of this woman, had sent off no more than two branches upwards; but how many years she liv'd, what health she enjoy'd, and of what disease she died, is not added.

16. But leaving an appearance which, any where else but in the heart, where nature is generally found to be so similar to herself, would not have deserv'd any great attention, I return to the consideration of the hernia, which though very small, was nevertheless fatal. And, indeed, in proportion as herniæ are neglected by patients, on account of their smallness, so much the more dangerous do they often, at length, become, as that was, the sacculus of which "would scarcely admit the extremity of the fore finger (*y*). For the intestine is more easily conglutinated with a small sacculus, and more closely constring'd thereby. And to this must be added, the silence of the patients upon this head, by reason of the neglected smallness of the hernia, even when they begin to be tortur'd with pains of the belly; so that the celebrated Werlhof (*z*) prudently admonishes all medical practitioners, "not to omit, in all colic disorders, to inquire into herniæ, which are often even "very small, and overlook'd by the patients themselves, or conceal'd through "shame;" and he relates, that to him, at least, it had happen'd more than once, that notwithstanding he had made the inquiry again, and again, the patients denied it, almost quite to the last.

It happen'd to me, also, in the case of a young man, who was equally learned, noble, and pious, and who is now a very eminent man, that when by other physicians, and by me likewise, it was much inquir'd, what could be

(*u*) Hist. de l'Acad. r. des sc. a. 1741. obs. anat. 7.

(*x*) Dissert. qua Sylloge anat. obs. &c. §.

(*y*) Vid. aët. lipf. suppl. t. 1. f. 12. in relat. libelli launay.

(*z*) Commerce. litt. a. 1735. hebd. 1. n. 3.

the cause of pains in the belly, that return'd every now and then, and the more we inquir'd, the less were we likely to find it out; it happen'd, I say, that from this very absence of all other causes, I suspected the presence of that cause whereof we now speak. And that this suspicion was not groundless, I found out by inquiring whether he receiv'd any advantage from a supine situation of body. For as the patient answer'd in the affirmative, and as a little tumour was soon after found which he himself, by reason of its smallness, had not in the least observ'd, the intestine was replac'd soon after, and kept up by a proper bandage, so that the pains return'd no more. But these pains had been rather troublesome, than violent. And that colic pains, as I had begun to observe, are often brought on by herniæ, is not only shown by frequent experience, but confirm'd by the dissection of a woman, given by the celebrated Weisfius (*a*), who had been often troubled with colic pains, on account of a hernia, in the same place, where I have said our patient had one, and not only containing a portion of the colon, but a portion of the ileum, and omentum also; the gall-bladder being, likewise, loaded with a greater number of calculi, than it was in the woman describ'd by me.

The hernia of this woman may be call'd rare, as Littre says (*b*), if it be compar'd with those very frequent herniæ, that are made up of the small intestines. He describes one, in a noble-woman, similar to this of ours, whether you consider what he found in dissecting the dead body, or the power of discharging some excrements, which he had observ'd in the living body. Only the seat of it was higher. Another is taken notice of by Falsin (*c*), who seems not to have read that of Littre, I say that of the year 1714. But he had read the observation of Hildanus (*d*), which, when the author himself had accurately consider'd it, he had explain'd in the same manner as Littre (*e*): and I even find that Bienaïssus had thus explain'd another, which he met with at Paris also, in the year 1671, as J. H. Lavaterus, who was present, publish'd in the following year (*f*). For the reason why a female patient, labouring under a bubonocoele, "had discharg'd liquid excrements from the" intestines, through the whole time of the compression (quite to the seventh "day) was found by the operator," says he, by whom he means the gentleman I just now mention'd, "to be, that the intestine was, in part only, constricted."

But I have even remark'd of Ballonius, when saying (*g*), "that when the" apophysis of the intestinum cæcum is prolaps'd into the groin," notwithstanding it may become putrid, "it is not necessary that those symptoms" should, of course, follow, which are generally the consequences, in a similar affection of the other intestines, whether small, or large;" I have remark'd, I say, that when he says these things, he has pretty clearly hinted that if a prolaps'd part, either of the small, or of the large intestines, similar to that appendix, be intercepted in a hernia, the patient may have some discharges by stool, contrary to what happens when the whole tube of any intestine is intercepted. And it is certain that there are some other appen-

(*a*) *Commerc. cit.* a. 1745. hebdom. 24. n. 1.

(*b*) *Mem. de l'Acad. r. des sc. a.* 1714.

(*c*) *Anat. du corps hum. tr.* 1. ch. 8.

(*d*) *Cent.* 1. obs. chir. 55.

(*e*) *Cent.* 6. in obs. 71.

(*f*) *Diff. de intestinor. compress. thes.* 6.

(*g*) *L.* 1. consil. med. 103.

dages now and then, besides that natural one, which are also call'd diverticula, and that they enter the hernial sacculus, whether they are gradually and preternaturally produc'd, or are given to some bodies from their first origin. For I would have you be cautious of supposing that they are all preternatural, and especially that they were all form'd from the side of the intestine being prolaps'd into the hernial sacculus; for sometimes, as will be said below (*b*), they belong to those intestines which are not situated in the places where herniæ happen.

Wherefore, you will, without doubt, be of opinion with Littre (*i*), and Mery (*k*), that those appendages, which they saw, were form'd in that manner, or at least increas'd: and if you also choose to suppose, that those three which were seen by Schrockius (*l*), in a young man, who had been often troubled with pains in his belly, but not from herniæ, which were no where found, took their origin, or increase, from some morbid cause, I shall, perhaps, not very violently oppose your opinion. But if you should assert that some others, as, for instance, that which is describ'd by Weitbrecht (*m*), in a woman, which was furnish'd with conspicuous fibres, in the same manner as the other intestines, did not exist from the first formation of the body, I certainly shall not be able to assent to your assertion.

For I do not doubt but this was of the same kind with that which I found in an old woman, inasmuch as that had the same substance, and thickness, of parietes, with the other intestines, and hung perpendicularly from the ileum, where it was nearer to the colon, than to the jejunum: and this I would have you add to my very short description in the Adversaria (*n*), since Hunauld (*o*), when describing another which had been seen by him, has desir'd that this should not be pass'd over. And perhaps that was nearly of the same kind, which I saw in the woolcomber (*p*), though it differ'd from the former in these circumstances, that it was shorter, and hemispherical, in its figure, and plac'd contrary to the insertion of the mesentery, where the ileum was so reflected, as to make an angle, which continu'd even when the mesentery was cut off; for in that the very prominence of the angle was protuberant, much in the same manner, if you consider the situation only, as that which is delineated by Ruysch, in the Musæum Anatomicum (*q*). Those which I have seen besides, I have not a description of, and indeed have seen but very few, though I have examin'd the intestines of so many bodies.

17. And from hence it is, that the more I consider, the more I suppose that the words of Ruysch, in the seventh Thesaurus (*r*), "diverticula of this kind" are to be taken in a different sense from what they seem at first to convey; I mean, in fact, that when they are really found, they are generally found in this intestine. At least in this intestine they have been seen, by those who are mention'd by

(*b*) N. 17.

(*i*) Mem. de l'acad. r. des sc. a. 1700.

(*k*) Mem. a. 1701. obs. 1.

(*l*) Eph. n. c. cent. 8. obs. 50.

(*m*) Comment. acad. imp. petropol. t. 4.

(*n*) III. animad. 5.

(*o*) Hist. de l'acad. r. des sc. a. 1732. obs. anat. 2.

(*p*) De quo epist. 36. n. 22.

(*q*) Fig. 3. ad thec. c. reposit. 3. n. II.

(*r*) N. XV. 3.

me at present, or have been mention'd before (*s*), and besides these by Henricus Meibomius (*t*) formerly, and after that by others, and among the rest by those very experienc'd men, Waltherus (*u*), Schlittingius (*x*), and lately by the celebrated Bonazoli (*y*); to say but little of myself, who nevertheless, not to omit this circumstance that relates to my own observations, very well remember that the bodies, in which I saw these appearances, had not been those of maniacal persons, nor do I ever remember to have seen them, in the bodies of maniacs, that I have happen'd to dissect. I have also seen the same appearance, more than once, in geese, and particularly in one of such a breadth, that it could not be taken for the remains of that duct, which had formerly belonged to the vitellum. And in these creatures, likewise, it communicated with that intestine, which answers to the ileum, and even with the part of it, that is nearest to the large intestine; which I see has happen'd in the human body, both to me, and to others, who have expressly told us, to what part of the ileum, they were connected.

From hence a confirmation may be taken, of the cause pointed out by the celebrated Fabricius (*z*), why morbid appendages happen chiefly in the ileum. For if the intestinal contents, which descend to the ileum, from the parts above, by reason of the greatest part of the chyle being already taken up into the lacteal vessels, begin to acquire so "very thick a consistence," as to urge the thin coats, and distend them; this consistence will certainly be thicker and thicker, the greater progress these contents shall have made, through the ileum, as, by this means, they will have parted with still more chyle, or any other fluid that was mix'd with them. Wherefore the diverticulum, also, which he saw, was not more than two spans distant from the extremity of the ileum. What then, you will perhaps say, are we to understand Ruysch so as to suppose, that these diverticula are sometimes to be met with in other intestines, in like manner? Without doubt: for when I read over my observations, I cannot help believing that it happen'd to him, sometimes, much as it happen'd to me, when I saw an appearance of this kind, once in the rectum, and again in the duodenum. This appearance in the rectum, I have describ'd in the *Adversaria* (*a*); and it was in the body of an apoplectic man, that I saw a diverticulum connected to the duodenum, almost two inches below the pylorus, which was a kind of cellule not very protuberating, but big enough, in its orifice, to admit a finger, surrounded with no coat, but the external one of the intestine, yet having not the least traces of any present, or past, ulceration in that part, as indeed there were not in the stomach, or the whole intestinal tube.

But as these diverticula, when they do exist, are chiefly to be met with in the ileum, as I have said, which is the longest of all the intestines, and plac'd in that part where herniæ do most frequently happen, it is not to be wonder'd at, if they enter into herniæ chiefly from the ileum.

And then Ruysch thought it might happen that no symptoms of a hernia should follow (*b*). And Littre (*c*) had, before, expressly taught, that all the

(*s*) *Advers.* III. animad. 3.

(*t*) *Epist.* de vas. palpebr.

(*u*) *Progr.* de aneur.

(*x*) *Aët.* n. c. t. 6. obs. 20.

(*y*) *Comment.* de bonon. sc. acad. t. 2. p. 1. inter anatom.

(*z*) *Progr.* *helmstädt.* editum janu. 1750.

(*a*) *Animad.* cit. 5. in fin.

(*b*) *N.* 3. cit.

(*c*) *Mem.* de l'acad. r. des sc. a. 1700.

symptoms of herniæ, of this kind, proceed more slowly, and are less violent, than in other herniæ, where the whole tube of the intestine is strangulated, and that they are particularly distinguish'd by this circumstance, that a discharge of the fæces is never impeded. And he adds other things, in which are these also, that the abdomen is neither tumid, nor tense, nor fill'd with flatus, as in common herniæ. Which circumstances, although they seem to be agreeable to reason, on account of the passage through the intestines being then free, and are very properly confirm'd, by the approbation of Palsin (*d*), and of others, are nevertheless not always to be depended upon, as indeed no maxim, whatever, in medicine is so well settled, but it may sometimes mislead us; and in order to evince this, I will, here, add an observation of my own, which I have indeed, already, just hinted at in the Adversaria (*e*), but not wholly describ'd; for from this it will appear, how very different the case was with a patient, in whose hernia a part of the intestine was so intercepted, as still to have an open passage left through it.

18. A porter of Bologna, who was so far broken down by continual labours, and fatigues, that when he was in his fiftieth year, he appear'd much older, had a hernia in his right groin, of the bigness of a man's thumb, which sometimes seem'd to be remov'd. This man, about the middle of March, in the year 1706, without any previous cause, except perhaps that a snowy day had come on, all of a sudden, after very temperate weather, was seiz'd with a pain of the belly, which was vague indeed, but very severe, and, as his own expression was, just as if he were gnaw'd by dogs. And this pain, although it seem'd to have grown much milder, by applying I know not what kind of ointment to the belly, yet soon after grew more violent than ever, and was never afterwards diminish'd. As the man was brought into the hospital of St. Mary de Morte at Bologna, when the disease had already continu'd six days, his flesh was almost cold, his pulse was very frequent, but still small, and gave little resistance to the fingers which press'd it, and struck them with an unequal force of percussions, his whole abdomen being distended like a drum, but more below the right hypochondrium, where some cells as it were of the intestinum colon seem'd to be felt with the hand, and the hernia being become much harden'd in its substance, although he denied that this was the principal seat of the pain. He threw up his food. For four days he had discharg'd no fæces at all, from his intestines. It was even in vain that he endeavour'd to discharge the flatus itself.

Fresh drawn oil of almonds was given him; and linseed oil thrown up by way of glyster to the quantity of ten ounces. The latter return'd just as it went up, and the former he threw up from his stomach, and complain'd that he was disturb'd, and agitated thereby. Being ask'd what taste he had in his mouth, he answer'd that of poison. He was very thirsty. His vomiting continu'd. On each of the following days, that is on the seventh, and the eighth, a glyster was thrown up, the first compounded of the *benedicta laxativa* and other ingredients, and the second of milk and the white of an egg; but they were of no more use than the former. As no excrement at all was dis-

(*d*) C. cit. supra ad n. 17.

(*e*) Animad. ibid. cit.

charg'd, and the other symptoms, which I have describ'd, continu'd, and the pulse, although after the sixth day it was no more unequal, became more weak, and smaller, so that on the ninth day we could hardly feel it at all, and as the skin was now corrugated, the body cold, and the patient unable to lift up his eye-lids, and almost to speak, notwithstanding he beg'd for wine, he sank by degrees, and, at length, on the night following, died in a very placid manner.

The body, which had a squalid appearance, the skin being rigid and not without some scabies, I dissected on the following night. When the abdomen was open'd, a smell came forth like that which generally proceeds from gangrenous parts. The omentum was extended quite into the hernia, and entirely red from inflammation, except some broad lines, as it were, which were drawn in a transverse direction. The spleen was, in some part of it, infected with a morbid livor, which was also carried to the internal part, although to a very inconsiderable depth. The stomach stretch'd itself much more to the right side, than it usually does, being universally distended with a yellowish matter, that resembled nothing more, than a fluid excrement, with which the small intestines, from the stomach quite to the hernia, were also distended, to a very great degree. For whatever us'd to be carried from the ileum to the large intestines, remain'd there, and was collected in great quantity; and the large intestines were all very much contracted, and white, so as to make it manifest, that nothing had pass'd through this part of the ileum which belong'd to the hernia; although the tube of the intestine, itself, did not enter the orifice of the sacculus, but passing by the side of it, sent no other part of itself into that cavity, but a portion of its paries, relax'd into the form of a femioval cavity.

