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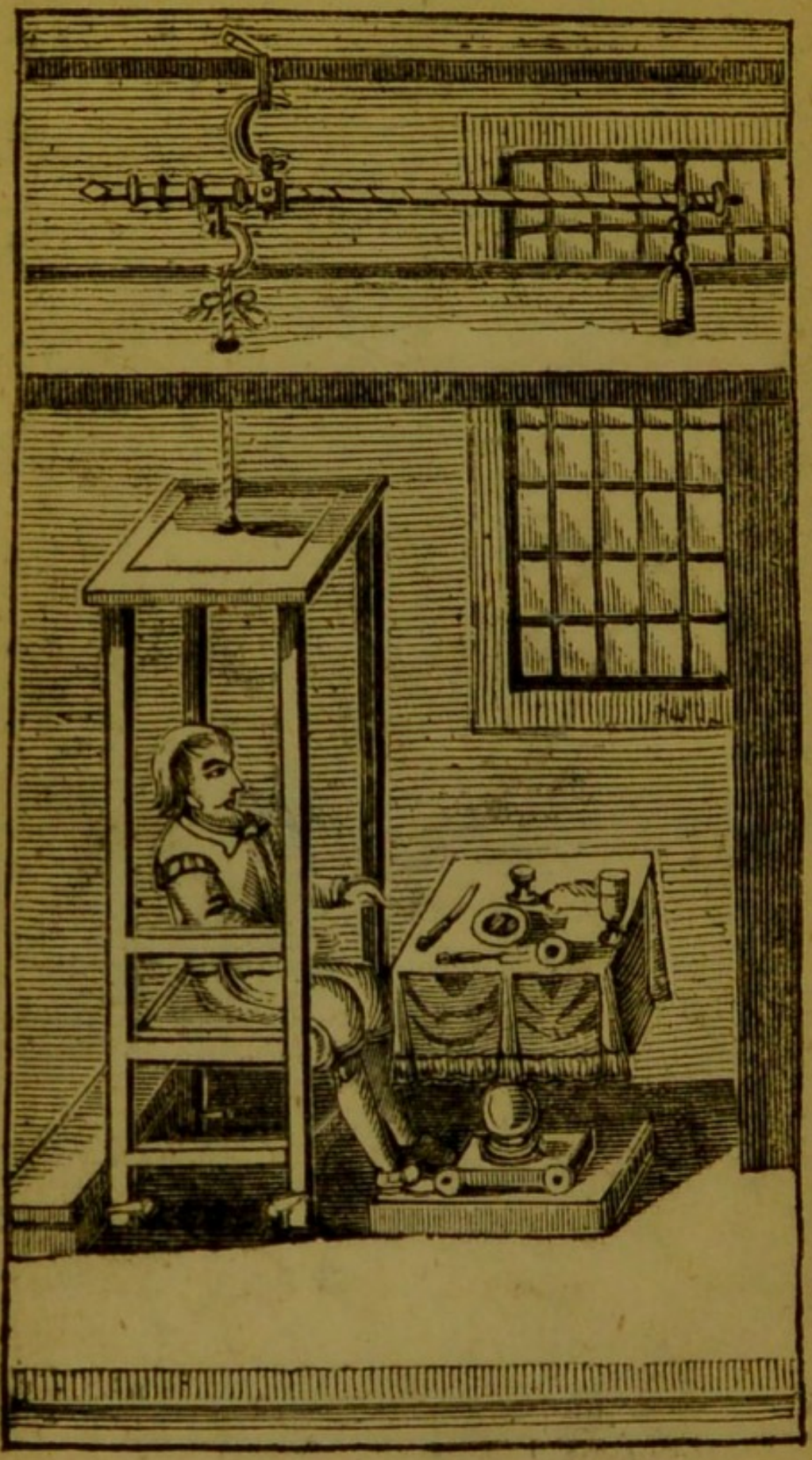

Pondere, Mensurâ, & Numero Deus omnia fecit.

MEDICINA STATICA:

BEING THE

APHORISMS

OF

SANCTORIUS,

Translated into English, with large Explanations.

BY JOHN QUINCY, M.D.

AND FARTHER EXPLANATIONS

By John Knox Stuart, M.D.

GLASGOW:
PRINTED BY CHARLES REID AND CO.

MDCCCXLII.

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THE PREFACE.

I Persuade myself that there will be but little need of an apology for the following performance, with regard to the design of it. The APHORISMS *of* SANCTORIUS *have long been in the best esteem with all good judges who have had the luck to be acquainted with them; and hereby I have endeavoured only to bring them into a larger acquaintance, both by rendering them in our own language, and giving such explanations of some of the most difficult, as may make them easy and intelligible, almost to any person who has given himself the leisure to reflect at all, upon the nature of his constitution,*

and the changes it is most apt to undergo by the influence of external causes.

This collection of APHORISMS *has not only been a particular favourite with the Faculty, but also has had a great share in the good esteem of all other persons of understanding; than which there cannot be a more convincing proof of its worth: Truth never fails of entertainment when it appears in its natural dress; as it may generally be observed in any science whatsoever, that when any thing is advanced and maintained by that natural and peculiar way of thinking, which the mind is fitted to, it will make its way with every man of sense, as well as with those who have been trained up in the mysteries of that science. Knowledge, indeed, is branched out into several channels, all of which have, by the subtility of some enquirers, been pursued into such intricacies, as makes it very difficult to follow them, and by some have been so much disguised as to make it even impossible to do it;*

but when an unprejudiced person is resolved to venture himself upon the strength only of these capacities his Maker has thought fit to bestow upon him, and pursues his enquiries with that simplicity, and upon such evidences as the nature of his subject will admit of, so far as he advances will be attended with plainness and conviction, and be as easily made appear to any other person of tolerable sense, as to the common stagers of that subject.

To this natural and free way of enquiry, it is, that SANCTORIUS *has been able to oblige the world with this excellent collection of* APHORISMS. *Sometimes, indeed, he is very apt to lay hold of his systematical helps; but it is very remarkable that he is never more obscure than at such times. He lays down his matters of fact upon such evidences as cannot deceive; but when sometimes he goes farther, and gives reasons why it is so, he is hardly to be understood: As when he tells us,*

"That cold strengthens robust constitutions, but weakens those who are infirm," *there is no body can doubt of the truth of it; but when he gives his reason that cold drives the natural heat to the centre in the former, and exhales it in the latter, I believe there are very few e'er the wiser.*

These Aphorisms have formerly appear'd in English *under the title of* "Rules of Health;" *but the Translator has retained so many terms and Latin phrases, that the original I should think as easy to an* Englishman *as the other, had it not gone off so much, that at this time it is hardly to be met with. Dr* Lister *has also given an edition in Latin, with his Notes upon each Aphorism: but hardly with any other advantage to the world, than making* SANCTORIUS, *who was before scarce, more common to be met with. Indeed I cannot make any large acknowledgment for his assistances in what I have done, although I hardly omitted con-*

sulting him upon every Aphorism, for in most, I found my author more intelligible than his commentator; but in his notes upon one place, where he speaks of specifics *working by insensible perspiration, and with the Bark mentions the Ipecacuanha, as one of the same tribe, he seems to have gone into a mistake of a very uncommon nature.*

As to the Aphorisms, I have translated them as close as I am able, I mean, as to the author's sense, and taken as much care as possible therein, not to transplant any hard physical terms; and where that could not be avoided, I have been particularly careful to make them intelligible in the Explanations. The Sixth Section of Venery I had some thoughts of leaving out; but for fear some would look upon the collection maimed thereby, and not be contented without all that SANCTORIUS *himself thought fit to give to the public, I have inserted it in its place, and I hope in such terms as are as chaste and inoffensive as our language will bear.*