The largest axis of this cavity, where it began gradually from the intestine was about three inches, according to the length of the intestine; and the least axis was much shorter, inasmuch as it extended itself through the anterior surface of the intestine, at the interval of a small inch from the insertion of the mesentery, to the inferior surface. From these beginnings, the cavity was more and more contracted by degrees, as the femioval figure requires, till it descended to the depth of a large inch in the middle. This part therefore, whether you choose rather to call it a cavity, or a diverticulum, was the only part of the intestine, intercepted by the hernia, together with the extreme part of the omentum, which was included with it, so that the remainder of the intestinal tube was not at all compress'd thereby. But neither of these parts could be drawn up from the hernia, as they were not only confin'd by the nervous orifice, as it were, of the sacculus, but even connected to the sacculus, by a kind of fibrous junction, that was not very strong, indeed, but very frequent; and the sacculus, in the part where these connections were, was somewhat rough, but in other parts smooth. This sacculus was made up of the peritonæum, relax'd towards the external surface of the body, and carry'd out near the external side of the spermatic vessels: and on one side, and on the other, of the hernia, were two tumid inguinal glands, one of which being very near to the sacculus, had its substance in part white. The intestine, in that part which was nearest to the sacculus, and still more the diverticulum of that intestine, was of a red colour degenerat-

ing,

ing into black. And the intestine from thence upwards (for below, as I have said, it was white, for a considerable extent) was of a red colour, inclining to livid: but the whole of the tube, from this tract quite to the stomach, was quite red, by reason of the great number of blood vessels, which were crowded together in most places. And the mesentery was of the same colour.

I chose also to open the thorax. The lungs adher'd every where, except on the right, and anterior surface, to the pleura, and particularly at the sides, and back, where this membrane was much thicken'd, but no where more, than at the upper part of the thorax, on the right side, where the substance of the lungs was extremely hard, as if from an old disease; and in the inferior part, and on the right side, likewise, it was considerably more compact than it generally is. However, the lungs abounded with moisture, almost in every part.

In the pericardium was no water, but the heart was flaccid, and contain'd polypous concretions, in each of its orifices, as it did in the right ventricle also, and the left auricle, all of them being moderately condens'd, and most of them of a small size: for that was the smallest which lay in this auricle; and that was the longest which reach'd into the pulmonary artery, and its branches.

19. I do not doubt but you will naturally enquire of me, why, notwithstanding the passage remain'd open through the intestine ileum, yet nothing pass'd through it. I confess I can suspect many causes, but can affirm none for certain. The intestine was, in that part, exceedingly injur'd by inflammation, and at the same time irritated, on account of a portion of itself having suffer'd distraction, and interception. Did the peristaltic motion, therefore, by which the contents were push'd on, cease in that place? Or was there some convulsion, by which, that part of the tube was contracted, in the living, more than in the dead body? Or finally, did inflammation cause this contraction, by rendering the vessels, and the parietes, more turgid, while life remain'd, which after death were relax'd? At least Littre (*f*) hints at something, which relates to this third cause, when he conjectures why by that noble woman, whose hernia took in a portion of the colon, sometimes frequent, and large, discharges were made from the intestines, and at other times less large and less frequent. Nor would I have you make it an objection, that in this woman, although the intestine was inflam'd, and a portion of it intercepted, more or less of the contain'd matter could always be carried through it, as in that woman, also, whose history I gave you under number fifteen.

For to omit, that in different persons there may be a different degree of injury, a different degree of power, in the intestines, and a different degree of sensibility; it is certain that in these women the question is of the colon, and in this man of the ileum, which, not to inquire whether it has more acute sensations, is at least more narrow, in many parts, than the colon; so that if even a larger portion, according to the breadth, of the latter than of the former, be intercepted, a more open passage will remain in the colon, and

a larger extension of the parietes, in which the power of pushing forwards the contents consists, and with these also will remain those three ligaments, that is to say, those three muscular bands, which it is so much the less probable should be intercepted within herniæ of this kind, as it is the more difficult for the paries of the colon to be relaxed, in a part where it is fortified externally with one of them: and this external situation, and more compact substance of the fasciæ, or bands, may also have this effect; to prevent them from contracting a disorder so easily. And from these considerations you will perceive, not only why the diagnosis of herniæ of this kind, propos'd by Littre, may answer much better in the colon than in the ileum; but also why it will answer better in the ileum itself, where the orifice of the diverticulum is pretty narrow, such as it is describ'd (g) by the same author, not when it is so large as my description shows it to have been in the porter. I say answer better; for I dare not take upon me to say that where the orifice is thus narrow it will always, nevertheless, answer.

And these things you know I had written to you, when I receiv'd a book that was sent to me by the celebrated Benevoli (b), wherein he describes in the second place, a hernia made up, as was confirm'd by the dissection of the body, of an appendix of the ileum, extending itself into the scrotum. Which, although it communicated with this intestine, by an orifice that, in the dead body, was not larger than to equal the diameter of a small filbert; yet the patient had, for the first fifteen days of the disease, which was very violent, thrown up every thing he took in, by vomiting, and discharg'd nothing by stool, and had thrown up, very early in the disease, a matter like the fæces. Besides, the intestinum ileum, in the part which corresponded to the hernia, was, for some considerable length, of a colour that was not quite natural, and was very much corrugated and contracted; from whence it was easy to conjecture, that the intestine, being violently drawn down by the distended, and inflam'd, appendix, was, from this cause, attack'd with inflammation, depress'd, and convuls'd.

I would have you join this history with the history that I have given of the porter; and the conjectures which depend upon what was remark'd in the dissection, I would have you join to those things which I suspected, in regard to the causes why the diagnosis of herniæ, of this kind, which is given by Littre, may sometimes not answer. But if not only the appendix, but the ileum itself also, be intercepted within the hernia, and vitiated by an inflammation, and gangrene, as in the observation of Mery (i); it is evident that a discharge by stool is then prevented, and that the other circumstances happen, which are wont to happen in affections of the ileum of that kind: are wont, I say; for although these things happen to most patients in this case, there are some, in whom neither the bowels are quite lock'd up, nor are there vomitings of the excrements, or matter similar thereto, as, for instance, in those whom the celebrated men Wolf (k), and Cohauten (l), have describ'd; so that there is less reason to be surpriz'd, that it did not happen

(g) Mem. de l'a. 1700.

(b) Due Relaz. chirurg.

(i) Cit. supra ad n. 16.

(k) Act. n. c. tom. 4. obs. 68.

(l) Commerc. litter. a. 1742. hebdom. 26. n. 11. ad. 3.

otherwise, to those whose diseases and dissections are related by the celebrated Storch (*m*), and Bajerus (*n*), whereas a part of the colon was intercepted in the hernia, and not of the ileum, which however was, universally, together with a large tract of the ileum, affected with that inflammation, from which the colon was free.

20. Having thus produc'd, and pointed out, the observations in which the pains of the intestines arose from a cause that fell under the notice of the eye, I go on to those in which the cause lay entirely hid within the body. And I will begin with those, that, by reason of the vomiting, and inflammation, come nearer to these which I have already describ'd. The two first are from the papers of Valsalva.

21. A slender man, of fifty years of age, began, after many fatigues in hunting, to complain of a great heat at his throat and chest. This heat, deserting those parts, discover'd itself in the loins, and in the belly, in like manner, where being join'd with a punctorious pain, it so troubled the patient, that he could not bear the parts to be touch'd. On the first days the man was frequently seiz'd with a cold rigor. But five or six days before death, a volvulus came on, with a throwing up of the fæces by vomiting: and this, by gradually wearing out the strength of the patient, brought him to the final close of life, about the thirtieth day after being confin'd to his bed.

The belly was found to be universally fill'd with sanies, which had connected the omentum, and the intestines, to each other. The left kidney contain'd extravasated blood, under the internal membrane, but not in every part. In the omentum, and on the edge of the mesentery, particularly where it was connected with the colon, were observ'd many small abscesses and ulcers.

22. When the abscesses first began to be form'd, not only the belly was affected with disagreeable symptoms, but the loins also, to which the mesentery is connected. The time of their coming to suppuration is pointed out by those frequent cold rigors. And the sanies being extravasated, left ulcers in these parts, and filled the abdominal cavity. Which there growing more and more acrid, by stagnation, irritated the coats of the viscera, and of the intestines in particular; and by this means an inflammation of all the viscera was brought on, and the motion of the intestines besides was inverted. Hence the volvulus.

You may compare this observation with those of the celebrated Mauchart (*o*), and Verdriesius (*p*), not on account of the volvulus, which seems to be but just hinted at in one, but by reason of the pains of the belly, especially as in both of them were abscesses of the mesentery, in like manner, in one open, so that the belly was fill'd with sanies, in the other not open'd, and the intestines which were, here and there, infected with a sphacelus, coher'd closely one with another, and with the omentum.

23. Another man, of the same age with the former, and of the same habit of body, but of a pallid colour, having been seiz'd, two years before, with an ardent fever, was at length freed from it without any perceptible traces.

(*m*) Aët. cit. t. 7. obs. 101.

(*n*) Com. cit. a. 1745; hebd. 49. n. 2.

(*o*) Eph. n. c. cent. 1. obs. 14.

(*p*) Aët. cit. tom. 1. obs. 87.

of a crisiſs; and was afterwards affected with a great thirst, a very great weakness of the head, and stomach, and a defect of the strength. Being every day troubled with these symptoms, he was seiz'd with a great oppression of the heart, which, in the night when he was about to fall into a sleep, was succeeded by a tremor of the whole body. He was thought, by other physicians, to labour under a consumption, but by Valsalva, to have a redundancy of water in the cranium, who also prescrib'd such remedies as are generally made use of in hydropic cases. But the patient, in the mean while, drinking a great quantity of new wine, with his bottle companions, was seiz'd with a great pain in his belly, which was unfix'd however, but join'd with flatulency, with a vomiting of bilious matter, and with a celerity of the pulse. The next day in the morning, as the pain was not only more violent, but fix'd in a certain part, which was exceedingly painful when touch'd, Valsalva, fearing inflammation, order'd a vein to be open'd. Yet all remedies were to no purpose, and the patient died in the beginning of the fourth day.

In the belly every thing was found to be in a sound state, except the intestinum ileum, which was, in a great part of it, inflam'd.

In the thorax was nothing particular to be observ'd, except a very large polypous concretion in the right ventricle of the heart, which was produc'd from thence into the vena cava. Within the cranium was found a great quantity of serum, with which the ventricles of the brain were also fill'd. The glandules of the plexus choroides were very large, and abounded with a great quantity of serum: and the compages of the brain was lax.

24. How dangerous it is for considerable fevers to be solv'd without any crisis, is confirm'd by the first part of this history. And how just both the opinions of Valsalva were, is demonstrated by the appearances found in the head and in the belly. But as to there being only a vomiting in this patient, and not a volvulus, as in the former, you will not inquire into the causes thereof, when you have compar'd the dissection of this body with that of the former, or of the following: which, if I remember rightly, was made by me, in the hospital of incurables at Bologna, in the year 1705.

25. An old man of seventy four years of age, of a slender habit, and given to wine, had begun, for a month past, to walk in such a manner, as to bear chiefly on his left leg. Which his domestics had observ'd more than himself; at least he said nothing of it, nor complain'd of pain in any part. Two and twenty days after he was seiz'd with a wandering pain in his belly, join'd with no fever, which he, without consulting any one, expell'd by taking theriaca. But after twelve days had pass'd over, he was seiz'd, about noon, with a pain in the upper part of the iliac region, on the right side, which was very oppressive, and as he himself said, like that which would be caus'd by the gnawing of dogs. The pain'd part was swollen, but had not chang'd its colour, and if you touch'd it was soft: but pressing your hand down pretty low, you perceiv'd a hardness. The pulse, though in other respects good, was quick and frequent. His eyes were sunk into their orbits. His tongue was dry. He pass'd a bad night.

On the second day of the disease his pulse was very large, and vibrating. The pain and the tumour extended themselves to the middle of the belly,

and at length were continued towards the left side. Blood being taken away from his right arm, to the quantity of seven ounces, had no serum in it; but had a yellow and thick crust. He had a nausea to a considerable degree, but not so as to cause his food to be thrown up from his stomach. He went to stool freely and without any uneasiness. The second night was extremely bad.

On the third day his pulse was low: he had frequent eructations, which were bitter, and acid: his speech was vitiated as if by a convulsion: he was delirious at times, as was demonstrated by the childish, and trifling things, which the patient related.

On the fourth day his limbs were every now and then convuls'd, and the whole body remain'd rigid for a quarter of an hour: during this convulsion and rigidity there was no pulse: and, on the contrary, when the convulsion and rigidity were gone off, the pulse also return'd, and was much like that of a healthy person, except that it was low, and when press'd upon by the fingers gave no resistance. Respiration becoming very difficult after that, although the tongue was now moist, and the patient was no more delirious, he threw up the fæces by vomiting, and a little after, which was in the evening of the same day, he died convuls'd.

The abdomen being open'd, the left lobe of the liver was found to be lax, and universally affected with a sphacelus. The stomach and the intestines, especially the small intestines, were in some places red, in some livid, and in others black. But the beginning of the colon, where it lay contiguous to the muscles, which cover the hollow surface of the os ilium, together with these muscles, was universally affected with a gangrene, and so connected to them that it could not be separated without laceration. From thence the livid serum, mix'd with pus, which had been seen in the cavity of the belly, seem'd to have been extravasated, as a matter similar to it was contain'd in the intestines.

26. As to the beginning of this history, it is not very absurd to suppose, that some disorder had been, gradually, generated in those muscles, which I just now spoke of, from whence the neighbouring crural nerves were compress'd, and to suppose it to have happen'd from hence, that the patient, when he walk'd, bore chiefly upon his left leg. As to the disorder itself, inflammation and putrefaction afterwards coming on, the deprav'd and corrupted juices so vellicated those nerves, as to cause a convulsion of the whole body. And it is probable, that in a boy who was carried off by the iliac passion, the convulsions of the whole body are not to be ascrib'd to any other cause, than to that of a putrid matter flowing from the intestines, with which the same muscles were bedew'd: for these convulsions affected the lower limbs in particular, and were, as you read in this fourteenth section of the *Sepulchretum* (g), so obstinate, that the boy at length died convuls'd.

But in what manner the inflammation, in this old man, crept into the contiguous intestine, and other circumstances that I have describ'd, there is no occasion to explain. I go on therefore, to an observation, which that part of the colon, being inflam'd, recalls to my mind, and which was com-

municated to me, two years before I made the preceding, by that very learned and humane man M. Anthony Laurentio, who is, at present, one of the pontifical archiaters.

27. A woman, who had had a fall on her back a year before, having been lately afflicted, for some days, with a very great, deep seated, and excruciating pain in her belly, join'd with vomitings, was taken off thereby.

Her stomach was found to be surprizingly contracted, and the cæcum intestine of the ancients so dilated, by yellow, and semifluid fæces, that it resembled the stomach. This intestine had been seiz'd by an inflammation, which also began to diffuse itself through the neighbouring viscera.