We have a common saying, that a man at forty is either a fool or a physician; from whence may thus much be gathered,

that a wise man by observing what effects every thing which turns up in the course of life has, upon his constitution, may come to a tolerable good understanding of what will promote, or injure his health. Where then a man has, with the utmost pains and fidelity, gone through a course of observations upon such unerring guides, as with certainty to determine the effects of all these things upon his own person, a communication of them to the world with such lights and assistance as may render them easy and intelligible to an indifferent capacity, can, I hope, be no unacceptable present. It is already out of dispute that SANCTORIUS *has done the former part, and by this, I have offered my best endeavours towards the latter.*

I am not at all unaware how severe some will be hereupon, in requiring how often they must weigh themselves, and whether they ought to eat and drink by the ounce? To whom I have only this to say, That SANCTORIUS *by the Ballance, has already done enough to convince any serious person of the natural discharges, and their proportions to one another, the most considerable of which, viz. That by insensi-*

sible perspiration was but very little attended to before; from which, and all the consequences of those discharges, from the least to their greatest quantities possible, any person may soon be a judge of the present state of his constitution, without going into a pair of scales. And for this reason it is, that I have not been nice in searching into the exactness of the SANCTORIAN *Calculations, the end I proposed being answered, by knowing that there are such discharges, how they are to be influenced, and what will be the consequences of their disorders. Besides, were a person to make experiments with the Balance, it is not at all likely that they should exactly agree with Sanctorius's accounts, both our climate and way of living being so very different from his. He was Professor at Padua in Italy, a country much better than ours, and where their diet is not so much upon flesh as with us; all which cannot but very much influence all the evacuations, but especially that made by the cutaneous passages.*

To supply this defect, however, we have a course of Experiments and Observations made by the same instruments and means

from our countryman Dr KEIL *of Northampton, a very eminent and learned physician, whose Aphorisms I have therefore translated and added hereunto, with such Explanations and comparative Calculations, as are sufficient to apprise every intelligent person of the different influences of different climates. That gentleman indeed went not so far in his Experiments, when his Medicina Statica Britannica was first published, as he had thoughts afterwards to do, but we are now unhappily deprived of any more by his death, and must remain contented with what are hereunto annexed.*

What I have here inserted by way of Introduction, has been a long time the subject of my thoughts, and often in my intentions to make public; but it falling in so well with the contents of the following sheets, I have therefore contracted it as short as I could, on purpose to bind up with them. Mechanical reasoning is what is much talked of now in physic, and by some perhaps more than it is well understood; but the greatest number of Professors of Medicine are declared enemies to it; and making nothing of breaking

their jests upon Angles, Cylinders, Cones, Celerity, Percussion, Resistances and such like terms, which they say have no more to do with physic, or a human body, than a carpenter has to do in making Venice treacle or curing a fever. It is therefore for the information of both these, that I have been at the pains of shewing what Mechanical reasoning is, and proving, that all physical certainty depends upon the same principles.

I have a great while laboured under a heavy complaint of the bookseller, for the confession of somewhat to my disadvantage in the close of the Preface to the last edition, which, he tells me, has been a prejudice to his profits. I shall therefore for his sake be so careful as not to disgrace myself at this time, even in my apology to him, as not to mention what that fault was. I have herein also endeavoured to make him amends by large additions, both to the Explanations, and to the end of the book, of some Essays never before in public, which the reader will find some account of thereunto prefixed.

JOHN QUINCY, M.D.

London, 1728.—4*th edition.*

THE APHORISMS OF SANCTORIUS.

SECT. I.

Of insensible PERSPIRATION, *as it appears by Weight.*

APHORISM I.

IF there daily be an addition of what is wanting, and a subtraction of what abounds, in due quantity and quality, lost

health may be restored, and the present preserved.

Explanation. PERSPIRATION, both as to the matter of it and its quantity, is so absolutely necessary to the well-being of a human body, that a disease can neither be removed, nor health maintained, without it be rightly performed; and where it is so, there must be both a continual waste of substance, and a proportionate supply. The former is occasioned by the constant circulation of the animal fluids, and the forcible contractions and attritions of the solids; whereby such parts are found not suitable for the accretion and nourishment of the body, at length become broke so small, as to fly off through such passages as are by nature provided for that purpose; and this makes it necessary

that there be a proportionate recruit by daily food.—*Quincy.*

Explanation.—The *additions* of what are wanting must be supplied from those seventeen simple elementary bodies, which alone have the property of entering into the composition of all animals. Other elements, indeed, may traverse the animal organization; but in all such cases they act as poisons, and instantly become a source of irritation. The solid elements of animal bodies, are—phosphorus, carbon, manganese, magnesium, aluminum, sodium, fluorine, hydrogen, sulphur, iron, silicium, calcium, potassium, iodine, chlorine, oxygen, azote. There are also four inconfinable elements which enter into the constitution of animal bodies, viz.:—caloric, light, and the electric and magnetic fluids, and all these simple elementary bodies of nature, re-combined, form the proximate principles of the human body,

viz. :—Albumen, fibrin, mucus, gelatin, casein, urea, uric acid, sulphocyanic acid, osmazome, red colouring matter of the blood, and the yellow colouring principle. Azotic gas, enters into each of the above principles.—The following are without azote, viz. : Olein, fatty matter of the brain, stearin, benzoic, acetic, lactic, formic, rosacic, and oxalic acids, sugar of milk, sugar of diabetic urine, colouring matters. These proximate principles are what the additions are made of, and they are all compounded of the previously enumerated solid, liquid, gaseous, and inconfinable elements of bodies. The subtractions consist of the excretions, secretions, exhalations, viz. ;—Excrements, bile, urine, semen, pulmonary transpiration, cutaneous transpiration, follicular secretions, glandular secretions, tears, saliva, pancreatic juice, milk.—*Stuart.*

APH. II.

IF a *Physician*, who has the care of another's health, is acquainted only with the sensible supplies and evacuations, and knows nothing of the waste that is daily made by insensible perspiration, he will only deceive his patient, and never cure him.

APH. III.

HE only who knows how much, and when the body does more or less insensibly perspire will be able to discern, when, and what is to be added or taken away, either for the recovery or preservation of health.

APH. IV.

INSENSIBLE perspiration alone, discharges much more than all the servile evacuations together.

Explanation.—Although this Aphorism may appear at first view very strange to such who are not well acquainted with the make and economy of a human body, and particularly with the discharges made this way, yet there is hardly any one thing relating thereunto, either of greater importance, or more easily to be demonstrated. The quantities of meat and drink taken in, in any given time, being readily computed, as likewise the sensible evacuations made in the same time; and these compared with

the increase and diminution of weight the body has thereby undergone, will make it very easy to calculate, and with the nicest exactness, how much in that time the waste by insensible perspiration has been, in proportion to all the sensible evacuations; which will be found to be very large, as we shall see in the following Aphorisms. It ought therefore to be of the utmost concern to a Physician, not only thoroughly to acquaint himself with the nature of this evacuation, but likewise thoroughly to know by what means it is to be promoted or lessened, according to the several exigencies of his patient, either for the preservation, or the recovery of his health. *Quincy.*

Explanation.—That transparent liquid that escapes through the pores of the skin is called *sweat* or *insensible*

transpiration; and is composed of water, acetic acid, the muriates of soda and potass, earthy phosphate, oxide of iron, animal matter, and oily odorous matter; also carbonic acid. The first attempts to ascertain the quantity and variations of *insensible perspiration* are due to the author of these Aphorisms, who, during thirty years, weighed with extreme care and indefatigable patience, his food and drink every day, and even himself. Other philosophers and physicians have since employed themselves on the same subject with various success. Among which I may cite the experiments of M. Sequin, who shut himself in a bag of *gummed silk*, with only an opening sufficient to open his lips, around which were fixed the edges of that small aperture in the *silk bag*, with a mixture of turpentine and pitch, from which experiment he ascertained that—the greatest quantity of insensible transpiration in 24 hours was, 6 pounds, 4 ounces, 6 drachms, 24 grains; and the smallest

2 pounds, 2 ounces, 3 drachms—these weights included the pulmonary also. The mean of insensible transpiration is 14. 4. grains per minute, of which 8. 8. depends upon the cutaneous, or *sweat*, and 5. 6. on pulmonary, or transpiration from the lungs.—*Stuart.*

APH. V.