28. If that fall had any reference to the causes, which gave rise to this disease of the woman, it is to be suppos'd that she had fall'n upon her back in such a manner, as to hurt the right side of her belly and that part of the colon which lay in this side. And that this part of the intestine having, for that reason, the power, by which it propels the fæces upwards, more and more diminish'd every day, was, at length, expanded by the stagnation of its contents, in the manner I have describ'd, particularly with the cæcum that was subjoin'd to it, and that, on account of the distraction of its coats, it was affected with a very severe pain, and by reason of the compression of the vessels inflam'd. And if the woman had dragg'd on her life a little longer, perhaps she, also, would, like some of those of whom I have already spoken above, have vomited up excrements in a filthy and miserable manner, or rather somewhat extremely like excrement. For many being deceiv'd by this similitude, have suppos'd that what had already pass'd into the large intestines, was thrown up by vomiting in a volvulus, which must happen much more rarely than they imagine, by reason of the valvula Bauhini being interpos'd, and this is also shown by other circumstances, which are taken notice of by me in the *Adversaria* (r).

That they have really been deceiv'd by this similitude, it is not difficult to demonstrate, by producing many observations of vomitings of that kind, even in those bodies, wherein the passage from the large intestines to the mouth was entirely shut up. For, to omit others, where this passage was intercepted by a very closely confin'd hernia, or by an obstruction, or coalition, of the tube, turn, by way of example, to that observation of Henricus ab Heers in the *Sepulchretum* (s). A mountebank had tied up the intestine ileum of a boy, who had a rupture, together with the omentum, with a piece of iron wire, so that nothing at all could pass through. And the boy died, as the observation says, "throwing up his excrements by his mouth." Add to this, the several experiments of the celebrated Hague-not (t), upon cats and dogs: which vomited up excrements, to appearance, though a firm ligature was put upon the same intestine. Who would not, at first, have imagin'd, that these fæces were carried back from the large intestines, if he had not known that the small intestines were quite shut up.

For without doubt, those ingesta which are carried down from the stomach to the intestines, being mix'd with the juices of the stomach, and soon

(r) III animad. 9.

(s) Qbf. 24. §. 3.

(t) Mem. de l'acad. r. des sc. a. 1713.

after with the juices of the intestines, with the succus pancreaticus, and the bile, and having had many of their finer parts carried off into the lacteal vessels, are under a necessity of making that delay in the small intestines, when their passage is obstructed, which they naturally would have made in the large, and even a greater delay when these small intestines are inflam'd; so that they will of course contract the same putrefying odour in the small intestines, that they us'd to contract in the large, and may be call'd excrement without any impropriety, as is asserted by Piccolhomini (x), who, for this reason, denies that it is necessary for the remains of the ingesta, after the chyle is taken up, to reach the large intestines, in order to acquire the nature of excrement. But although they are not deceiv'd in this, they are, nevertheless, from hence carried into an error, when they suppose this faecal matter to come from the large intestines, which comes in fact from the small.

19. But that the feces may be carried back quite from the large intestines, is demonstrat'd by suppositories and glysters being thrown up by the mouth, in patients who labour under the iliac passion. I seem however to have said, sufficiently, what I think of suppositories, and of glysters likewise, in the Adversaria (x). But as I have since read, in the writings of a considerable author, that this happens "frequently," and in those of another, have seen this circumstance explain'd, without supposing an inverted motion of the intestines, in a method entirely new; I have determin'd to add some few things, in this place, upon both of these heads. And in regard to the first, Galen has not only taught us, in more than one part of his works (y), that the motion of the intestines is inverted, in an iliac passion, and even without it, but also in the third book *de symptom. causis* (z) has asserted once and again, "that some persons have had part of the glysters, that have been injected, "carried into the stomach, so as to be thrown up by vomiting: and besides, "that excrement was frequently thrown up, in iliac passions, that prove "mortal."

But from his time, quite down to the time of Jo. Mathæus de Grado (a), that is from the second age of the christian æra, to the fifteenth, I do not remember to have read any one who confirms it. After him, and in the sixteenth century, was one, that is Julius Alexandrinus (b), who says that he had seen it, "not very often, but sometimes," as Franciscus Hildesius has said he did twice (c). But in the last age, and in this, a great number indeed have asserted it. For you may read three observations of Abel Roscius (d), of Daniel Sennertus (e), as it appears to be, of John Henry Lavaterus (f), of Luke Schroekius the elder (g), and of John Mery (h), each one, and many from the compilers of the Bibliotheca Anatomica (i): and besides,

(a) L. 2. anat. prælec. 11.

(b) Animæ. cit.

(c) De nat. facul. l. 3. c. 13. & in Hipp. de vict. in acut. comm. 3. c. 33.

(d) C. 2.

(e) Apud donat. de hist. mirab. l. 4. c. 3.

(f) Apud Schenk. obs. med. l. 3. feb. tit. varior. rer. vomit.

(g) Ibid.

(h) Apud Hildan. cent. 6. obs. 70.

(i) In hac 14. sepelch. scilicet. schol. ad obs. 20.

3. 13.

(f) Thest. 6. cit. supra ad n. 16.

(g) Eph. n. c. det. 2. c. 5. schol. ad obs. 195.

(h) Obs. 1. cit. supra ad n. 16.

(i) Tom. 1. p. 1. in adnot. ad Peyer. exercit. 1. de gland. intest.

without:

without the iliac or colic passion, one of Peter Borelli (*k*), another of Frederic Loffius (*l*), a third of George Segerus (*m*), a fourth of Gabriel Clauderus (*n*), and a fifth, in fine, of Peter Rommelius (*o*); for so many are there, that I at present call to mind. You yourself will easily find others. But if you should even find as many as these, you would, I suppose, say that the throwing up of glysters by the mouth, was not a very rare thing, but would not say that it is frequent. For the greater part of physicians have never seen it, even those that are the most experienc'd; as their writings testify, where they happen to make mention of these observations, for in order to prove the circumstance, they produce the testimony of others, instead of their own.

30. But let us now see by what new method the throwing up of glysters by the mouth is explain'd. It is suppos'd that in a volvulus, all the intestines are full, or nearly full, of fluids that are either continually flowing into them, or taken in by the patients: and that there is some obstacle or other in the lower part of the rectum, which hinders the discharge of these fluids, but which may be got over by those who inject glysters. The glysters, then, that are thus injected, increasing the fullness, and distention, of the intestines, and an alternate compression of the abdominal muscles, and diaphragm, coming on, it is suppos'd that they are driven to the part where there is the least resistance, and that, being mix'd with these humours, they are at length thrown up by vomiting. And that the valvula Bauhini does not resist, as it will be naturally kept open, if you allow a fullness of all the intestines. Nor is there any need of the inverted motion, especially as in beasts, who were already seiz'd with a vomiting, on account of a ligature being made upon the ileum, this motion could not be observ'd, and even not the peristaltic motion, which seems no longer to be fully acknowledg'd, in living and healthy bodies, if you attend to those things which are in the latter part of this explication.

When I first read all these things, although there were some which I found could not be easily prov'd, yet I began to do, what ought never to be omitted in the investigation of truth, that is to attend not only to the arguments which might be produc'd against this explication, but also to those that might be produc'd in favour of it. In consequence whereof I observ'd, that some of those suppositions, which the ingenious author had confirm'd, not only by his own reasonings, but by his own experiments, were also equally prov'd by mine. For as to what relates to the plenitude of the intestines, from the obstacle quise to the stomach, this has been found in the manner he supposes, by my observations also upon human bodies (which he complains of being without) that had been afflicted with disorders of this kind; as the histories of the husbandman (*p*), the porter (*q*), and in great measure that of a certain woman (*r*), which I have given you, demonstrate. And supposing the fullness not only of the small, but of the large intestines, I saw that the

(*k*) Cent. 1. obs. 17.

(*l*) Vid. schol. modo cit. in eph. n. c.

(*m*) Earund. dec. 1. a. 9. obs. 94.

(*n*) Earund. dec. 2. obs. cit.

(*o*) Earund. dec. 3. a. 7. obs. 39.

(*p*) Supra n. 9.

(*q*) N. 18.

(*r*) N. 11.

"impediment, which I had, in a general way, hinted the necessity of inquiring into, in the *Adversaria* (s), appear'd, by means of which impediment, being interpos'd for a time," the *valvula Bauhini* "could not be properly shut up;" I say for a time; for if it be suppos'd perpetual, it will not be understood, by what means this valve may have immediately return'd to its office, after having suffer'd glysters to pass through it, as has been seen in some of these cases which were pointed out just now (t).

For in these cases, the explication of those who have conjectur'd that the valve is either ruptur'd, or become paralytic, in patients afflicted with the ileos, would not be sufficient. As this last conjecture, I suppose, cannot take place, even when the beginning of the colon is suppos'd to be immoderately dilated, with a great quantity of matter, which is collected together. For although the valve, by reason of the fleshy fibres of the two intestines whereof it is compos'd being become paralytic, should lose that power of constringing itself, whatever that power might be; yet the two *fræna*, or bridles, which I have added, are so dispos'd transversely, on one side, and on the other, through the internal surface of the colon (u), that by a surprizing utility, the more this intestine is dilated, the more do they constringe the chink, or aperture, of the valve, which use I believe it very often performs in life, when, perhaps, there is a great quantity of matter contain'd in that part of the colon, and the muscles of the abdomen are in strong action to compress and propel it: and as I do not doubt, but that these things, in regard to the structure of this valve, and its *fræna*, which I have describ'd in words, and represented in plates, in the *Adversaria*, are admitted by you; so I could wish that these things, and some others, which relate to me, had been consider'd a little more attentively by some persons: but of these things on another occasion.

Finally, to omit other things, as to that action being attributed to the muscles of the abdomen, and the diaphragm, which is generally attributed to the inverted motion of the intestines, that this is not done without reason, may be prov'd by those cases, in which the ileos has happen'd on account of the expulsive faculty being abolish'd, or from a loss of tone in the intestines, as has been hinted at above (x), according to the opinion of *Salius*, and *Ruyfch*. In which place the authority of *Boerhaave* (y) may also be produc'd, who asserts "that in the numerous dissections of living animals, he had never seen a peristaltic motion in the large intestines," and he wonder'd, for this reason, "that glysters should nevertheless be thrown up, from the large intestines," by the mouth; for he did not doubt but this did happen "sometimes, as men of learning and authority bore their testimonies to it."

31. But notwithstanding I had observ'd these things to be favourable to the propos'd explication, other things arose, by way of objection to it, which very evidently argued against it. And not to take up too much of your time, this in the first place, that if all the intestines are suppos'd to be full, or

(t) III animad. 9.

(i) N. 29.

(u) *Advers.* 3. fig. 1.

(x) N. 12.

(y) *Prælect.* ad instit. §. 816 in fin.

nearly full, it is not possible to conceive how the glysters can be thrown up by vomiting, mix'd, as is said, with other fluids, but quite pure, as they were given, and that not very long after their injection, and without any great discharge of those humours, with which the whole canal, from the rectum to the stomach, is fill'd, or almost fill'd, having preceded.

For read the observations of Roscius, of Schrockius the elder, and of the compilers of the *Bibliotheca Anatomica*, which were made upon volvulus patients, and which I have pointed out above (z): read alio those that I have taken notice of from Loffius, Segerus, Clauderus, and Rommelius (a), where there was even no volvulus, so that very strong compressions of the muscles could be suppos'd; nor was there any obstacle, except a slight costiveness in one or two, which could have confin'd the humours in almost the whole tube of the intestines. You will find among the several observations, that the glysters were thrown up by the mouth, "wholly, entirely," and these "pure as they had been applied, nothing at all chang'd," after they had been "retain'd in the intestines for an hour, after about the space of an hour, after a quarter of an hour, when a quarter of an hour had scarcely elaps'd, in a moment of time," without any vomiting being any where taken notice of, betwixt the times of injecting the glyster, and throwing it up by the mouth, not to say without so considerable a vomiting as you perceive there must have been, had the intestines been all full.

Since, therefore, the intestinal tube, in these cases, was neither full, nor nearly so, it appears, without doubt, that another explication must be sought after, from which it may be clear, not only what cause could propel the glysters, from the rectum to the stomach, but also, by what means the valvula Bauhini could be kept open. And we must take care, now in particular, when there are many who call into question, the powers of the diaphragm, and abdominal muscles, to excite vomiting; we must take care, I say, lest, as to what relates to the first cause, that be too hastily rejected, which even from ancient times was plac'd in the inverted motion of the intestines. For although this motion was certainly not readily to be allow'd of, where the intestines were tied, distended, inflam'd, or paralytic, why is it to be denied where there is none of these circumstances? And there could be none of these circumstances, in those observations which were taken when no volvulus was present, nor was it necessary even when this was present, or at least it was not always necessary, that it should be in a great part of the intestines, and especially in that which I particularly refer to here, that is in the large intestines.

Why, therefore, must we altogether, and at all times, reject this cause, and suffer it to have no part in the performance? Is it because the peristaltic motion is perhaps scarcely to be acknowledged any longer? How is it then? Is it possible for the nature of animals to be so chang'd, that in our age the circumstance scarcely appears any more, which those very ancient observers have seen, in consequence of whose opinion Cicero has expressly written (b), "that the intestines both constrict and relax themselves alternately," either to agitate and prepare the food, or to drive the remains of

(z) N. 29.

(a) Ibid.

(b) L. 2. de nat. deor.

it, after concoction, downwards? But lest it should happen to any one of those whom I have refer'd to, in the preface to the second *Adversaria*, near the latter end, that this passage of Cicero, also, may seem "to be quoted" by me, "by way of pretty severe reproach," I choose rather to neglect what might be replied on this occasion, and to come down from the ancients, to the more modern observers. Shall I then forget the great number of observations, not only of others, but of my own also, on dogs, sheep, and rabbits, dissected alive, though this motion often occurs to the eyes of those persons who do not look for it, and even, as happen'd in a rabbit particularly, a motion alternately antiperistaltic. But it is very little to the purpose, now, to show that one of these motions has been observ'd in human bodies also, and sometimes both, since the celebrated Haller (*c*) has produc'd examples thereof: to which, however, if you please, you may add that of a matron, who had a very considerable omphalocoele, or umbilical hernia, which was seen by the compilers of the *Bibliotheca Anatomica* (*d*). And the same Haller (*e*), even before he publish'd so many experiments (*f*), caution'd us from believing that because it had happen'd to his great preceptor, that he never, as I have said, saw a peristaltic motion in the large intestines, it had therefore never been seen by any one; for he quoted Wepfer, in particular, who saw it very evidently in these intestines likewise, and not only the peristaltic, but also the antiperistaltic, as you will learn from the passage of Wepfer, which is, in like manner, transfer'd into the *Sepulchretum* (*g*).

32. From these things, which I have consider'd on both sides of the question, you will easily perceive, that any probable cause, which tends to explain the symptoms that happen in the *volvulus*, particularly those that are difficult, and not as yet sufficiently clear, ought not to be entirely rejected.

But as to the causes which create an obstacle to the matter, that descends through the intestines, if you inquire of me, whether I ever found that contorsion, or twisting, which was formerly so much talk'd of, or at least an *intus-susception*, as it is call'd, which is even very frequently confirm'd by the more modern authors; I shall ingenuously answer, that I have as yet lit on neither of them, just in this manner, as I shall explain hereafter (*). Yet I do not, for this reason, in regard to the first cause, suspect any of the obstacles of this kind that are describ'd, but only because, while the connection of the intestines with the mesentery is preserv'd, this contorsion cannot be conceiv'd.

But the second, or the *susception* of the intestine within the intestine, is not only conceivable, while the connection with the mesentery is preserv'd, but is also very injurious, on account of this very connection. For when one part of the intestine enters within the part next to it, the portion of the mesentery, that is annex'd thereto, must enter in at the same time. Wherefore, if it stay there for any considerable time, and any constricting cause come on, the motion of the blood, through its vessels, being retarded, it will swell to

(c) *Ad Boer. prælect.* §. 93. n. 6.

(d) *Tom. 1. p. 1. adnot. penult. ad Warthion. de mesent.*

(e) *Ad cit. prælect.* §. 107. not. 3. & §. 109. not. 30.

(f) *De respir.* p. 3.

(g) *Schol. ad. §. 2. obs. 1. hujus sect.*

(*) *N. 34.*

such a degree, as to hinder the intestine that has enter'd in, from receding, and likewise prevent the passage of the matter that was about to descend through the cavity; to say nothing of the sphacelus that at length comes on, on account of the circulation of the blood being entirely precluded, which, as the illustrious Haller saw (*b*), was the cause of death in a certain man. And every part is so much the more constring'd and compress'd in that place, in proportion as the part of the intestine which is push'd within the part nearest to it is larger or more complicated; for this complication has been sometimes so great, that a portion of the intestine, which while thus conglomerated together did not exceed half an inch in length, was equal almost to two spans when drawn out (*i*). And so much the greater extent enters in, in proportion as the causes are greater, or more long-continu'd, which impel the part that enters, and dilate the part which receives.

Among the latter causes, for the most part, is flatus, and among the former, sometimes, is weight, as in the observation of the same compilers of the Bibliotheca Anatomica (*k*), whom I have once and again quoted, which is an extraordinary observation, not on that account only, but also because the susception had happen'd in the colon, in which I read that very few had ever seen it besides Ruyfch, who confesses (*l*) that he had seen it only once, whereas he had seen it so often in the small intestines, that no body more frequently. However, no cause is suppos'd to be more common than convulsive motions: which the experiment of Peyerus, wherein the intestines of a living frog were stimulated, in more places than one, shows to be capable of producing this effect: this experiment you will read in the Sepulchretum (*m*). And the same thing seems to me to be confirm'd, by the observations of Peyerus himself (*n*), but in particular by those of Ruyfch (*o*). For the former saw in the intestinum ileum of a girl, in which were three susceptions, worms "roll'd up together, as it were, in one place;" and Ruyfch saw the very portion of the ileum, which had enter'd into another, in a man, "fill'd with worms circularly plac'd," and a second time he shew'd a susception of the same intestine, "in a boy, to have worms in it." And it is very evident that the intestines may be very much irritated from worms.

Indeed that eminent physician Heister (*p*), having found a double susception, in the small intestines of a boy of twelve years of age, and having observ'd the same intestines to be "very full of worms," thought it "worthy to be observ'd in the practice of medicine, especially if they are very young subjects, which fall under our care," that the iliac passion may sometimes arise from worms also. And for this reason, perhaps, it has been, that I have seen the greater part of the susceptions remark'd in children. While I attend pretty diligently to some of those things, which I have hitherto taken notice of, I cannot help adding my own observation in this place, in reading of which, if you begin to wonder that I had just now denied my ever having seen a susception of the intestine, you will, at least, cease to wonder, when you have consider'd those things which I shall subjoin to the observation.

(*b*) Strena anat. n. 9.

(*i*) Vid. Sepulchr. §. 2. modo cit.

(*k*) Adnot. cit. supra ad n. 29.

(*l*) Advers. anat. dec. 3. §.

(*m*) Schol. ad § 8. obs. 20.

(*n*) §. modo cit.

(*o*) Thef. anat. 4. n. 14. & Thef. nov. n. 57.

(*p*) Eph. n. c. cent. 1 & 2. obs. 198. n. 3.

33. A virgin of forty-five years of age, having received a violent blow on her head from a fall, not only vomited in the beginning, but continually; she liv'd in this hospital more than twenty-one days, in which time, however, she seem'd frequently upon the point of expiring.

In the abdomen; for I only inspected the viscera of this cavity, and that not with a view to the disease; the intestines were still warm, although it was many hours after death, that I handled them, and at least one hour from the time of cutting into, and laying open the abdominal cavity, as I was engag'd about some other business in the mean time, and although it was at a time of the year which is generally cold, that is about the middle of December, in the year 1724, when the season was extremely cold. Part of the small intestines was distended with flatus, especially that part which lay under the cæcum, for which reason this intestine, with its appendicula, was turn'd forwards: the remaining part was reddish, and had a kind of putrid smell. In this part I saw the susception, of which I am speaking, not less evident, and even somewhat longer, than it is delineated by Ruysh (g).

But while I was desirous to learn very distinctly, in what part of the intestines it was, and how close it was, and for that reason turn'd over the intestines gently, as one generally does, in order to begin from the other head of the small intestines, I found out this head very clearly, but the susception I could no more find. For all the small intestines being examin'd accurately, from one extremity to the other, and back again, and run over with the hand, this susception no where appear'd, and indeed not a trace of it, so that it was very plain it had not been closely constricted. Then opening the small intestines, which was all that remain'd to do, I saw, in the duodenum, a matter like fluid fæces, in the neighbouring tract of the jejunum, a round worm, and in the same tract, and the neighbouring part of the duodenum, I saw, here and there, bloody spots, with which both of them were distinguish'd internally, as if from inflammation, which had begun to be the consequence of the irritation. And in the remaining intestines, and the abdominal viscera, I also observ'd, and demonstrated, many things, but not such as had reference to the disease, if you except some that were remark'd in the organs of generation, and in the bladder, or rather in the urethra. For the uterus being laid open with the knife longitudinally, from the sanguiferous vessels, which appear'd to be parallel throughout the internal surface, some black corpuscles, as it were, seem'd to be prominent, here and there, so that I at first took them for very small varices. But when I examin'd them in the morning, by the light of the sun, I found that they were not varices, and indeed I much doubted whether they were really in these vessels. For I saw that two larger bodies, which lay in the common boundaries of the bladder, and urethra, were peculiar substances, brown in their colour, and roundish in their figure, and when I touch'd them, I perceiv'd them to be hard; so that I believ'd them to be calculi *sui generis*, which had been concreted under that internal coat, and rais'd it up; and that the others, as they were less in size, were also less hard, and not roundish, yet were made of a matter of the same kind, and in the same manner, but were not yet perfectly form'd.

As I had observ'd this kind of disorder which is perhaps new, and which, in process of time, would, probably, have made the urethra very narrow, and was certainly injurious even now; I dissected the uterus, to see if I could find the original springs of that whitish, and thickish humour, with which I saw that the vagina was too much moisten'd. But I saw nothing that was not usual, in this cavity, except a small heap of little vesicles, which was prominent in such a manner, that the area thereof did not exceed the circumference of the nail of the little finger. This was on the anterior surface of the cavity of the uterus itself, on the right side, and nearer to the upper part of the same cavity, than to the cervix uteri; so that, at first, I suspected it to be the beginning of the excrescence, of the same kind with that which you have read my description of, in the cavity of the uterus, frequently, upon other occasions. And this suspicion was confirm'd by the prominence: but the nature of the vesicles, which cover'd the face of the prominence, did not agree therewith; for they themselves, and the mucus they contain'd, were entirely of the same kind, and had the same natural appearance, with those that were below in the neck, in greater number, which I have formerly pretty well describ'd, and represented by figures (*r*); not hydatids, which were not wanting here, also, at the tubes, and near the ovaries, white, hard, and stringy.

But vesicles containing a limpid mucus, which could be drawn out into threads, plac'd in so high a situation, as in this virgin, and there collected into a heap, I do not remember to have seen, except very seldom. For if they had always appear'd in this manner, one of the great difficulties, in the opinion of Nabothus, would be remov'd.

34. But of this on another occasion. Now let us return to the intended discourse. You see that in this virgin, a part of the intestine had fallen into the part which was nearest to it: that on one side there was flatus to dilate; and on the other a worm, which, by stimulating, might contract the intestine, and excite inflammation: that an obstinate vomiting was not wanting, nor yet in the duodenum, a matter like liquid fæces. All these circumstances concurr'd to prevent me from omitting this history here. But the very violent blow of the head, which of itself generally excites a vomiting, the very slight inflammation in the small intestine, which seem'd to be but lately begun, and which, perhaps, is to be accounted for as is hinted in the nineteenth letter (*s*), but, in particular, this susception, which was so very lax that it easily became evanid, without leaving any traces behind it, have influenc'd me not to consider it as the cause of these vomitings, nor yet to number it among those causes of which I am at present treating. For I do not here refer to those which are frequently found, and are easily develop'd, such as I suppose those three to have been, that Abraham Vater (*t*) saw in the intestinum jejunum of a girl, without any signs of a volvulus; and such as they probably were, that are describ'd in the same intestine of three bodies, in the observation of the celebrated Hommelius (*u*), wherein no mention is made of any of these symptoms; and, not to be too prolix, such as they were, without doubt, that

(*r*) Advers. anat. 1. n. 32. & tab. 3.

(*s*) N. 18.

(*t*) Progr. edito a. 1727. m. April.

(*u*) Commerc. litter. a. 1743. hebd. 42. in fin.

are describ'd by the celebrated Haller, not in the *Sirena Anatomica*, from which I quoted one above (x), but in the *Opuscula Anatomica* (y), for these were many in number, and had various situations, so that one of them was from the lower part of the colon, in the upper part of the intestinum rectum.

And some are even met with that are not so easy of evolution, as that which was found by the celebrated Jo. Phil. Burgravius (z), "in a pretty " confin'd state," yet without any sign of the iliac passion being join'd with it: was it because no inflammation had come on? Though indeed an inflammation had not succeeded to the other, which was seen by the same person (a), yet there had been some tormina at least, and a vomiting of the remedies which were taken in: did these symptoms arise from the intestine having been push'd within itself, to twice the depth of the other, in this second case?

But Hartmann (b) found an intus-susception of the intestine to a considerable depth, and that in three places, nor equally easy of evolution in them all; and he even found the intestine to be there "somewhat turgid externally, " and bloody, an evident mark of the tumor remaining even in a portion " that was cut off;" nor was a very long worm wanting in the small intestines of the same body: yet he mentions no symptoms of a volvulus; but even remarks, "that the intestines had perform'd their functions very well, " doubtless, because the passage was not entirely obstructed by these susceptions." And Jo. Guil. Wiemann (c) found also a much longer portion of the intestinum jejunum, that is more than a geometrical foot, fallen within the part next to it, "much streighten'd and compress'd, and infected with a " livid colour," and this after pains which had been indeed very severe, and almost continual vomitings, yet not of matter like fæces, nor attended, as he says, with a suppression of stools, which was probably because the inverted portion, although narrow, was found to be still "pervious."

Wherefore, I should readily believe, that these two susceptions were still more pervious, and not only shorter and less compress'd, which that celebrated man Jo. Rod. Zuingerus (d) found in the intestinum ileum, together with an incipient gangrene, who certainly would not have omitted to mention some marks of an iliac passion, if any had preceded: but on the other hand, I should suppose those two were less pervious, which Valentinus (e) found in the same place, as he relates the same symptoms as Wiemann, and does not doubt but a vomiting of excrement would have come on, if the boy had liv'd some time longer: which you will find did come on, in another describ'd by Hoffmann (f); the susception, which was in the same intestine, serving at once to prevent the passage of the flatus, with which the upper intestines were distended, and that of a putrid humour which was seen in the stomach, of the same colour with that which had been thrown up by vomiting.

(x) N. 32.

(y) Obs. 27.

(z) AG. n. c. tom. 7. obs. 5.

(a) Earund. t. 5. obs. 80.

(b) Eph. n. c. dec. 3. a. 5 & 6. obs. 207.

(c) Earund. cent. 6. obs. 89.

(d) Earund. cent. 7. obs. 83.

(e) Earund. cent. 3. obs. 1.

(f) Med. rat. t. 4. p. 2. f. 2. c. 4. obs. 4.

To these you will add, in particular, the observation of the celebrated Weiffius (*g*), who in the body of a woman, that died after having been afflicted with violent pains of the belly, join'd with an obstinate obstruction of the intestines, and at length with a volvulus, found the extremity of the ileum fallen within the colon, concreted with the membranes of it, and contracted so as to prevent the progress "of a foetid liquor, almost of the nature of excrement," with which the small intestines were seen to be "surprisingly distended," being attended with inflammation at the same time.

Nor, finally, is that observation to be omitted, though made upon a dog, which the celebrated Wahrendorff (*b*) has given us. This creature having had no discharge by stool for some weeks, had vomited up every thing he took with miserable howlings; and having at length died, discover'd no inflammation, or obstruction, in the intestines, except that "about the beginning of the intestinum rectum, there appear'd an intus-fusception, to about the length of two inches, which shut up the passage so completely, that "not even the least flatus could be transmitted." From all these observations which I, according to custom, have taken notice of, in order that you might have some to add to the Sepulchretum, you easily perceive, that an obstruction of the intestinal canal, or a considerable and long-contin'd coarctation, has more effect towards producing a volvulus, than an inflammation; and that therefore an intus-fusception which does not cause an obstruction, or coarctation, as those that are slight, and easily moveable, by no means do, ought not to be attended to by us here.

To this class I refer those that I have hitherto happen'd to see, and readily acknowledge them to be of that kind, which an eminent author in anatomy and surgery, of the present age, has asserted to occur in many bodies, who died of a natural death, and who had been afflicted with no pain. But while he ascribes so much to the observations of this kind, as to suppose that the doctrine of others, who have plac'd intus-fusception of the intestines, among the causes of a volvulus, is a mere figment, I cannot coincide in opinion with him, unless I would run counter to so great a number of observations of other persons, that are contrary to his, and even run counter to reason itself.

For although I acknowledge, that it is not at all necessary any very violent disorder should arise, where there is a lax fusception, that does not streighten the passage greatly, yet on the other hand, I maintain, that if the fusception is not lax, and shuts up the passage for a long time together, or at least nearly shuts it up, a volvulus, or pains, inflammations, and other symptoms of this kind, are the consequences, as you see in the histories which are pointed out in this section of the Sepulchretum, under number twenty, and in others, but particularly in those of Ruyfch (*i*), and in some of those besides which are referr'd to here, or above (*k*).

35. However, it is evident that a volvulus may be brought on, not only by fusception, or by a hernia, or by an inflammation of the intestines, but also

(*g*) *Commerc. litter.* a. 1745. hebdom. 24. n. 1. ad 11.

(*b*) *Act. n. c. tom.* 3. obs. 132.

(*i*) *Obs. anat. chir.* 91. & *advers. anat.* dec. 3. 5. & *thes. anat.* 10. n. 62. & *alibi*.