INSENSIBLE perspiration is either made by the pores of the body, which is all over perspirable, and covered with a skin like a net; or it is performed by respiration through the mouth, which usually, in the space of one day, amounts to about the quantity of half-a-pound, as may plainly be made appear by breathing upon a glass.

Explanation.—By pores, are to be understood the excretory

ducts of the cutaneous glands, both internal, as of the guts and *viscera*, and the common coverings of all the muscles, as well as the external of the outer skin. And nature has so provided, that if by any external cause this evacuation is hindered in any one part, it is always increased in another, or else a distemper will ensue; for which reason, when the coldness of the external air, which more immediately affects the outer skin, lessens the insensible perspiration that way, either the sensible evacuations are encreased, as commonly the urine, or greater quantities are carried off by respiration, from the lungs and parts about the mouth, or perspired into the cavities of the guts; which afterwards are discharged by breaking wind, either upwards or downwards. For as long as the impulse within re-

mains the same, wherever there is the least resistance, there always will be the greatest derivation of the perspirable matter. And from hence it is, that we so frequently find when the body is more than usually exposed to external cold, gripings, and great uneasinesses in the bowels, which is nothing else but some part of the perspirable matter that ought to have passed the outer skin checked by the cold, and by an opener passage within, thrown off that way. To this purpose it is likewise very observable in *dogs*, whose outer skin is very little porous, that in hot seasons, and upon much exercise, whereby the more than ordinary motions and attritions of their circulating fluids produce larger quantities of perspirable matter, they throw off a vast deal from their lungs in

respiration, and the parts about the mouth, insomuch that their breath appears like thick smoke.

Lewenhoeck pretends by the help of his glasses to have discovered the texture of the *cuticula* to be scaly, and that those scales cover one another in several lays, more or less, according to the different thicknesses of the scarf-skin in the several parts of the body. In the compass of one cuticular scale, he reckons there may be five hundred excretory channels, and that a grain of sand will cover one hundred and twenty-five thousand orifices, thro' which we daily perspire. *Quincy*

APH. VI.

IF eight pounds of meat and drink are taken in one day, the quantity that usually goes off by insensible perspiration in

that time, is five pounds.

Explanation. — Whence appears the truth of the fourth Aphorism, and that what is wasted by insensible transpiration, is to all the sensible evacuations as five to three. Hence also it ceases to be a wonder, that the body becomes so much disordered by taking cold, (as it is commonly called, which is nothing else than a *perspiratio diminuta*) more than by any obstruction of the sensible evacuations.

Dr JAMES KEIL of *Northampton*, hath, in a Dissertation annexed to his *Medicina Statica Britannica*, endeavoured to prove, that the common notion of a diminished perspiration being the cause of all that is ascribed to a cold, by an increase only of the quantitity of juices, is a mistake; and he seems to charge most of

the changes made from such a cause upon the quality of that matter which is received into the blood by the cutaneous pores, which he calls frigorific particles, of a nitrous kind, and ascribes to them a power of chilling, condensing, and thickening the animal fluids; but the intelligent reader will not find this distinction of any importance, either as to the theory of the economy, or any practical conclusions concerning the regulation of its disorders. QUINCY.

APH. VII.

THE quantities insensibly perspired, vary according to the differences of constitutions, ages, countries, seasons, distempers, diet, and the rest of the non-naturalists.

Explanation.—So that it is not possible exactly to determine the quantities of the perspirable matter, convenient to be discharged in all persons, nor are they in the same person always alike, because they are influenced, and altered according to the seval causes above-mentioned; so that quantity which is beneficial to one, may be more or less than what is convenient for another, and likewise not always, and at all times of the year, convenient for the same person. All which, a careful observer will soon be apprised of, as may be further collected from several of the following Aphorisms: To which the reader is therefore referred, as also to Dr KEIL's Aphorisms annexed hereunto, with their respective explanations. *Quincy.*

APH. VIII.

IF the body be weighed in the morning before and after sensible evacuation, then it will be easy to determine the quantity that is wasted that night by perspiration.

APH. IX.

IF the body encreases beyond its usual weight, without eating or drinking more than customary, there must either be a retension of some of the sensible excrement, or an obstruction of the perspirable matter.

Explanation.—These two Aphorisms are self-evident.

QUINCY.

APH. X.

THE body continues in the same state of health, as long as it returns to its wonted weight without any encrease of the sensible evacuations; but if it comes to its standard by larger discharges, either by stool or urine, than ordinary, it then begins to decline from its former health.

Explanation.—There is so great a difference between the matter of insensible perspiration, and that of the sensible discharges, that the lessening one will by no means compensate for the superfluities of the other, unless it be in very fresh indispositions; for it will be very difficult to prevent the injuries which may arise from what ought to pass through the cutaneous pores, if by any means

it is stopped in the excretory ducts, or prevented from getting into them, by enlarging the other evacuations, because by its stay in the blood and other juices, there will be made such alterations, as cannot easily be remedied by simple evacuation. The body therefore keeping to the same standard of weight, by a regular discharge of the perspirable matter, is a certain sign of good health; but when that fails, and nature endeavours to make amends by an encrease of the sensible evacuations, it is a great chance but some distemper ensues.

QUINCY.

APH. XI.

IF by weight it appears, that perspiration is diminished; the following days it must either be encreased, or some sen-

sible evacuation enlarged; or else there will be laid a foundation for a cachexy, or a fever.

Explanation.—The diminution of perspiration cannot but add to the weight of the body, in proportion to the quantity detained, unless some other evacuation be enlarged beyond what it is naturally: And wheresoever there is an encreased quantity of fluids, the resistances to the contractile force of the arteries must be greater, and therefore if they are not supplied with a proportionable encrease of spirits to enforce their contractions, they cannot beat so frequently, nor so vigorously, whereby the circulating humours will flow slower; and as their fluidities or degrees of consistence are in proportion to their celerities, the slower they circulate they will grow the more

thick and viscid, and consequently obstruct in the capillaries, foul the glands, and bring all such disorders as belong to a *cachexy*, which is a general term expressive of a *jaundice*, *dropsy*, *scurvy*, and all of that tribe; how likewise in some instances of an encreased quantity of fluid, a fever may be produced, consult *Belini* at large in his Book *de Febribus*, who there treats this subject in a way truly demonstrative.

QUINCY.

APH. XII.

A LARGER perspiration, and greater sensible evacuations than usual, cannot be at the same time.

APH. XIII.

IF any one sensibly evacuates more than he ought, at that time he perspires less.

Explanation.—These are both true for the same reason; for the encrease of the sensible evacuations, especially by stool and urine, cuts off the supply of the *materia perspirabilis* in proportion to such an encrease, because what is taken in by the stomach, and designed for nourishment, is thereby carried away before it can mix with the blood and other juices, and go those circuits as are necessary to convert it either into nutritious juice, or break it into parts so small, as will admit of its exhalations through the skin.

QUINCY.

APH. XIV.

TO evacuate too much by stool, urine, or sweat, and perspire less than usual, is bad.

Explanation. — Because a change in the natural proportions of the several evacuations to one another, although it be so that the encrease of one just answers for the defect of another, in quantity, cannot but be attended with some inconveniences. QUINCY.

APH. XV.

WHEN a person returns to the same standard every day, without any change in the quantity of perspiration, there will be con-

constantly preserved a perfect health, and no need of critical evacuations.