(*k*) *N.* 32.

by other causes, which either obstruct, or stimulate them, as appears both from the observations of others, and from mine also, which I shall communicate to you on future occasions; and from causes that obstruct, necessarily, and unavoidably, provided life lasts for any considerable time with them; but from stimulating causes, sometimes only. And the obstructing causes often relate to the coats of some intestine, as, for instance, that scirrhus ring spoken of in the thirty-second letter (*l*); for stercoraceous vomitings were at length the consequences thereof: and, at other times, relate to the contents of the intestines, and not only to the harden'd excrements, as in the example related by Hoffmann (*m*), where, being collected together, to about the quantity of twenty pounds, they had so distended the colon of a certain prince, who was afflicted with the ileos, that they at length burst through it; but also, sometimes, to a calculous matter, which is gather'd about gall-stones, or about gold coins, that have been swallow'd, and which being so increas'd by their long continuance in the intestines, has brought on the same disorder, by shutting up the passage, and rendering it impervious: examples of which things, to pass over those of others, you will find in the books of the Cæsarean Academy (*n*).

Moreover you will in these same volumes, also, find instances which you may set down to the class of stimulating causes (*o*); as when a young man, by a fall upon his abdomen, ruptur'd the bladder, and caus'd the urine to be pour'd out into the cavity of the belly, so that the intestines being stimulated by an unusual acrimony, which the inflammation, and gangrene, that was the consequence of their inflammation, shew, inverted their peristaltic motion; or when the abdomen of a full-grown foetus being bruised by a like fall of its mother, was the reason that blood stagnating, and putrefying, in the vessels of the intestines, brought on equal effects therein, by irritation, for the infant discharg'd nothing at all from the rectum, but every thing, even the meconium itself, by the mouth, and died in a miserable manner within eight days from its birth. And if the stimulus excite convulsions, what they are capable of doing, not only by producing susceptions, as I have said above (*p*), but also without these by inverting the motion of the intestines, the experiments of Brunnerus (*q*) will show; I mean the grandson, who was worthy of his grandfire; by which it appears that convulsions being excited in the intestines of beasts, the excrements, which could not now be discharg'd through the anus, ascended into the stomach and œsophagus. And a disease which by reason of its very violent tormina, and continual vomiting, and by reason of the large intestines being unusually streighten'd, when the small intestines were very turgid, and red, and fill'd with a remarkable quantity of extravasated, and fluid blood, is very similar to the volvulus, has been accounted for by the celebrated Kulbelius (*r*), from spasmodic contractions. And whether it was from these spasmodic contractions recurring now and then, or from the effect of them which remain'd, that the same intestines

(*l*) N. 5.

(*m*) C. 4. paulo ante cit. §. 13.

(*n*) Act. t. 7. obs. 100. & cent. 1 & 2. obs.

154.

(*o*) Cent. 7. obs. 30. & act. t. 3. obs. 131.

(*p*) N. 32.

(*q*) Experim. circa ligat. nerv. §. 31.

(*r*) Commenc. litter. a. 1737. hebd. 20. n. 2.

had some parts which were unequal, and, at unequal intervals, præternaturally narrow, in that anatomist Jo. Wilhelmus Albrechtus, who, while he liv'd, was very often subject to the ileos, you yourself will judge (s).

36. But among the causes which sometimes bring on the iliac passion by stimulating, worms must of course be enumerated. For sometimes, as is hinted at above (t), by exciting convulsions, they cause intus-susceptions, and volvulus: and it is not to be doubted but they can excite a volvulus, without causing susceptions. At other times they create pains in the intestines only. And sometimes not even these. And it also frequently happens, that a great number of worms are found in those bodies, in which, while living, there had scarcely been the least symptom of worms: and this you will see sufficiently confirm'd, by reading over again the history of the country-woman describ'd in the sixteenth letter (u), or what I formerly wrote of the hound (x), in which there were tæniæ, to the number of sixty. And, on the other hand, there are sometimes symptoms of worms, and none are found, as you learn from the history of the boy given you from Valsalva's papers, in the thirty-first letter (y); and not to dwell too long upon an obvious thing, the same will appear from another also, that is related in the Sepulchretum (z).

But in regard to worms exciting pains of the belly, I shall perhaps have occasion to speak on this subject, at another time, and to enquire more at large, whether, as they irritate the intestines in the living body, it is likewise to be suppos'd in all the histories, which are produc'd to prove it, that they perforated the intestines before death, or rather that they perforated the intestines after death, and if they did really pervade the intestines before death, whether it was where an abscess, or some kind of ulcer, had open'd them a passage from the intestines. For many and various observations are produc'd: of which, however, it will be sufficient to point out some to you, of those that you may add to the Sepulchretum. See first two of these in the acts of the Cæsarean Academy (a). In one of which, in proportion as the intestines are said to be more fill'd with an incredible quantity of worms, from the upper to the lower part of that tube, it may perhaps seem to be render'd so much the more credible, that they, especially as they were instigated by a quantity of bitter elixir, had begun to perforate the intestines in the living body, from which they were already protruded by half their length. An equal, and even a greater, quantity of worms was found by our Molinetti (b); for besides those, with which all the intestines were fill'd, and stuff'd up, others had got out from the intestinal tube, which was perforated like a sieve, and fill'd the abdominal cavity all around. But these appearances were seen in the dead body, as those also which I found in a hen (c).

But how is it when they are seen in the living body? A very ancient observation is extant of Hippocrates (d), made upon a little child of Dinius, from whose navel, "a large worm sometimes" came out. But as a "fif-

(s) A. 1736. hebd. 12. n. 1.

(t) N. 32.

(u) N. 38.

(x) Epist. anat. 14. n. 48.

(y) N. 5.

(z) Obs. 1. §. 2.

(a) Tom. 1. obs. 172. & tom. 5. obs. 68. prope fin.

(b) Dissert. anat. Pathol. 1. 6. c. 4.

(c) Epist. anat. 14. n. 44.

(d) Epid. 1. 7. haud ita procul. a fine.

"tula" had been left there from a foregoing wound, and the worm and bilious fordes came through the same place; it was certain, beyond a doubt, that the small intestine was perforated; but it was from a wound; for that it was perforated by the worm, was not even suspected by the grave interpreter Valesius (e). There is likewise extant; not to digress improperly from those observations which are join'd with the dissection of the body; there is extant, I say, in the acts just now quoted (f), an example of fifteen worms coming out from the right hypochondrium, and the loins, on the side that corresponded thereto, yet through tumours which had been form'd in both places, and suppurated; the origin of which is attributed to the worms, indeed, having gnaw'd the intestinum colon, but at the same time to a vitiated, corrupt, and eroding saburra, which had been collected there. When you read, therefore, in the first (g) and seventh (h) centuries of the same Cæsarean Academy, other observations of that kind; although in the second, for the sake of brevity, perhaps, no mention is made of any tumour, or abscess, you will consider what any one might suspect. For it is my intention here, as I have said, to point out the examples which relate to the various causes of pains in the intestines, and not to enquire how, and in what manner, they happen'd.

When we enquire into this, another thing, also, must of course be enquir'd into, which the observation of Platerus (i), relating to the volvulus likewise, affords us a handle for the investigation of, I mean whether worms are viviparous. For he saw the intestines of a boy, or rather of a young man, surprizingly convoluted, twisted, intangled, and distended, not only with excrements, and flatus, "but also with living worms, oblong in their figure, and in great number, which were again fill'd with other lesser worms." You will also read this observation in the Sepulchretum, not only in the fourteenth section which we are at present upon (k), but also in the twenty-first (l), and you will the more attend to it, if you light on the dissertation, in which the skilful physician Zamponius describes to the celebrated Plancus, a worm which was discharg'd by another boy, and which brought forth, under his very eyes, soon after, many small living worms to the number of eight and twenty. But all these things relate to the round worms.

37. For as to what I remember to have read of the tæniæ, and ascarides, just as if they perform'd the office of ovaria, or rather of a uterus, to the others; either I am much deceiv'd indeed, or the question is of such a nature, that makes it very needless for me to canvass it, as this also is, whether "the tæniæ are ascarides, that are mutually join'd to each other," especially as they who assert it, confess, "that the ascarides are lodg'd only in the intestinum rectum," and in like manner, whether the ascarides "are worms proper, as it were, to the human body; whether other species of worms are "very rare," and other queries of the like nature, which, in my opinion, ought to be interpreted differently, as they, at the very first sight, seem to show.

(e) Comment. in eum. l. n. 105.

(f) Tom. 6. obs. 93.

(g) Obs. 39.

(h) Obs. 7.

(i) L. 3. obs. ubi de extuberantia.

(k) Sub n. xxi. §. 1.

(l) Sub n. xxii. §. 4.

At least Vallisneri (*m*) did not doubt but the tænia was made up of *vermes cucurbitini*, worms which he thus call'd in common with others, and which laid hold of one another mutually, using among others the simile, that I see even Homer had made use of formerly (*n*), for another purpose; I mean that of bats, which hanging from a rock, in the recess of a great cave, are mutually held by each other. But I have often wonder'd that the opinion which Vallisneri patroniz'd, could not be confirm'd by me, in so many teniæ which I have accurately inspected, and examin'd, and these taken from quadrupeds, fishes, and birds: and thus you will easily perceive, if you read attentively the observations which I have publish'd, in the fourteenth of the Epistolæ Anatomicæ (*o*); and even if you read that which Vallisneri formerly publish'd, with my letter which was written to him (*p*): from which observations, it will rather seem to you to be gather'd, that each of these teniæ are distinct long worms, than a concatenation of many. But now I have ceas'd to wonder, since I have learn'd that by the industry of the celebrated Winslow, a duct is, at length, found out, and clearly prov'd, by an injection of a very fluid matter, which went through the whole length of the tenia.

If this duct had been known at the time in which I, or Vallisneri, wrote, and the experiments had been publish'd, by which it appears that aquatic worms, divided into many parts, had liv'd about three months, without any nourishment; and, by a new observation, it had also been made probable, in another species of teniæ, that in the very slender extremity, which seem'd to be the tail, was the head of the teniæ; not only I should more readily have understood what I saw, but he would have sought out other arguments to support his opinion, or rather, as he was a man very studious of truth, would have entirely discarded it.

But these things that I have mention'd, have come forth since that time, as you will learn from the dissertation, of the very experienc'd Bonnet, upon the tænia, which is written accurately, learnedly, and ingeniously, and which was presented to the Royal Academy of Sciences at Paris (*q*): This dissertation will perhaps furnish us with an occasion of enquiring into other things, at some future opportunity. But now, still keeping my subject in view, I return from these disquisitions, which came accidentally in my way, to my original intention, as I see that some things still remain, out of those which relate to pains of the intestines, which deserve consideration, and are desirable to be known; but as this letter is already very long, I shall defer what remains to be said on this subject, to the next. Farewell.

(*m*) Consideraz. int. alla generaz. de vermi &c.

(*n*) Odyf. l. 24. sub initium.

(*o*) N. 47. usque ad 55.

(*p*) In calce modo cit. libri.

(*q*) Mémoires présentés à l'acad. r. des sc. tom. 1.

LETTER the THIRTY-FIFTH

Concludes the Discourse upon Pains of the Intestines.

IT is true that I have compris'd in the last letter, a great number of examples of pain in the intestines, and of the inflammation and gangrene that are the consequences of it. Yet other examples still remain, which so much the more deserve attention from you, and other junior physicians, as you will find that the patients were snatch'd away in a shorter time, or under a more deceitful appearance of remission. I shall begin with these of the first kind, and even with the case of a young man, who was extremely well-known to me, when I was at Bologna, and whose disease was so rapid in its progress, that I had scarcely heard of his disorder before I heard of his death. And the following is the narration of the case, for it was not written by Valsalva, but deliver'd to us from his own mouth, at the time in which it happen'd.

2. Lælius Lælii, a native of Imola, in the papal territories, a student in medicine, was a lover of solitude, and by nature easily irascible: this young man, when he was in good health as usual, without any previous cause, except that he knew his father was then at the point of death, and expected, every hour, the melancholy news of his having actually expir'd, was suddenly seiz'd, about the fourth or fifth hour of the night, in the middle of November, in the year 1705, with a violent pain in the umbilical region, which sometimes was most troublesome in one part, and sometimes in the other, but never went out beyond some certain space of that same region. The person with whom he lodg'd being wak'd by his cries, gave him, according to the advice of some neighbouring physician, a dose of *Philonium Romanum*. This was thrown up by vomiting; for he had already begun to vomit a porraceous bile, which afterwards became æruginous, and at length, when he was near death, black, yet still so as to be inclin'd to a feruginous colour.

In the morning, about ten hours after the beginning of the pain, Valsalva was call'd to the patient. Who, observing an unpromising aspect in the face, an abdomen tense, and painful to the touch, a low, and as it were constricted pulse, which could hardly be felt, a urine of a red colour degenerating into brown and extremely turbid, and other things of this kind, and seeing that so much mischief was done in so short a time, and calling to mind other observations of his, of disorders not much unlike this, pronounced.

mounc'd that he would die within the space of twenty four hours. Yet that the patient might not be immediately sensible of this, he order'd fresh-drawn oil of almonds to be given internally, and the belly to be anointed with oil of violets, with the addition of camphor, and two senior physicians to be sent for. These gentlemen coming four hours after, he said to them, you will see a young man, a worthy-fellow citizen of mine, struggling with so oppressivè a disorder, that unless you can administer some relief, I fear he will not be able to bear up under it long; for, in regard to myself, I ingenuously confess, I do not see wherein I can assist him. At the same time he relates the case, and introduces them to the patient.

After having examin'd into the symptoms, it was their opinion that he was oppress'd by a convulsion, and that, therefore, blood should be taken away from his foot: and that a large cupping-glass should be fix'd to the abdomen. Valsalva was averse to the idea of blood-letting, but as he deliver'd his opinion with modesty, he was overcome by the contrary opinion of the senior physicians. A vein was twice open'd: from the first orifice no blood at all came; from the second, blood did, indeed, spring forth, but immediately lost its impetus, and came out in so languid a manner, that although the orifice was soon after tied up, the pulse could no more be perceiv'd. A slight delirium afterwards came on: the eyes show'd something of a convulsive appearance: the respiration became difficult: and, finally, death came on, according to the prediction of Valsalva, in the following night.

Valsalva, when he put his hand on the abdomen of the carcase, perceiv'd that there was an extravasated humour in that cavity. It was a fluid blood, which had been effus'd to the quantity of about a pound and half: and some blood was also extravasated into the bronchia. However, in the belly was a strong smell, but not to a very great degree. The intestines were, in a great part of them, red in several places, especially those which lay uppermost in the abdomen; and the ileum had already begun to be livid. The peritonæum was mark'd with black spots, in several places, but particularly where it invests the diaphragm. But where it cover'd the stomach, which had a natural appearance on the internal part, it was unequal with black tubercles, rather than with spots. And these tubercles, although at first they had the appearance of glands, were in fact (for Valsalva himself shew'd them, and I saw some of them soon after) nothing else but a stagnating blood, or, if you please, rather the beginning of a gangrene.

3. When he had shewn me these appearances, and, at the same time, related the case, as I have describ'd it to you, I ask'd him why he had neither prescrib'd bleeding himself, nor approv'd of it when others prescrib'd it? He answer'd, that he had no reason at hand, which would clearly satisfy me; but I have, says he, observation. For I have remark'd that blood-letting does not succeed well in inflammations of the bowels: and indeed I have even often observ'd, that patients, of themselves, become exceedingly bad of a sudden in that disorder, and contrary to expectation, so that I am afraid to make use of any remedy of this kind, lest the blame should be laid upon the remedy, which ought to be laid upon the very nature of the disorder.