APH. XVI.

BAD qualities arise when the body is not one day the same in weight as another.

Explanation.—Because such changes cannot happen, either without some disorders in the evacuations, or irregularities in eating or drinking, from any of which the whole constitution cannot but suffer.

APH. XVII.

A PERSON may certainly conclude himself in a state of health, if upon ascending a precipice he finds him-

self more lightsome than before.

Explanation.—The action of the lungs, in respiration, depends so much upon a good constitution of the blood, from whence all the other juices are made, that it is almost impossible there should be any considerable fault in the blood, and the lungs not some way or other affected by it. And likewise as the invigoration of all the solids, so as to render them ready for their proper motions, arises from the same fluid. It is a certain argument of a healthful state, when any difficult exercise, as walking up a steep ascent, can be performed without any faintness or lassitude; and when on the contrary, thereby the body seems lightsome, and fitter for motion; which sensation a sound body perceives, because by the actions of the pre-

ceding exercise, all the animal fluids are put into brisker motions, the thinner secretions performed in greater quantities, but especially that in the brain, by which the spirits are derived more plentifully into the muscles, and the grosser parts are broke small enough to pass off by insensible transpiration. But of exercise that has this effect, it is to be understood only such as is moderate; otherwise the best constitution may be strained, the fluids too much broke and wasted, and the whole economy thrown into disorder. *Quincy.*

APH. XVIII.

FROM too great fulness arise bad qualities, but not *vice versa.*

Explanation.—That is, good qualities do not arise from emptiness. Excess on neither side can be good, because several ways the body may be injured thereby. *Quincy.*

APH. XIX.

SOO great a weight and fulness may be lessened by sensible or insensible evacuations, either of digested or indigested matter, and it is good so to do; but although it lessens the load, yet it leaves ill qualities behind.

EXPLANATION.—By fulness may be understood, either a *plethora*, or too great encrease of any of the fluids, by a diminution of some of the necessary evacuations, which cannot but

injure the constitution, both by altering the textures and cohæsions of the fluids, and by laying at the same time too great a weight upon the solids. But the contrary is not always true, because there may be a distemper when the secretions are too large, and the body too much emptied; and in the former case, although a *plethora*, and too great a fulness may be taken away by bleeding or purgative medicines, so as to reduce the body to its natural standard of weight; yet it is a great chance, but that during such an overcharge, there may be done so much injury as cannot be removed by those evacuations.

QUINCY.

APH. XX.

OF insensible perspiration, there are two kinds, the one is during sleep, of humours that are well digested, and after which there is an encrease of strength. The other is when awake, and arises from indigested humours, and is weakening, more or less, according to the greater or lesser actions of the muscles during that time.

EXPLANATION. — This Aphorism and the following, well understood, lays open the whole business of *perspiration*, both as to the manner howit is performed, and its consequences good and bad. The reason why that which goes off in sleep is most beneficial, is, because during that time,

the solids are in a state of relaxation, and the motions of the fluids thereby something remitted and more regular; by which means nothing is thrown off by any of the secretions, especially by the cutaneous glands, but what is thoroughly digested and fitted to pass off that way; and likewise, because during the relaxed state of the nerves in sleep, that secretion which is made in the brain, and by which they are supplied with a convenient juice necessary for their invigoration, is chiefly performed.—Whereas, waking, the vibrations, or pulsations of the solids, upon which the motions of the fluids altogether depend, are more disturbed and irregular, being subject to alterations from abundance of causes, even from the thoughts that pass through the mind; whereby the juices are more con-

fused, and the secretions not so perfect, because with what is digested and suited to pass the strainers, there will oftentimes go off some parts as cannot be yet spared without great prejudice. Besides this inconvenience likewise, the solids being so much upon the stretch, and in constant employ, that juice which is absolutely necessary for their invigoration, and the continuance of their springs, is not derived to them in such proportions as it is wasted; by which means there must needs be a continual decay of strength and spirits, although the business of *perspiration* goes on never so well, until fresh recruits are supplied by sleep.

QUINCY.

APH. XXI.

THAT perspiration which is beneficial, and most clears the body of superflous matter, is not what goes off with sweat, but that insensible steam, or vapour, which in winter time exhales to about the quantity of 50 ounces in the space of one natural day.

Explanation.—It is very necessary to distinguish between perspiration and sweat, they differing so much from one another, that as one is useful and preserves health, the other is always injurious and destructive of it, unless when it is to give relief from some greater evil, as a *fever*, or the like. *Perspiration* makes the body lightsome

and cheerful, but *sweat* faint and dispirited. And the more a person sweats, it is certain that so much less he perspires; because the latter depends upon a hardy and vigorous constitution of the solids, which the former is hurtful to and destroys. The matter of them likewise differs, and is very differently supplied; that which insensibly perspires being such, as after a long course of circulations in all the shapes of the animal fluids, is divested of all that can be of further service to any part of the body, and broke so very small, that it passes away without any injury or loss. But the matter of sweat being of a thick consistence, and supplied more immediately from the blood, not only robs the body of a great deal of its nourishment, but relaxes and supplies the fibres so much, as to destroy

in a great measure their elasticity, which necessarily weakens the constitution, and makes it liable to abundance of disorders.

QUINCY.

APH. XXII.

INSENSIBLE perspiration becomes visible, when there is too great a supply, or upon faintings, or upon violent motion.

EXPLANATION.—In faintings the nerves are very much relaxed, and become so slack, that the excretory passages are vastly enlarged, and, as it were, lie quite open; upon which the small force the blood has left, is sufficient to carry through them a great deal, which otherwise would continue its circulations longer in the vessels; and this matter being too

gross and heavy to rise in an insensible steam, lodges and hangs upon the skin thick and clammy. Violent exercise also does much the same by an encrease of the blood's velocity, as the former by enlarging the passages, only with this difference, that what is forced out by an additional impulse of the fluids, although it is in quantity large enough to appear wet upon the skin, yet it is not by abundance so clammy as the other, or defrauds the body so much of a balsamic nutritious juice; wherefore we always experience involuntary faint sweat, to be much more injurious than what happens upon hard labour, the former soon sinking a person into irrecoverable decays and wastings, and the latter continuing even without any apparent prejudice a long time.

QUINCY.

APH. XXIII.

INSENSIBLE perspiration accompanied with sweat, is bad. Because sweat takes away the strength of the fibres. It is sometimes said to be serviceable, because it diverts from a greater evil.

Explanation. — See the Explanation to the two preceding Aphorisms, where the reasons of it will manifestly appear; very much likewise to this purpose is the following.

Quincy

APH. XXIV.

BY how much the more subtle, and without apparent moistness, perspiration is made, it is by so much the more healthful.

APH. XXV.

ALL the thinner excrements are the heaviest and sink. The thick ones are lighter and swim, such as are the hard consistent stools, the *saliva*, and several others of the like kind.

Explanation. — Because they are compounded of particles, especially heaviest, *i.e.* such as consist of large quantities of

matter, in proportion to their bulks; whereas the thicker excrements, that is, such as are consistent and solid, are composed of particles large and extended in surface, which therefore makes them entangle with one another, but are, notwithstanding, specifically lighter.

QUINCY.

APH. XXVI.

THE thin secretions abate more the weight of the body in proportion to their quantities, than the hard and consistent.

Explanation.—It is meant here of what we call *specific weight*, which is a term so frequently used, and by a great many so little understood, that I

cannot think it improper here to give a short explanation of it. *Gravity* or *weight* is taken in a double sense, the one is called *absolute*, and the other *specific gravity*. By the first is to be understood, that universal property which we find in all bodies whatsoever, by which they are said to *gravitate*, or to have a tendency towards some determinate point; but by the latter is only to be understood the different *energy* or force of this universal property in different bodies, with relation to one another. For as gold and iron, both of them are endowed absolutely with this general property, yet in relation to one another they are different in weight, that is, a sphere of one is heavier than the sphere of the other of the same bigness, and this difference of weight, in different compound

bodies, is called their *specific weight.* Thus gold, as before, is *specifically* heavier than wood, and wood *specifically* heavier than spunge. The same distinction is observed likewise as to fluids; quick-silver is *specifically* heavier than aqua-fortis, aqua-fortis than water, and water than air.

In several places of these Aphorisms, regard must be had to this distinction, or they cannot be understood, especially in this and the following. Thus what is discharged in the form of a liquor, as the urine and sweat, is *specifically* heavier than the hard and solid excrements, and therefore the body is sooner freed from too great a weight by the thinner, than the thicker evacuations; which plainly points out the most certain methods to disengage the body from *plethoras*, and pre-

ternatural fulness, when they are not gone so far as to have brought a *lentor* and siziness upon the juices; for then lessening the quantities of the fluids will avail but little, without giving a considerable stimulus to the solids at the same time.

QUINCY

APH. XXVII.

THE most liquid parts of our food are likewise the most heavy, and the solid lighter. Bread and flesh are light, wine and broths heavy. A glass of wine is almost three times as heavy as a piece of bread of the same bulk.

Explanation.--This also is to be understood in the same sense as the aforegoing, with regard to

the distinction between *absolute* and *specific* weight; and then by this Aphorism, wine is almost three times *specifically* heavier than bread.

Quincy

APH. XXVIII.

THAT state of body which has a sense of a greater weight when there is none, is much worse than when it perceives a greater weight, and there really is so.

Explanation.—The reason is, because if a person feels a heaviness, where there is not in reality any encrease of weight, it is a certain indication that he is under some waste of spirits; for a diminution of strength and vigour will produce the same sense as

an actual encrease of weight: Where therefore there is not any such encrease of weight, and such a sense arises, it is a certain sign the body is declining into a distempered state, and consequently in a much worse condition than when sensible of a real weight; because a due stock of spirits and vigour may find some way or other to disengage the body from such an incumbrance, and reduce it again to its natural standard; whereas, when a person feels a burthen upon him only by the decay of spirits, it is a task of much more difficulty (when the stomach and all the solids principally concerned in the offices of digestion, must needs be enfeebled and very weak) to repair such a loss, and will require a considerable time to bring it about, if the prescribed means succeed. From

these considerations also it appears further, that,

QUINCY

APH. XXIX.

WEIGHT, with relation to the perception of it in a living body, is *equivocal*; because it is consistent, that at the same time a body may actually be heavier, and yet seem lighter; and on the contrary, it may be rendered lighter than usual, and yet at the same time feel heavier.

Explanation.—So that when a body is said to be heavier or lighter than before, it is to be understood with regard to the greater, or lesser sense a person has at that time of a weight upon

him. And in this sense one person may be said to be heavier than another of twice his *absolute* weight; and thus people frequently express themselves upon several indispositions, that they have a heaviness upon them, although at the same time perhaps they are actually lighter, but only through a decay of spirits and strength, are not so able as before to support their usual bulk, and therefore they have then a sense of a greater weight. This weight may be called *relative*, and that by which a person is said to weigh so many pounds exactly; without any regard to the perception the person has himself, may be termed *absolute* weight; and care must be taken to observe this distinction in several of these Aphorisms, otherwise their sense will be mistaken.

QUINCY.

APH. XXX.

THERE both these concur, that a person perceives himself lighter than usual, and that at the same time there is no encrease in his *absolute* weight, it is a certain indication of health.

EXPLANATION.--Because such a perception can arise from nothing else than a plentiful invigoration of the solids by a good stock of spirits, which likewise depends upon a perfect digestion and a regular discharge of all the animal functions, and therefore nothing can be a more certain sign of health, unless it be in *maniacs* and *delirious* persons, who have certainly the same perception as to themselves, and yet

are far from being in a state of health.

APH. XXXI.

THAT body which falls into a standard of weight below that of a state of health is in a worse condition than that which rises above it.

Explanation.—Because it is very difficult upon any waste or decay of the substance of the body, to restore it again by supplies of a well-digested nourishment; the methods of doing it, at a time that the solids are weak and enervated, which they must needs be upon such decays, being both very difficult and uncertain, and what requires also a great length of time. Whereas to reduce it from too great an encrease,

there are several evacuations which are speedy and effectual, and attended with no great hazards: To which, if abstinence, moderate exercise, and temperance in the use of all the *non-naturals* are added, they cannot easily fail of success.

QUINCY.

APH. XXXII.

IF a body sinks below its healthful standard, it immediately grows weaker. Which does not happen when it becomes lighter, upon sleep, after a good digestion.

EXPLANATION. — The body cannot fall below its healthful standard by violent exercise or obstinate fastings, without losing

from the very substance of the solids more than can be suddenly repaired, and therefore must of consequence thereby be rendered much weaker. But it is quite otherwise when the body becomes lighter after sleep, because that is occasioned only by the waste which has been before made of such a matter, as after divers circulations is found of no further service, and broke so small as to fly off insensibly through the cutaneous passages, and it is a great benefit to the constitution that it does so go away. What is lost likewise by the former means, is by overstraining the springs of the solids, and wearing the orifices of the excretory glands too wide, both by the grossness and additional impulse of the circulating fluids: Whereas by the latter, what goes away is only a very

fine thoroughly digested matter, which rises through the skin like a vapour, or steam, without any manner of difficulty or disturbance to the body. *Quincy.*

APH. XXXIII.

IF without the force of exercise the weight decreases, and the strength decays, it is because there is not a supply of nourishment in proportion sufficient to recruit what is wasted.

Explanation.—From the necessary actions of the muscles in the performance only of the vital functions, both the vessels will be so much wore away themselves, by the attritions of their circulating juices, and some parts of the juices so much broke, as

to make it necessary that there should be a continual supply; which, if it be not answerable to such a loss, there cannot but follow a defection both in the weight and strength of the body.

QUINCY.

APH. XXXIV.

THE BODY can only grow weaker but three ways; the one is, when its bulk encreases without any decay of spirits; another when the spirits sink, and the body keeps to its usual standard; and the other, when both spirits and bulk decay together.

EXPLANATION.—The whole of this appears from what has been said before, Explan. Aph.

XXVIII. The weight of the body is always to be taken *relatively*; and therefore in what state soever the spirits bear less proportion to the present weight than before, the body is properly said thereby to become heavier; and it is to be understood, with regard to the same distinction, when it is said to be weaker.

QUINCY.

APH. XXXV.

THAT weakness which is felt when the body decays, both in strength and bulk, is the most dangerous; because the bulk is very conducive to its vigour.

EXPLANATION.—The former part appears from Aphor. 29,

30, 31, above; and the latter is confirmed by the following.

QUINCY.

APH. XXXVI.

WEIGHT, or bulk of the body, adds considerably to its strength, either in drawing, carrying, turning, or striking.

Explanation.—The truth of this appears from the following proposition, demonstrated by *Borelli vi Percussionis*, That the force of any moving body is in proportion to its velocity, and the quantity of matter it contains. So that notwithstanding a person of a small bulk may, with respect to his stock of spirit and vigour, be said to be very strong; yet one of a larger, although not

invigorated with a like quantity of spirit, in proportion to his bulk, will be *absolutely* much stronger; especially in the exercises above-mentioned, where the force of *percussion* depends so much upon the bulk of the moving body: There are many *præcognita* from mechanics, which illustrate this matter; and indeed, without such acquaintance, there can be no great degree of knowledge in these affairs: See Aphor. 93 below, in this Section, and for this reason frequently. *Quincy.*

APH. XXXVII.

THE strength of an old man is owing more to the bulk of his body, than his stock of spirits. An old person of a small size may live long, but can never have much strength.

APH. XXXVIII.