What then, you will naturally say, when you read this, If any one is almost loaded with a quantity of good blood, if his constitution is strong, and firm, and he be seiz'd with a very violent pain in his intestines, must we, upon the authority of Valsalva, omit to take blood from him? What is this but to suffer an inflammation to continue, which it would be easy for you to prevent? What! If the pain is from a convulsion, must we not endeavour to counteract this by bleeding, but must we even suffer the vessels to be the more dangerously contracted, in proportion as they are more full? Softly, I beseech you; for who has told you, that in such a man as you describe, Valsalva would not have immediately taken blood away? For it is quite a different thing, to open a vein before an inflammation is form'd, or even while it is beginning to be form'd, and especially in a constitution of this kind, from what it is to take blood away when the inflammation is already form'd, when the strength of the patient is diminish'd, and every thing is in a very critical situation; or in other words, to run the risque, as Celsus says (a), "of seeming to have kill'd the patient," who must have sunk under his own severe fate." For the course of this disease is often more speedy than we should suppose; so that if you regard the hours, you would think it in its beginning, even at the time when it has done all the mischief in its power, and is hastening to its fatal conclusion: wherefore in this disorder, if in any other whatever, that Hippocratic maxim (b) is true, *occesso præcepto*: for short indeed is the opportunity of relief. There had been this opportunity in Lælius, during the first hours of his disorder, when the phlogium was rashly, not to say to no purpose, advis'd. When Valsalva came to him, this opportunity was pass'd, and still more when the senior physicians were call'd.

4. For as to their thinking, from these very symptoms, by which Valsalva judg'd the young man to be overcome with the force of a disorder, which was already become insuperable, that he was oppress'd by a convulsion, which they believ'd to be as yet moveable; without doubt the success of venæ section, shows plainly, which opinion came the nearest to truth.

I confess, however, it cannot be denied, that in this disorder convulsion has frequently a great share, and this convulsion is so much the greater, in proportion as the pain is more severe, whether the pain excite the convulsion, or is excited by the convulsion, and also in proportion as it makes the greater speed to its fatal termination. Thus I understand why Boerhaave (c) has accounted for the exquisite sense of the intestines, from their great number of nervous papillæ, and immediately adds: "wherefore persons are very soon destroy'd by inflammation, and excoriation of the intestines, and if there be a very great violence of pain, the strongest man is dispatch'd in the space of a single hour." But frequently, also, in a violent pain of the intestines, manifest marks of convulsion discover themselves, even more than in Lælius (d).

Thus, not to mention here the horrid convulsions, that are describ'd in an observation (e), which, whether you consider the symptoms, or the dis-

(a) De medic. l. 5. c. 26.

(b) Sect. 1. aph. 1.

(c) Prælect. ad instit. §. 91.

(d) De quo supra n. 2.

(e) Eph. n. c. dec. 3. a. 7 & 8 obs. 145.

fection, certainly relates to the present subject; thus, I say, I remember a virgin in the place of my nativity, pretty far advanc'd in years, but of a strong constitution, who was subject to a pain in the belly, which her senior physician did not doubt was a colic, and who, being seiz'd with the same pain, but more violently than usual, about the end of the year 1709, yet without any symptoms of fever attending it, whether you consider'd the pulse, the urine, or any other marks, was very much eas'd by a glyster, which had brought away a bilious matter, and her disorder grew milder every day, so that she was no longer visited by her physician; I remember, therefore, that when the women, who attended the patient, had, instead of a glyster, which had been injected every other day in the evening, introduc'd a suppository of honey, she was immediately seiz'd with so violent a pain in the anus, that in the morning no pulse could be found: and that with this pain, was join'd so great a constriction of the anus, that a glyster could by no means be injected: but soon after, when they endeavour'd to cure this contraction, and pain, by emollients, and anodynes, I remember that all of a sudden, a relaxation of this part came on, just as it frequently does in bodies after death, and about noon, death itself.

Suppose then, that this disorder was a convulsion. And will you suppose it could have been easily remov'd by blood-letting? What if such a cause vellicate the nerves, as it is very difficult to overcome, or if it can perhaps be overcome, for a very short time, it soon after attacks the patient in a more violent degree, as is frequently the case in convulsive disorders? Attend to what happen'd when I resided at Bologna. There was a monk, who was an old man indeed, but very strong. This man was seiz'd, of a sudden, without any evident cause, except, perhaps, from cold, and fatigue, with a pain in his belly, which was so violent that he could not stand in any one place, and was forc'd to cry out. Oil of almonds was given to no effect, glysters were injected without the least advantage, and blood drawn from the foot. No remedy being of any use, he died within twelve hours at least, having gnash'd his teeth two or three times.

I do not write these things against blood-letting, which, if you use it in time, is a very useful remedy. But I put you in mind of what may soon happen, in disorders of this kind, even after that remedy has been made use of, when very violent convulsions prevail: and this that you may know, yourself, and previously inform others, that an important remedy is not to be rashly blam'd, if it happen that a fatal termination of the disease soon follow its use. But as, whatever previous admonitions are given, it is always a reproachable calamity with most persons, if a speedy death succeed a considerable remedy that has been made use of, you plainly understand why Valsalva was afraid of the use of remedies of this kind, in these diseases.

5. But what if the diffiction of the body take away all excuse from the physician? For a convulsion, although it does not return, may nevertheless have brought on such a disorder in the intestines suddenly, and contrary to expectation, by obstructing the blood in the constricted vessels, that during this constriction blood cannot be taken away with propriety. You have seen, in the case of Lælius, how soon the intestines had not only contracted an inflam-

mation.

ination, but a lividness likewise. No part perhaps, more easily, and sooner, than the intestines, degenerates into a gangrene, and becomes black, without the physician's suspecting any thing of that kind. Which, although I could still more properly demonstrate it by histories that are elsewhere produc'd, or will be produc'd in this letter (*f*); yet I will also show here, by two observations that I receiv'd from my two preceptors, the one from Valsalva, and the other from Jacob Sandri. And first take this from Valsalva.

6. There was a man, who for some months, at least, had been seiz'd every day, five or six hours after eating, with pains of the belly, as if he were torn by dogs. To this was added a flux of yellow matter, and a wasting of flesh; when, of a sudden, he was attack'd by an apoplexy, which was slight indeed, and after a day or two seem'd to remit, so that his hands recover'd some power of motion, and his senses were less oppress'd: yet he died on the fifth day.

His body being examin'd, every thing appear'd to be sound, if you except the brain, and the intestinum ileum. For in the ventricles of the former, was a large quantity of serum, from which the plexus choroides had become pale. And in the ileum were seven or eight annular spaces, and those of a black hue: in which spaces were glands of the bigness of a vetch, and most of them fill'd with a white matter: these glands were not collected into heaps, nor plac'd on the internal surface, but were scatter'd abroad distinctly from each other, and were rather prominent betwixt the coats of the intestine.

7. The cause of the apoplexy, as it does not relate to the present subject, being set aside, you see that the cause of the pains which recurr'd every day at a certain hour, consisted, without doubt, in the enlarg'd glands of the ileum, whether they, as Valsalva thought, by what he had seen in some other instances, could not bear the pressure of the nutritious matter, as it pass'd through the intestine, without pain; or were distended by the new chyle, which was unable to struggle through the narrow passages of these glands, that were in part obstructed: which both the nature thereof, that to Valsalva seem'd not unlike that of the glands in the mesentery, shew'd; and that white matter with which most of them were stuff'd up, in some measure confirm'd.

But what I would have you principally attend to here, is, how easily, and how soon, all these spaces, in which they were, contracted a blackness. But you will say that the apoplexy had increas'd the inertia of the fibres of the intestine, and prevented them from dispatching the blood with so much celerity, through those spaces, which were vitiated by the glands. I confess it: but a gangrene is not us'd to seize upon other diseas'd parts so soon, when an apoplexy comes on. And certainly no apoplexy had preceded in the other observation, which Sandri related in the following manner.

8. N. Cupellini being afflicted with a colic disorder, was sitting down on a chair, and drinking an emulsion, when, all of a sudden, he said to his servant, who was standing by him, take it, stretching out, at the same time, the glass which he held in his hand; and as he said this, he fell backwards,

and died in an instant. The whole body being examin'd by dissection, no disorder was found, besides an inflammation of the intestinum colon, which inclin'd to blackness.

9. From this observation you not only see what I advanc'd, but also perceive what disorder there certainly might be in the same intestine, in the virgin of Forli, also, of whom I spoke just now (g). And I would not have you be surpriz'd that there were no previous symptoms of a fever; as we are about to see in this very letter (b), whether there can be an inflammation without a fever, and even whether there can be a sphacelus without an inflammation. But we must first consider such things as relate to the celerity, with which the intestines contract a fatal inflammation.

10. A certain running footman (that is to say he whom I have taken notice of in the fifteenth of the *Epistolæ Anatomicæ* (i), where I wrote other things of him, which I shall not repeat here) of a low stature, and a fat habit of body, being no longer able to do business as a servant, beg'd for his livelihood some years, and made very plentiful use of wine, when he could get it. Wherefore even on the last day of his life, when he came home, and said that he was not well, he took nothing to cure himself but bread and wine, soon after which complaining of pains in the belly, he died with them about midnight. His body was brought on the day following into the college, where about the beginning of February, in the year 1736, I taught anatomy.

The muscles of the abdomen, which were lax, being cut into, and the belly, from whence a very strong smell proceeded, being laid open, I saw that a very considerable part of the small intestines went down, to a considerable depth, into the lower part of the pelvis, so as to reach quite to the conjunction of the bladder with the rectum, filling up all the space that was there. But that appearance had existed from the original formation of the body, or at least was not recent. This however was recent, that these, and the other parts of the small intestines, were, in some places, extremely narrow, and, at the same time, brown, but in other places red, even the smallest vessels being so much distended from the stagnating blood, that it almost seem'd as if they had been fill'd with an injection of red wax. And the same appearance was seen in several parts of the large intestines, but especially at the beginning of the colon. The edge of the liver was blackish. The spleen was larger than it naturally is. The trunk of the great artery, as it pass'd through the belly, was not free from some little ossifications. And the vena cava was fill'd with much fluid and black blood.

11. It is true it was not so short a space of time, in which the inflammation of the intestines carried off the woman, of whom I am to write next: yet it was short, and perhaps shorter than it seems, if it were as certain when the inflammation began, as it is when she first began to be disorder'd at all. But although this is not so clear, yet the other remarks that I made upon this woman, I must not pass over here, as I promis'd them when I wrote of

(g) N. 4.
(b) N. 19. & seq.
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(i) N. 70. ad fin.

the palpitation of the heart (*k*), and of the pulse (*l*), and even when I treated of the affections of the eye (*m*). For this is the old woman, whose disorders I describ'd in that place, only as far as they related to her eyes, and defer'd the remaining part of the description to another occasion.

12. A poor old blind woman, of a small and slender body, having been ill for three days, was brought into the hospital at Padua, being suppos'd to labour under an inflammation of the thorax. For from the patient herself nothing certain could be learn'd, as she was then very weak, and her pulse so very low and small, that she was carried out dead, on the very same day she had been brought in. This woman's body, as the time of the year was suitable, for it was about the beginning of the year 1742, was more useful than I expected, in order to demonstrate many things to the students. And in the course of those demonstrations, I lit on these morbid appearances, which I shall take notice of.

In the belly the intestines were inflam'd, as the liver was also. And to the same cause it was to be ascrib'd, that when the uterus was open'd, the internal surface of the fundus was of a colour not less red, than if the woman had lately menstruated. But where the fundus contracted itself into the cervix, and the anterior and posterior internal surfaces came together, and form'd an angle in the right side, a membrane proceeded from this angle, not very small in its size, and pass'd transversely to the posterior surface, universally cohering with that surface, on its inferior border, but being, in other respects, loose and floating, so that, contrary to the usual appearance of the *valvulæ cervicis*, it had its cavity turn'd upwards, and not downwards: for which reason I suspected that this had not existed from the original formation, but had, perhaps, been the consequence of a difficult birth; for it was certain the woman had brought forth children, and I saw the uterus inclin'd to the right side.

In the thorax the lungs were perfectly sound. But the pericardium was, on all sides, connected to the heart, by a universal, though not very firm cohesion, so that the two membranes, that is of the heart, and pericardium, could easily be disjoin'd from each other, by dividing these connections with the fingers, and without lacerating either. The pericardium did not adhere to the great vessels: but on the surface, by which it had adher'd to the heart, appear'd a certain white spot, only in one place, and that extending itself to a small breadth only. In the ventricles of the heart was some blood which was black, as indeed the blood was every where, but there were no poly-pous concretions in these cavities. Yet in other parts of the body these concretions were found, round in their figure, and white, and some thick, firm, and long, as those were which went from the right auricle, to the internal jugular veins, and those, also, which were produc'd from the orifices of the heart into the arterial vessels. Finally, what appearances were found in the eyes, I have already said in that letter which was last pointed out.

13. Although the histories which I have hitherto given you, show how soon pains of the intestines may, sometimes, become fatal, either by the force of inflammation, or even of convulsion; and consequently, how cautious a phy-

(*k*) Epist. 23. n. 21.

(*l*) Epist. 24. n. 12.

(*m*) Epist. 13. n. 17.
fician

fician ought to be, and even fufpicious, during the violence of this difeafe: yet that he ought to be much more cautious, and fufpicious, left he fhould, at any time, be deceiv'd into a vain hope by the feeming remiffion, and, as it were, departure of this diforder, the following obfervations will fhew you.

14. A young man who was much given to the ufe of wine, and fpirituous liquors, as they are call'd, having labour'd under an intermitting fever, not long before, was feiz'd with a pain of the belly, which a difcharge of flatus, downwards, remov'd. However, after fome days, the pain return'd again; which not being able to get rid of at home, he was, at length, receiv'd into the hofpital of St. Mary de Vita at Bologna, on the fixth day after the return of his pain. The pain was continual in the hypogaftrium, but flight, except that it now and then increas'd, and the belly was often, at thefe times, more fwell'd in that part, and if you applied your hand to it, you perceiv'd many hard globules, as it were, feated in that region. But all thefe fymptoms foon vanifh'd; yet return'd again, at intervals. The ftomach alfo was painful, and he now threw up all his aliments by vomiting, as well as his medicines, among which was even opium itfelf.

Wherefore, as the inteftines difcharg'd none of their fæces, but by means of glyfters, it was determin'd to pay a regard to this circumftance and, at the fame time, to inject fomething of a curative and nutritious nature in the glyfters, as broths, for inftance, and decoctions of emollient herbs, but this was done without any alleviation of the pains, fo that no excrements were brought away, before linfeed oil had been more than once thrown up. Unctions of the belly with the fame oil, and others, were, alfo, tried without effect. The patient bore the pain better when he fat up in the bed, than when he lay down, for which reafon he fat up even when he fleep'd. He was alfo better, and fleep'd better, with an empty ftomach, than if he happen'd to keep any thing down: which circumftance, and the abfence of fome other fymptoms, that frequently fhew the exiftence of worms, made us fuppofe that the pain did not arife from worms, notwithstanding he had thrown up one very long, and round worm, from his mouth, three days before.