IF the body returns to its wonted standard, upon sleep, without any sense of uneasiness afterward, it is good; because it is a sign of a perfect digestion; but if otherwise, it is bad.

Explanation.--Because what is insensibly gone off in sleep, and by which the weight of the body is lessened, is only such a matter as is thoroughly digested, and it is a relief and benefit to nature to get rid of it; and that nothing else goes off with it in sleep, appears, when there is no uneasiness follows it: But when any part of the nutritious juices passes along with it, notwith-

standing the body is rendered thereby lighter, yet inconveniencies will ensue. QUINCY.

APH. XXXIX.

THE body is not presently thrown into a disease by an external injury, unless some of the *viscera* be first disposed to receive its impressions, which predisposition may be known by a greater, or lesser weight than is customary, and that not without some considerable uneasiness.

Explanation.—Where all the parts are equally found strong, any slight disorders from without are easily remedied; but where any part is weaker than the rest, either from hereditary

causes, or the injuries of former distempers, the least indisposition affects it, and without timely care will bring the whole *economy* into disorder. And when any particular part is thus indisposed, it is impossible but the least irregularity, or accident, will so much disorder it, as to hinder its right performance of its proper office, which according to its importance in the *economy*, sooner or later affects the whole body, so far as to be discernable either by an encrease or diminution of some of the secretions. *Quincy*

APH. XL.

WHENSOEVER nature is disturbed in the business of perspiration, she soon begins to

be defective in many more of the animal functions.

Explanation. — Of so great importance is a right discharge by perspiration, both as to its quantity, and the matter of it, that the whole constitution immediately suffers by the want of it; which cannot be strange to one who considers, what large quantities go off by it.

Quincy.

APH. XLI.

IF the head is afflicted with pain, the body soon begins to perspire less, and grows heavier.

EXPLANATION.—The motions of all the solids depend so much upon a due constitution of the

brain and its *appendices*, that it is impossible one should be affected without the others being brought into disorder thereby; and perspiration being owing to the just and regular motions of the fluids, it is unavoidable but that when the head is out of order, perspiration must be so too; and that when one is in pain, the other must be lessened in its quantity, and consequently the whole body become heavier; the reason of which will further appear under Aphor. 49 in this Section. QUINCY.

APH. XLII.

THE first impressions of a disease are much more easily discernable from the changes of an unusual perspiration,

than from the disorders of any of the other functions.

Explanation.—Because, as has been already said, so much depends upon a right perspiration, that it cannot be disordered, but the whole constitution must suffer; and nothing can more certainly be known, than the quantities of that may be, by weighing. QUINCY.

Explanation.—The *cutaneous transpiration*, or as it is more commonly called *insensible perspiration*, has numerous uses to perform in the animal economy: it keeps the skin supple, and is a powerful means of cooling the body, and of keeping it of a uniform temperature; the continual evaporation from the surface of the body, is the principal means, in conjunction with the exhalation from the lungs, that nature has supplied, to cool and

equalize our temperature. Like the urine, it holds several salts in solution; also acids, and the volatilized recrementitious matter of animal substances; when this exhalation is suspended, fever in a greater or less degree is always the effect, and the fever and heat of the skin and breath, will always just be in proportion to the deficiency in the action of these respective functions. Let us just allow our common sense to bear on this subject for a few moments, and we shall soon be convinced of the vast importance of these exhalations in the eye of the Human Architect: For the tears, we have six or seven lachrymal excretory ducts; for the urine we have the two ureters; but for insensible perspiration we have been provided with million upon million of pores. A man has been provided with two eyes, which we may safely presume, has been kindly intended for his benefit, in case he should suffer the loss of one, that he might still have the use of this

very cheering *sense* to prosecute his welfare in this state of being; two nostrils, and these nostrils again, a substitute for the mouth in breathing; two hands and two testicles, also in order that should any accident befall one of them, we might still not be unfit for the great end of our being *procreation!* You see displayed in these duplicate arrangements of function and organs, that the Universal Architect has framed us upon the most beneficient principles. That Power has shewn by these double functions and organs, of how vast importance they are to us, and how detrimental to our health and happiness would be the want of them; but of how much more importance has the function of cutaneous perspiration been considered, when the excretory ducts for it has not been by *ones* and *twos*, but MYRIADS, MILLIONS of pores upon every square inch of the surface of the hu-

man body. These are the true excrementitious emunctories! and of so detrimental a nature is this excrement, commonly called sweat, (that if retained) it immediately poisons the whole body—oppresses the heart—adds an encreased strain upon other vicarious excretions—irritates and disturbs the brain, and in short, becomes the root of fever. If here we would read from the divine book of Nature, we shall find it proclaim these words of its Beneficient Architect: MAN! double organs I have given you, for the purpose of supplying your wants and enjoyments, and throwing off what is obnoxious to you, viz.:—Eyes, ears, arms, lungs, legs, testes, &c.; but with respect to that most poisonous of all the excretions—that obnoxious sweat—in order that ye may get rid of it, I have supplied thee with millions of pores—millions of pores to evacuate that excrement, SWEAT! What more need I say? Our beneficient Architect has said—Man! mil-

lions of pores have I not given thee to get rid of that excrement, sweat!

Stuart.

APH. XLIII.

IF upon weighing, the perspirable matter appears to have been obstructed, and there is neither encrease of sweat or urine for some days after, there is a great deal of danger of a putrefaction of the detained crudities.

EXPLANATION. — The solids will be so much oppressed by the superfluous load which is laid upon them by the retension of the perspirable matter, that unless there soon be a discharge made of it by some of the sensible evacautions, they will not be

able to circulate it with so much swiftness as is necessary to prevent its falling into preternatural ferments, there being nothing which more promotes that intestine motion of liquors that disposes them to putrefaction, than stagnation. For then their several parts are left at liberty to sink or rise according to their several gravities, and obey their respective *attractive powers*, upon which several are broke smaller, and others run into corpuscles of different kinds and properties; whereas so long as they are kept in a circulary motion by external causes, they are not at liberty to obey their *attractive powers*, or their several gravities, but move on without any other alterations, than what they receive from their casual occursions and attritions against one another; the consequences of

which is only breaking them smaller, and rendering the liquor more fluid. From all which it appears, that *the different fluidities of the animal liquors, are in the different parts of the body, as their velocities in each part.* QUINCY.

APH. XLIV.

BUT if upon weighing, it appears that a greater quantity of the perspirable matter has been carried off than usual by any violent cause, it may be concluded, that in the room of such a waste, there soon will be supplied an undigested matter, which will be apt to obstruct the secretory passages.

Explanation. — The great quantities which sometimes fly off

by violent exercise, or any other cause, cannot but leave those fibres they last parted from, with too small a share of moisture; by which as soon as a supply is taken in by a fresh meal, the new juices press forward into those parts faster than they can be digested, and are thereby apt to stick in the small extremities, and obstruct the passages of the succeeding. Hence may be collected several good observations with regard to the preservation of health. As after long distempers which have wasted much the substance of the body, until that loss is thoroughly repaired, to live with a great deal of temperance, feed sparingly, and of what is easy to digest. To observe the same likewise after long fasting, or after any violent exercise, or upon travelling from hot into cold climates; because in all these

cases there is such a great waste of perspirable matter, and the fibres are so much robbed of their proper moistures, that too large a supply of food at once, as soon as it gets into the vessels, for want of its usual resistances, would be press'd on too fast, and fill the smaller with crudities.

APH. XLV.

IF what is thus lodged in the secretory passages, can be rendered fluxile and perspirable, it is well; otherwise the obstructed part will first grow hard, and by degrees schirrous.

Explanation.—When an obstruction of the perspirable matter happens to be only in some particular part, if it is not quickly removed, by the continual accession

of succeeding matter to the same part, there must necessarily be raised a tumour; which, if it so happens to be situated as to hinder much the passage of the blood through the small arterial branches, will encrease with pain and inflammation. And if the blood is quite stopped in any of the vessels, it will impostumate. But if the first collection of perspirable matter happens so to lodge itself so as not considerably to disturb the blood's motion, it may continue a long time, until the thinner parts of it are perspired, and the rest reduced to a hard knotty substance. The best remedies in such cases are at first keeping the distempered part warm, abstinence, or a very sparing diet, and of such food as is easily perspirable, moderate exercise, and a diversion by other evacuations. QUINCY.

APH. XLVI.

IF the obstructed matter can neither be removed by nature, nor a feverish heat, there is immediate danger of a malignant fever.

Explanation.--In this is to be understood not a partial, but universal obstruction of perspiration, which, if it is not immediately removed, cannot but produce a fever. By nature removing it, can be understood no other than the over-charge occasioned thereby being thrown off by an encrease of some of the sensible evacuations, which we very often find to be done, and a fever thereby prevented; but when it does not happen so, a fever will arise for these reasons: *First*, An

obstruction of the perspirable matter cannot but encrease the quantity of the blood, because it is derived from it, and by its obstruction preventing its further derivation; whilst any supply is made either by eating or drinking, the blood must encrease. *Secondly*, The encrease of the blood's quantity will encrease its pressure against the sides of the arteries, and consequently make that stroke which is felt by the finger, when applied to one of them, stronger. *Thirdly*, The encreased quantity of blood will likewise occasion an encrease of the fluid secretions, in a proportion greater than the thicker; which see demonstrated by Dr. *Cheyne*, in his *new Theory* of *Fevers*; and Dr. *Wainwright*, in *Propos.* 18, *of Animal Secretion*. By this, the secretion of the *succus nervosus* in the

brain will be encreased, and thereby the vibrations of the solids become quicker and stronger. *Fourthly*, The quickened vibrations of the solids will encrease the velocity of the blood, and breaks its parts smaller, which consequently makes it take up more room, because the surfaces of bodies, upon their division, do not so fast decrease as their solidities; these being in a *triplicate*, but those only in a *duplicate* proportion to their diameters; that is, the surfaces of the divided parts taken together, are much greater in proportion to the matter contained under them, than the surfaces of the same quantity of matter, when not broke into so many parts, so that the further the division of any body is carried, the more space will that body take up;

and upon this account also will the arteries be more distracted, and the pulse raised, which is what every one calls a *fever*; and after this manner things go on, either until the obstruction is removed, or the overcharge carried off by an encrease of some sensible evacuation, or thrown aside in an abscess upon some particular part, and thereby the *equilibrium* between the contraction of the solids, and the resistance of the fluids again restored; or else until the solids are wore out, and have quite lost their springs, and unable longer to continue their motions, subside, the fluids stagnate, and death ensues. At the first attack therefore of acute fevers, the principal thing to be done, is either to promote immediately that evacuation which has been obstructed, or if that cannot be done, some

other; whereby an encrease of the quantity of blood, and consequently an acceleration of its motion, may be prevented, and all its threatening attendants put out of danger.

QUINCY.

APH. XLVII.

FEVERISH persons are as much in danger, when perspiration is hindered by an unskilful administration of medicines, as by their own errors.

Explanation.—A wise physician therefore will be very wary in the beginning of a fever, and not too busy with medicines, until he finds what course nature herself takes to throw off the distemper; and then his assis-

tance is necessary, and may enable the patient to get over a distemper, which otherwise he might sink under.

Quincy.

APH. XLVIII.

A Moderate dose of *cassia* does not divert perspiration, nor impair the strength, but only rids the body of a superfluous load; but other purges empty too much, and reach the parts more remote, and carry off too great a quantity; for the following food will press so hastily into the emptied passages, that the bowels and bladder will be defrauded of their moistures, whereby the body afterwards frequently grows heavier.

Explanation.—The consequences of too strong cathartics, as to filing the body with crudities afterwards, will be the same, as from too large a perspiration, and for the same reason, which see in Explantion to Aphorism 44. And besides the inconveniences of emptying the vessels too much, as all encreased evacuations do, strong purgatives have further this ill effect, as they stimulate the solids much, they both occasion thereby a greater waste of the nervous juices, and at the same time contract them so as to hinder perspiration, which makes the body heavier. *Quincy.*

APH. XLIX.

ALL pain, or hard labour, lessens the quantity that goes off by perspiration.

Explanation—That true and natural perspiration, which is beneficial and necessary to the constitution, requires such a peculiar texture of the cutaneous passages, that if they are too large, a great deal besides truly digested matter will fly off, and weaken the body, and if they are too much straightened, there will not be sufficient room for that which ought to pass. Now every thing which puts any stress upon the nerves, straightens the excretory pores, which are formed by the manifold convolutions of their extremities. For the whole nervous system is like a piece of net-work, where one thread is so weaved with another, that if one extremity is pulled, the motion will be continued through the whole. When therefore any one part of the body is afflicted with acute pain, the whole becomes

so much affected by it, that the nerves will every where be drawn straighter, and thereby the excretory passages lessened, and consequently a less discharge of the perspirable matter made at that time, than is usual and needful. Hard labour likewise, or any violent exercise, has the same effect as pain, and for the same reason, with this difference only, that exercise, by the actions and attritions of the muscles, as it straightens the passages, so it also, at the same time, breaks the perspirable matter smaller, and renders it thereby more passable; which pain does not without a fever. *Quincy.*

APH. L.

ANY external cold though never so small in the time of sleep, hinders perspiration.

Explanation. — Sleep is so necessary for a right perspiration, (as appears from what has been said under Aphor. 20,) that if it be disturbed at that time, the ill effects of it are the more discernable; and that easy relaxation the nerves are under during sleep, makes them more sensible of external cold, which acting upon them as a *stimulus*, contracts them, straightens the cutaneous pores, and so hinders transpiration. Indeed the whole business of sleep, as to its service in the *animal economy*, seems to be nothing else but to favour the admission of fresh supplies of spirits to the nerves, and the letting out what is become useless by transpiration, neither of which can so well be performed in a state of contradiction, which they always are in when awake. As soon therefore as the old stock

is gone off, and they are supplied with fresh juices from the blood, by the secretion made in the brain, there seems to be no further need of sleep, nor is it possible, almost to continue it longer without the help of medicines. Hence may be deduced the reasons, why sleeping soon after a meal, enclines people to be fat and corpulent; which is, because letting the nerves into such a relaxed state upon a full stomach, gives liberty to a greater derivation of nutritious juices into the habit of the body, than nature requires, and that too before the supply of a former meal has finished its circulations, and is broke small enough to pass off through its proper outlets, and make room for a new one.

QUINCY.

APH. LI.

ONE of the most common hindrances of perspiration in summer time, is frequent tossing about in bed.

EXPLANATION.—Because such restless motions prevent that relaxation which quiet sleep indulges, and is necessary for a due perspiration.

QUINCY.

APH. LII.

THERE are three internal causes which hinder perspiration; nature's being employed another way, diversion, and a decay of spirits.

Explanation. — By nature's being employed another way, must be understood, either by some stress laid upon some particular part, as in pain, or upon a full stomach, which contracts the nerves, and hinders perspiration as above mentioned; or by an encrease of the sensible discharges, which has the same effect, by diverting the matter another way, and cutting off its supplies. The term in itself is very obscure, although frequently made use of. By diversion is the enlargement of some other evacuation. A decay of spirits, from what cause soever, cannot but lessen perspiration, because the invigoration and force of the solids, upon which perspiration necessarily depends, is by that means destroyed; for the elasticity of the fibres arises from a due supply of a convenient fluid,

which we commonly call *animal spirits*, of which whensoever they are defrauded, they become unfit for motion.

Quincy

APH. LIII.