At laft he began to retain fome of his nourifhments, and even his dinner alfo. His cheeks were red, which he himfelf faid was owing to a defluxion of humours on his face, to which he had been fubject. He was thirfty. His abdomen was univerfally diftended. It was now the fifth day from the time of his coming into the hofpital, and I fpoke to him, as ufual, about the fixteenth hour, for the winter of the year 1703 was coming on: he faid that he was a little better, which was confirm'd by his countenance, and alacrity of fpeech, and by a more firm vigor of the body, in fitting; for the pulfe never had had any difagreeable fymptom, nor had even then: at leaft there was no fever, nor could any ever be obferv'd, during the whole courfe of his being in the hofpital, except, perhaps, once. And from this ftate of the diforder who could have fuppos'd that any thing fo fatal was at hand? Yet fcarcely two hours had pafs'd, from the time that I, and the ftudents who faw him with me, had made thefe obfervations, when he began, of a fudden, to cry out from a feverity of pain, and that continually even to the ninth hour of the night. In the mean while he had a vomiting, and in the evening he himfelf gave notice that his pulfe could no more be felt, nor indeed could it

be perceiv'd, by those who were present. When it was the ninth hour, to which time, as I said just now, his pain continu'd, he said that he must get out of bed, in order to have a stool. And while he was about this business a swooning came on, and he died, in this manner, within half an hour.

While his body was wash'd, on the day following, a great quantity of putrid blood, as it were, flow'd out of his mouth, diluted with a stercoraceous fluid, of the colour of tobacco, and smelling very strongly. And by this means the abdomen became somewhat flaccid in the hypogastrium: and although in the epigastrium, which was livid, and in the other parts, it was still hard, and distended, yet it was less so than it had been in the living body. When the knife penetrated to the cavity of the belly, a great quantity of fluid immediately burst forth with an impetus, being similar to that which had flow'd from his mouth; and it burst forth in such a manner, that it was doubtful, not only to us who stood by, but even to the person who perform'd the dissection, whether it came from the cavity of the abdomen, into which it had been before extravasated, or from the distended intestine, which, in consequence of its distention, might easily be wounded together with the peritonæum.

However, soon after, when the abdomen was fully laid open, the cavity thereof appear'd to be full of that humour. The small intestines were all as black as a chard-coal. And the spleen, also, was affected, or at least in part, with the same sphacelus. Yet the stomach, as far as could be judg'd from the external appearance, was sound, and all that part of the large intestines, likewise, which goes from the termination of the ileum, to the left hypochondrium: for we were prevented from inquiring into other appearances, by the almost inconceivable ill smell; which was so much the greater, as through negligence, and haste, the intestine had been perforated, whereby the filthy proluvies was increas'd, with which a round worm, of a moderate size, had also come out.

15. You have seen how much disorder there was in all the small intestines, when the young man seem'd to be better. But do you imagine this mischief was done before he came into the hospital, or afterwards? If before, then of course this very great disorder lay hid for five days, without those symptoms which generally attend upon a sphacelus. And if you suppose it to have happen'd afterwards, how did it all come on without signs of inflammation, and particularly without a continual fever? And suppose that almost the same questions may be ask'd you by me, when I produce the observations which follow, or when you read that of Segerus, which is extant in this fourteenth section of the *Sepulchretum* (*n*). That is to say, an old man after having complain'd, for some days, of pains in the belly, to which he was subject, yet not so violent, as to confine him to his bed, at length returning home about evening from his garden, his pains became so violent, that no remedies were of service to him, and he died, on the following day, about the fourth hour in the morning: and indeed other diseases of long standing were found in the pancreas, the liver, and the spleen; but this one was recent, that

“ the intestines, particularly the small ones, and the colon, were very “ black.”

Is it possible then that all this mischief could happen within a few hours, from the time that Segerus had found the pulse to be somewhat more quick than usual? But in regard to this I will also consider below (*o*). At present, to return to our young man, if it had been certain that the very foetid colluvies, which I have mention'd, had been previously effus'd into the cavity of the abdomen, by a rupture of the intestine while living, and not from a wound of the intestine after death, as we had some reason to suspect, we should then conjecture that the swooning, and death which was the consequence of it, had probably happen'd at the time when in the strainings to discharge the fæces, he had broken through some rotten part of the distended intestine. For Wepfer, also, as you will likewise read in this section of the *Sepulchretum* (*p*), speaks of “ the intestines being ruptur'd, and all the *serdes* extravasated into “ the cavity, with the sudden death of the patients.” Which, however, does not always necessarily follow, as two observations in the same section of *Fernelius* (*q*), and *Riverius* (*r*), jointly demonstrate: and the same may be gather'd from one of ours describ'd in the former letter. But whether those which you read in the *Commercium Litterarium* (*s*), and in the *Acts* of the *Cæsarean Academy* (*t*), belong to one, or to the other class, I leave to your own prudence to determine. To the former class, however, belongs that which was lately given us by the celebrated *Galeati* (*u*); so suddenly was the man carried off by tormina of the intestines, and so full of excrements was the abdominal cavity, likewise, found, which had been discharg'd from the ruptur'd intestine.

But now let me give you a lamentable history, in which the pains had not only remitted, but entirely gone away.

16. A slender woman of a short stature, and of a bilious temperament, as it is call'd, being about forty years of age, and having been a widow for three years, was accusom'd to spit blood now and then, which she attributed to having been without her menstrua, for eight years past, though to me it seem'd that this blood came from the larynx rather than from the lungs, when, at length, from anger, and uneasiness of mind, she was seiz'd with a pain, on account of which she was oblig'd to come into the hospital of St. Mary de Morte, at Bologna, about the beginning of March, in the year 1706. This pain seem'd to be from the cutting of knives, as it were, first below the left breast, from which seat it extended itself, afterwards, without quitting it, to the part below the right breast, where it was more slight however, so as to suffer the patient to lie on that side. For it increas'd from the part being touch'd: and made respiration difficult. It had begun with a febrile rigor, which recurr'd every day; but the fever did not intermit. The face was red: the thirst was troublesome; but the cough still more so, as it exasperated the pain. The spitting was frequently bloody, at other times white, thick, and frothy. There was often a sensation as if of something

(*o*) N. 19. & seq.

(*p*) In addit. obf. 3.

(*q*) 23 & 21. §. 4.

(*r*) N. 9.

(*s*) A. 1742. hebd. 45. n. 2.

(*t*) Tom. 8. obf. 47.

(*u*) Comment. de bonon. sc. acad. tom. 3. inter medica.

ascending to the throat. And, finally, there was a pain about the navel, just as if dogs were tearing that part. The belly was lax.

Blood was taken from the foot: and other remedies, which were suppos'd to be serviceable, were administer'd. After a few days, without any previous critical evacuation, all the symptoms were grown so much milder, that the physician pronounc'd the patient already well. In consequence of this she got out of bed: but her strength soon failing her, she was presently oblig'd to return to her bed, where she was found contracted into herself, as we generally are from cold, and without any pulse. She was ask'd whether she felt any pain in the thorax, or belly, to which she answer'd in the negative. On the same day she began to discharge a fœtid blood by stool. She was afterwards delirious: and convulsive startings of the tendons discover'd themselves in the wrists. Being much weaken'd by these symptoms, so that she was no longer able to speak, she died on the sixteenth day from the beginning of the disorder.

The abdomen which had subsided, being cut into, and laid open, a fœtid smell was discharg'd, such as generally comes from a gangrene, but mix'd with that odour, which where there are worms seems to be emitted from an acid matter as it were. Nor indeed were round worms wanting in the small intestines, all of which, from a red colour, inclin'd to a livid and blackish hue. The same morbid lividness occupied the flat surface of the liver, on the lower part of it, and penetrated pretty far into its substance. The pancreas being become thicker than natural, consist'd of indurated globules, as it were. The liver, also, was somewhat hard, and the gall-bladder was distended with calculi, to the number of a hundred and twenty, which were contain'd in a palish bile.

The largest of these, which were about twenty in number, were equal to the bigness of a filbert. Other circumstances relative to these calculi, I have describ'd in the *Adversaria*, in the first place (x). Where (y) something is also said of the situation of the uterus in this widow, which was so drawn to the right side of the pelvis, by the round ligament being shorter than usual, that the middle of the pelvis was without a uterus. Moreover, where the tube emerg'd from the uterus, on the left side, was a prominent pustule, turgid with a white pus, equal in size to a lupin; and the substance of the uterus, which the pustule had hollowed out, appear'd to be black after the pustule was open'd, and the pus discharg'd. The tubes contain'd a matter which was not white, but of a fleshy colour degenerating into yellow. The testes were contracted, and had a few vesicles within them; and the coat of one was almost cartilaginous.

On opening the thorax, we found the lungs, on their anterior surface, connected in a few places to the pleura by membranes, but in other places free, and found also, if you except the anterior part of the right lobe, the substance of which was somewhat compact, but not very hard. There was no moisture in the pericardium: but in the right ventricle of the heart, which was flaccid, and at all the orifices of that viscus, were small polypous concretions.

(x) III. animad. 28.

(y) IV. animad. 25.

As to the parts of the pharynx, from whence the bloody spitting had proceeded, I have spoken of these in the *Epistolæ Anatomicæ* (z).

Finally, when the head was sever'd from the neck, a small quantity of water issued forth, through the great foramen of the occiput: and some water was also found under the pia mater, when the cranium was open'd, particularly on the right side. In the lateral ventricles of the cerebrum was a reddish serum, and the plexus choroides were unequal, with a great number of hydatids, which were easily broken through by touching them. From the sections of the medullary substance, where some bloody points were discover'd, a greater quantity of blood was press'd out than there generally is. From this cerebrum, as also from the tongue, the pharynx, and even from the very eyes themselves, which I dissected, the same kind of odour of worms was perceiv'd, that I spoke of in the belly.

17. If you set aside what relates to the delirium, to the convulsions, to the spitting of blood, to the pains of the breast, and the other disorders, which are not the objects of our present inquiry, and only consider the pains of the intestines; you will easily conceive, that when these as well as the other symptoms, had so greatly remitted, without any critical evacuation preceding, that the woman was suppos'd to be recover'd, nor she herself longer felt any pain, the intestines had then begun to grow livid, and black, which the discharge of a foetid blood by stool, beginning on that very day, to say nothing of the asphyxia, join'd to demonstrate.

Nothing in the whole practice of medicine, ought more to be suspected than the sudden vanishing of pain contrary to our expectation. I remember that the very sagacious, and experienc'd physician, Peter Molinelli, whom I have commended in the life of Valsalva, related to me a recent observation of his, to the same effect. A young man of a melancholic temperament, was seiz'd with an acute fever, with an inflammation of the jaws, and a delirium. About the fourteenth day all the other symptoms, besides the fever, left the patient, but that continu'd, and was constant; and although the patient perspir'd plentifully, and made a good deal of water, yet the fever, except that it seem'd to have been absent for one day, ran on quite to the thirty-fifth day. As Molinelli suspected, from the obstinate perseverance of the fever, even after so great a discharge by sweat, and urine, that some very considerable disorder was lurking beneath it, behold without any previous irregularity of the patient, or the attendants, an æruginous diarrhœa suddenly came on, which was attended with a pain a little above the region of the bladder. And as these symptoms came on suddenly, so they as suddenly vanish'd.

Then indeed the physician began to fear something very violent, and not without reason. For the whole abdomen was harden'd to an incredible degree, with a sense of internal heat, and, when you touch'd it, even of pain: at the same time there was no pulse, a delirium came on, a difficult respiration, and, without signs of convulsion, death within the third day, from the time the abdomen had grown hard. And although he was surpriz'd, how an inflammation could arise from blood, which was effete, as it must necessarily be, after a very long, and violent illness; yet that it was arisen he did not doubt;

and I did not doubt but a gangrene had arisen also. But what it was not possible completely to ascertain, by reason of the liberty of opening the body of this young man being denied, it was possible to ascertain in a woman of the first rank, whose history being communicated to me by one of her physicians, should not be pass'd over here, as it was very much like those which are describ'd above.

18. A very great princess of fifty-four years of age, who was not fat in her limbs, but very fat in her belly, in whose pulse it was remarkable, that after every two laudable strokes, immediately follow'd as many strokes that were low, and of unequal celerity, having seem'd to be recover'd from a very violent pain of the intestines, which drew the bladder into consent, and prevented the power of making water, was, a very few days after that pain had left her, seiz'd with a diarrhoea, by which stools of a black colour were discharg'd, and soon after with death.

The belly being open'd, some of the intestines, and the stomach, were found to be affected with a gangrene; the gall-bladder was dry, and in it was a calculus of the bigness of a small pear: in the kidneys were rather granules of sand than calculi. In the thorax the heart, and pericardium, were over-loaded with fat.

19. Whether this oppressive quantity of fat, or even something hereditary, as those things which I remember to have read, formerly, of the king her father, seem to prove, was the cause of that inequality of pulse, I should at least think that the gangrene of the intestines was to be attributed rather to the foregoing inflammation, when the pain troubled her, than to the discharge of atra bilis, as it is commonly call'd, by stool. For this discharge had not infected the stomach; and in the widow of whom I spoke just now (*a*), black stools preceded her death, which did not consist of atra bilis, but of putrid blood.

Yet it is not very probable, you will say, that many experienc'd physicians, and especially such as are generally call'd upon to attend princes, did not distinguish an inflammation, nor the degeneration thereof into gangrene. And as it is my custom to judge of others, and particularly in a disorder which I did not see myself, as I would have others judge of me, I will here, also, preserve my custom of accusing nobody rashly; and unless you dissent, I will say that this gangrene came on without any previous inflammation. And this I shall do under the countenance of a great authority, I mean of Fernelius (*b*), who, after a very violent pain, saw "the extremity of the foot suddenly sphacelated, without any conspicuous redness, so that the patient was, at length, carried off without any fever, without any very violent symptoms." Although therefore, "the greater part of physicians think that sphacelus is the indivisible consequence of violent inflammation," yet from considering several observations, which are very similar to that of Fernelius, Frederic Hoffmann has expressly said (*c*), "wherefore there is no reason to doubt, but the same thing may happen internally, in the viscera, also, without a previous inflammation."

(*a*) N. 16.

(*b*) De addit. rerum caus. l. 2. c. 15.

(*c*) Dissert. de morb. hep. ex anat. deduc.

§. 19.

But if you want instances in the intestines themselves, you may read over again the observation of Segerus (*d*): or rather, as in his observation there was a very violent pain observ'd, and a very quick motion of the artery, turn to another of Frederic Ortlobius (*e*), which is also to be met with in the Sepulchretum (*f*): you will find that the intestines were "livid, black, and "sphacelated," on the right side, and that, as Ortlobius himself wonders at in the scholium, "without previous pains of the belly, and without a previous manifest fever."

20. Yet even as in the patient of Ortlobius, "obscure pains" of the belly had preceded; and as there is nobody who can assert of him, as Fernelius did of the foot of the other, whom I spoke of just now; or who can ascertain, as in the external parts in general, that a "conspicuous redness" had not preceded, in the viscera also, you will not deny that a sphacelus of the intestines may, sometimes, happen, without any inflammation preceding; but will at the same time enquire whether it may not, sometimes, succeed to an inflammation, the principal, and common, symptoms of which do not appear.

Not to recede from the Sepulchretum, turn, I beseech you, to the observation of Riverius (*g*), in this very fourteenth section. The intestinum ileum, you will find, was affected about its termination, together with the portion of the mesentery that was join'd to it, with a gangrene, and even with a sphacelus, in a patient who having labour'd under a pain of the intestines, on the first day of his disorder, which was protracted to the thirteenth day, but "being free from pain, and from fever," on the second day, caus'd great doubts and difficulties to arise among the physicians, on the third and the following days, as "the fever which came on after the second day, together with a thirst, and dryness of tongue, seem'd to give "proofs of inflammation; but they could not conceive how an inflammation could exist in the intestines, without pain."

Shall we suppose then that the sphacelus happen'd on the first day? If so, we must, also, suppose that the patient liv'd in this state, for the space of twelve days. And can this be suppos'd? Or how could it happen, that after the sphacelus was form'd, a fever, which did not exist before, and a dryness of tongue, came on? For you will see in the preceding letter, that the pulse of an old man (*h*), was, from a febrile state, chang'd at length to the appearance of a healthy state, and that the tongue, from a dry state, was become moist, although in his body after death we found a part of the intestines still red, and another part livid, black, and occupied with a gangrene, which were pretty sure marks that this part had very lately pass'd from inflammation, to gangrene. But as to pain, other letters of mine testify, that inflammation of the intestines had existed without it.

For to take no notice that in the twenty-ninth (*i*), the intestines are not said to have been troubled with any pain, notwithstanding they were universally inflam'd to a great degree; as I suppos'd this to happen on account of

(*d*) Vid. supra n. 15.

(*e*) Eph. n. c. dec. 1. obf. 143.

(*f*) L. 3. f. 1. obf. 11.

(*g*) Obf. 21. §. 4.

(*h*) N. 25.

(*i*) N. 10. 11.

their being paralytic: they certainly were not paralytic in other patients, as, for instance, in the two who are spoken of in the twenty-first letter (*k*), and yet, although the intestines were found to be inflam'd, no complaint had been heard of pain being therein. And to mention a patient whom you may more easily call to mind, a woman was describ'd in the preceding letter (*l*), whose small intestines were red in the chief part of them; yet they had seem'd to be pretty free from pain. And indeed the other principal symptom of inflammation; which is fever, had never been observ'd in this woman, through the whole course of the disease: and in the porter, whose history was given a little after hers (*m*), the fever, whether you attended to the pulse being not very frequent, or the flesh not hot, was slight; yet the inflammation was not slight; so that there was no room in him, and much less in the woman, for the opinion of Ballonius (*n*), though in other respects to be commended. Who after having said "it was natural to suppose, that a considerable fever must be the consequence of internal inflammations;" yet immediately adhering to the opinion of Galen, "who taught that inflammations of the internal parts must be very great, in order to bring on an acute fever," he says this, if there be a "slight inflammation an ardent fever does not come on."

21. And all these things being consider'd, when together with the other symptoms of inflam'd intestines, you find a violent pain, and an acute fever, attending the patients, you will deservedly, and with justice, give credit to those medical writers, who have plac'd these two appearances among the principal symptoms of great inflammation, in the intestines. Yet if you, at any time, find that one, or both, of these are not present, or but in a slight degree, you will not immediately suppose, either that there is no inflammation, or that it is but slight, and that a gangrene, and sphacelus, cannot exist in the intestines. of those persons, in whom you do not see that these two symptoms have preceded. It were much to be wish'd, I confess, that physicians when they have recounted the symptoms of this inflammation, and of a gangrene that is the consequent of it, would not omit this monitum in a disease, which by a deceitful appearance of this kind, frequently brings on a swift and sudden destruction. say frequently. For I remember, when with surprize I related to Valsalva, and Albertini, the case of the young man which I describ'd to you above (*o*), that both of them, immediately, affirm'd nearly the same thing to have happen'd to them, more than once.

At which time Albertini inculcating upon me, that it was necessary to watch, and be cautious, in pains of the intestines: for that he after slight pains, or at least with those which were by no means considerable, without any manifest fever, without any convulsion, without any vomiting, when both the internal, and external, senses were vigorous, and strong, had seen patients fall very suddenly into the utmost danger, and be soon snatch'd away by a latent inflammation of these viscera, degenerating into an unexpected sphacelus; I say Albertini inculcating these things upon me, I ask'd of that very attentive physician, and diligent observer, from what signs then.

(*k*) N. 9. & 17.

(*l*) N. 11.

(*m*) N. 13.

(*n*) L. 1. Confil. med. 112.

(*o*) N. 14.

we might judge of the danger which threatens, and be able to foretell it at least. He answer'd, from the pulse, the abdomen, and the face. For the pulse is low and rather weak, and if you attend to it closely has some little irregularity, which makes it not quite similar to itself: and the abdomen is tense, hard, and attended with some pain: and, finally, the face has something unusual in its appearance, though different in different persons, so that sometimes I have observ'd the eyes to look as if the patient were frighten'd, at other times there has been a kind of lividness about the lips; and these, said he, are the most general appearances that it has happen'd to me to meet with, in cases of this kind; yet I have sometimes also observ'd a morbid appearance of the tongue, and a kind of thirst.

Thus it was that he pointed out the symptoms, with that ingenuousness which was natural to his character. And the truth of his remarks has been prov'd to me by the cases of many, but particularly by that of Thomas Aleotti, a fellow-citizen of mine, who was equally eminent on the account of his noble family, and the probity of his manners. For he being confin'd to his bed, after certain pains of the belly, to which he was subject, and not recovering with the same degree of quickness, that he had been accusom'd to recover with, his physician was sent to me about evening, in the autumn of the year 1711, if I remember rightly, when I was prevented from going abroad by a slight disorder, to consult me upon the case: this physician having told me that the patient was attended with some of those symptoms, which I mention'd just now, and having found out, by the questions I ask'd him, that others were not wanting, I desir'd him, quite contrary to his expectation, to return to the patient, and if he observ'd him to be grown never so little worse, to take care to inform the people about him, that a very considerable danger might be at hand, and that the patient might settle all his affairs respecting both himself, and his family.

You will naturally inquire what was the event? Why a very few hours after, the patient having begun to grow manifestly worse, and having immediately done those things, of which he was at length admonish'd, this excellent man was snatch'd away by a speedy death, within the course of that very night.

22. But as the nature of medicine is such, that the same things do not always answer in the same degree, I would have you make use of what I have said in such a manner, as, if at any time you see the greater part of these symptoms, which I have mention'd, come together, to be at least suspicious of the consequences, and observe the succeeding symptoms with great caution and attention. And in the mean while, perhaps, it will not be altogether without advantage, if you compare with the observations, which are written in this and the former letter, on the one hand, the greater part of the symptoms recounted by Albertini, and on the other hand, those which are generally given by physicians, in order to distinguish the inflammation of the intestines. Albertini had observ'd the pulse to be low, and rather weak, such as you will find it to have been, in general, in the foregoing letter, under number nine, eleven, eighteen, and twenty-five, and in this, under number two, to say nothing of the asphuxia, which was at last observ'd in the same case, and under number fourteen, and sixteen. He had also observ'd the abdomen to be tense and hard; the face and eyes to have something unusual in their appear-

ance: of which circumstances, you will find what has been observ'd under all the numbers mention'd above, except the eleventh, and sixteenth, where nothing is said upon the subject.

Medical writers, indeed, agree in the tension of the abdomen. But they add many other symptoms which prove, beyond a doubt, the intestines to be inflam'd; yet they mean that evident inflammation, which all may easily ascertain, and not this obscure disorder which we now speak of, and which very few suspect. Among these symptoms are, particularly, an acute fever, and a violent pain: without which, however, I have shown, above (*p*), that this inflammation has existed. Besides, in regard to the fever itself only, I would have you read the observation written by the celebrated Rosa (*q*), and you will find, "that the whole intestinal system was inflam'd, and gangrenous," and yet, "that in the whole course of the disease, not the least increase of celerity in the pulse could be observ'd, nor any febrile motion."

This author, also, describ'd a peculiar case, in the year 1745. But before this; not before the observations of my preceptors, and mine; the celebrated Simpson had publish'd those things, which gave the illustrious archiater, Van Swieten (*r*), a proper occasion of commending him, and confirming the opinion in those words, which, although you will see them repeated by more than one of our Italian writers, in the years last past, it will, nevertheless, not be foreign to the purpose to quote on the present occasion: "Simpson has given us a caution, which must prove very salutary, and useful, in the practice of medicine, and tend to prevent those practitioners from being deceiv'd, who suppose that there can be no inflammation, where there is no fever. Whereas an inflammation often produces fix'd pains of the intestines, and stomach, although no fever can be observ'd by the examination of the pulse." You see this very experienc'd man says, that the case happens "often;" so that he does not doubt but this is "a caution, which must prove very salutary, and useful, in the practice of medicine." And this was what I myself, in the year 1703 (*s*), wonder'd should have been omitted, by those physicians that I have at present in my eye, who had taught us the symptoms of inflammation of the intestines, as they had of all other disorders. Thus far then as to fever.

But in respect to pain, it must be added, at present, that it is suppos'd, by the same physicians, to be join'd with a sense of pulsation, and of considerable heat, such as you will find in none of our observations; and you will even read one (*t*), in which, when I expressly enquir'd after a sense of pulsation, and heat, the existence of both one, and the other, was particularly denied. In many, (*u*) you will rather find the pain to be so describ'd by the patients, as if dogs were gnawing them.

By the same writers it is also suppos'd, that there is obstinate costiveness, and continual vomiting, especially if the small intestines are inflam'd, so that the excrements are, at length, discharg'd by the mouth. But you will certainly find nothing of this kind, by reading, over again, what is said above (*x*),

(*p*) No. 20.

(*q*) Aët. p. c. tom. 8. obs. 47.

(*r*) Comment. in Boer. aph. §. 371.

(*s*) N. 14. & 21.

(*t*) Epist. 34. n. 9.

(*u*) Ibid. & n. 18 & 25. & in hac epistola, n. 16.

(*x*) N. 10. 12. 16.

of the servant, the old woman, and the other woman at least: nay, the latter had even a laxity of the intestines. Thirst also you will in vain search for in many: I do not mean that slight thirst which Albertini has sometimes observ'd, but that which they call very troublesome, and which they say is the natural attendant of an acute fever. I omit other things, for it is not my intention to refute writers, whom I greatly esteem; but only to show that those symptoms which are deliver'd as the principal arguments of inflam'd intestines, are not always to be depended upon, as they are not always present, where this inflammation exists.

23. However, I cannot sufficiently, and according to their merits, commend those gentlemen, for admonishing us that the inflammation of these viscera, easily, and frequently, degenerates into gangrene, and sphacelus, and that this may be argu'd from the sudden departure of the pain. Without doubt it is from the same cause, that if this happen in a dysentery, the patients are soon carried off, when they themselves, and those about them, are less apprehensive of it. You have in this third book of the Sepulchretum, and in the eleventh section, an ingenuous confession of Drelincurt (y), which is worthy of Hippocrates himself: for Drelincurt "being rejoic'd" on account of the pains of a dysenteric patient having vanish'd away at once, had reason to repent of his joy three days after, when the patient died without pain, by reason of the viscera being "blasted," or, in other words, sphacelated to a surprizing degree. And when I wrote to you, on another occasion (z), I conjectur'd it to have happen'd from a sphacelus of the intestines, that in the last days of a dysentery, and of life, the fever has even sometimes seem'd to be gone off; and in this (a), and the former letter (b), I have shown what not only the cessation, but the remission also, of these, or other symptoms, when they happen contrary to our expectation, may be suppos'd to be arguments of.

Yet take care how you believe, on the other hand, that in those patients, in whom there is a sphacelus of the intestines, the pains always cease, as you are taught the contrary by the history of the young man (c), who, though he was oblig'd to cry out incessantly, with excruciating pain, for the last fifteen hours of his life, nevertheless had the greatest part of his intestines black, to as great a degree as can be conceiv'd. For the part which yet remains sound, a dreadful inflammation, or some other cause, may, in the mean while, excruciate; as, for instance, a convulsion, or what we observ'd in that young man, and frequently in others, who labour'd under the same disorder (d), I mean intestinal worms.

But whether it happen'd accidentally, or because deprav'd, and irritating, remains of the chyle are the consequents of a depravity in the bile, that others (e), as well as myself (f), have found calculi in the gall-bladders of some of these patients, I leave quite undetermin'd.

However, discharges of black matter by stool, when join'd with a cessation of the pain, as I have taken notice of above (g), are with great justice, and,

(y) In addit. obs. 4.

(z) Epist. 31. n. 26.

(a) N. 14. 16. 18.

(b) N. 15.

(c) Supra n. 14.

(d) Supra n. 16. & epist. 34. n. 9. & 33.

(e) Vid. obs. 47. cit. supra ad n. 22.

(f) Epist. 34. n. 15. & supra n. 16. 18.

(g) Num. iisd.

propriety, plac'd in the number of the most alarming symptoms, and those which show death to be near at hand: and to this we should also add, that which I have describ'd to you in another letter (*b*), not, indeed, as being join'd with a pain in the intestines, which, by reason of their paralysis, had never taken place, but as being join'd with a great inflammation of them all. The next letter you are to expect will be on the subject of tumour and pain of the hypochondria. In the mean while farewell.

LETTER the THIRTY-SIXTH

Treats of Tumour and Pain of the Hypochondria:

FOR those reasons which I have given in the thirty-second letter (*a*), I pass over the very short section, upon the piles, which follows in the Sepulchretum, and come immediately to the two next sections to this, that is to the sixteenth, and seventeenth, and intend to comprehend the arguments of these two sections, which are tumour, and pain, of the hypochondria, in this one letter. For these two affections are frequently join'd together, as it will be easy for you to perceive, from those very observations of Vallalva, with which I begin.

2. A woman of forty years of age, of a yellowish complexion, had long been troubled with a hardness in the right side of her belly, which went down quite to the os ilium, and below it. If you touch'd the tumid part it was painful. She was thirsty. For about a month before her death, she complain'd of a pain in her stomach, after taking food, and breath'd with difficulty. On some of her latter days a vomiting had come on; but on the two last, a very severe and violent pain.

The abdomen was found full of a yellow water, which was bitter in its taste, and, like the serum of the blood, coagulated when on the fire. The stomach was narrow in the middle, so as to resemble the straightness of the pylorus, and, in some measure, to bear the appearance of two stomachs. The liver had grown out into a great bulk. For with its right lobe it reach'd almost to the lower part of the belly. The substance of this lobe was universally indurated, and, in many places, distinguish'd with whitish bodies, some of which, that were the largest, were equal to a filbert in magnitude: when it was cut into, it show'd, in some places, a beginning of erosion, and a putrefaction of the juices to have been at hand. And the left lobe of the liver, being in like manner indurated, press'd upon the stomach in that part,