TO this purpose it appears upon weighing, that during the operation of a medicine, and after repast, for the space of three hours together, there is but very little perspiration. For in the operation of a medicine, nature is employed in the sensible evacuations; and after eating, in digestion.

EXPLANATION.—In this Aphorism, again, the proposition is true, and easily demonstrable; but the reason for it given, none

at all. The word *nature* here being so general and complex, that no distinct idea can be fixed to it, and instead of giving any notion of a *mechanical procedure*, which in such matters always ought to be kept up to, it leaves the reader altogether in obscurity; it has been observed before, that the encrease of one evacuation much lessen another; and the reason is, both because by how much more one abounds, by so much the less matter will there be to supply the other; and because the same fluid cannot move in different directions at the same time; for all the animal juices may be looked upon in this case, as a contiguous collection of any fluid in any compressible vessel, with outlets of different diameters in several parts of it; wherein it is well known,

that an equal and uniform pressure on all sides, will force out the fluid through all its outlets, and that both its quantity and velocity will be determined by the diameter of each orifice; that if the diameters of the orifice are on all sides shortened at once, and the pressure remains the same, the quantities forced out will be lessened, and their velocities encreased; that if their diameters are lengthened, è *contrà*; that if one orifice is only straightened, the velocities and quantities passing at the other, will be encreased. And consequently, that if it be made wider, the quantities discharged by the rest, decreased. When therefore either the discharges by stool or urine are larger than usual, it is no wonder that perspiration is less. That a full stomach should also hinder it; because during

that additional weight, the nerves are drawn straighter, and their excretory passages made less, and therefore until digestion is perfected in the first passages, that is, until the load is removed out of the stomach, and more equally distributed, so as not much to be perceived as a weight; until all this, I say, is done, the perspirable matter, for the reason before given, must very much be obstructed. This Explanation proves the following.

QUINCY.

APH. LIV.

IN a looseness and vomiting, perspiration is hindered, because the matter is diverted another way.

APH. LV.

OO thick apparel hinders perspiration, by wasting the spirits.

EXPLANATION.—That is by suppling and relaxing the fibres too much, they lose that firmness which is necessary to a good digestion. There can hardly therefore be any greater error committed, than for weak people to load themselves with garments, which is very customary; and to do it, as they say, to avoid catching cold, is the only way to expose themselves to be disordered thereby. Whatsoever means are used, there can never be obtained a firm lasting health, although in the best constitution in

the world, as long as this is practised; although indeed where any have had the misfortue to be thus ill advised, it is by no means to be left off at once, but gradually to be brought about. And then in hot seasons, when bathings sometimes should be used in cold water, in order to harden the fibres, and give a firmness to the body, against the approaches of the following winter. Moderate exercise is also very serviceable to this purpose, as it helps to break the perspirable matter smaller, and thereby render it more capable of passing through straighter pores. The many ill consequences of keeping the body too tender, may be met with in several late writers, as likewise the vast advantages which arise from a cold hardy *regimen*. See Sir *John Floyer on Cold Bathing*,

with Dr *Baynard's Letters*; Mr *Fuller's Medicina Gymnastica*, and *Wainwright* on the *Non-naturals*.

QUINCY.

APH. LVI.

THE body does not perspire at all times alike, for in the first five hours after eating, there wastes about one pound; the next seven hours, about three pounds; and from the twelfth to the sixteenth (at which time there will be need of a fresh supply) hardly half a pound.

Explanation.—For the reason why the least quantity goes off by perspiration, in the hours after eating, see Explanation, Aph. 53

above. After digestion is perfected in the stomach and guts, which commonly happens in four or five hours time, perspiration is the largest, because the supply of the last meal for the greatest part lies then ready for expulsion, which after a few hours again decreases, and makes it necessary to recruit by a fresh meal.

QUINCY.

APH. LVII.

IF they who feed or purge in the hours when they should most perspire, which are those in the morning, are very much the worse for it, because thereby they hinder perspiration.

Explanation. — How both feeding and purging hinder per-

spiration, appears from Explanation to Aph. 53, above. They therefore who consider of what consequence a due perspiration is, will be wary how they disturb it.

QUINCY.

APH. LVIII.

IMPERCEPTIBLE perspiration lightens the body more than all the sensible evacuations together; for after sleep every one may perceive himself lighter, without any of the sensible secretions, because he really is so, by about three pounds.

Explanation.—The whole of this will appear from Aph. 4, 5, and 6, above.

Quincy.

APH. LIX.

SIXTEEN ounces of urine is generally evacuated in the space of one night; four ounces by stool, and forty ounces and upwards by perspiration.

APH. LX.

THERE is as much carried off by insensible perspiration in the space of a natural day, as by stool in the course of five days.

EXPLANATION. — It appears from the three preceding Aphorisms, that the quantity wasted by insensible perspiration in the

space of a day, is double the quantity of all the other evacuations, together, and ten times as much as goes off by stool in the same time. Whence may be collected the vast advantages and disadvantages that may arise from this discharge. In case of a *plethora*, and too great a fulness, either by a debauch, or by taking cold, where it has gone so far as to destroy the due constitution of the fluids, and is to be remedied by simple evacuation, nothing can be so effectual as to do it this way, both as to answer the end with certainty, and little hazard, where it can conveniently be procured. Discharge by urine or stool cannot be had in any considerable quantities, but by such means as irritate and disorder much the solids, and occasion such great derivations of the *liquidum nervosum* into the bowels

and parts stimulated, that the muscles are not able to sustain their proper offices, but grow languid and faint, and to draw away the blood itself by *phlebotomy*, the consequences are uncertain, all the secretions both as to their quantities and qualities, being liable to be altered thereby, the remaining *mass*, by having more room, being subject to generate new cohesions, and coalesce into corpuscles of a new sort; whether for the better or worse no body can tell, but from the consequences. The drawing it off likewise in any large quantity at once, so much affects and alters the contractive or elastic powers of the vessels, as to produce *syncope's*, and occasion very great disorders; for an account of which at large, see *Bellini de Missione Sanguinis*. But to evacuate by insensible perspira-

tion is attended with none of those difficulties, that being affected only by easy and steady contractions of the solids, and preventing, that at the same time there be any pains or uneasinesses which may straighten the secretory passages, or too great a degree of external cold. And as the ill consequences of a *plethora* are advanced, so the means to encrease the contractions of the solids, and keep open the cutaneous passages, are to be intended or remitted; at some times an encrease only of external warmth by clothes are sufficient, but at others perhaps there may be needful very warm stimulating medicines, such as are commonly called *diaphoretics;* and of vomiting likewise, if nothing forbids, which wonderfully assists this evacuation, by the exercise it gives to all the mus-

cles, and breaking thereby the cohesions of the fluids, and rendering them small enough to get out at the surface of the body. But the advantages of this evacuation in several cases more particularly appears, when we come to consider, what great quantities are drawn off this way, to what may be done by any of the other discharges, and how it more immediately relieves the distended vessels; but hence also will appear the danger of doing any thing to promote this evacuation beyond measure, in any wasting consumptive cases. For if ten times as much goes off this way as by stool, then ten times as much discharged by stool than what is usual, will weaken a person no more than doubling the quantity perspired; nay, if we take into consideration, that the perspirable matter is more imme-

mediately derived from the blood, and never can be much encreased, but that it will carry off with it a great deal of the nutritious and useful juices; and that what is voided by stool, is nothing but the useless parts of our food, the difference will appear much greater, and make the loss sustained by a doubled perspiration, as great as that which is occasioned by a discharge of near twenty times as much as is usual by stool.

Quincy.

APH. LXI.

THAT must then be thought of those physicians, who in all manner of distempers, have regard only to what is evacuated by

stool and urine, and never take any notice of the discharges by insensible perspiration.

APH. LXII.

WHEN perspiration is, during the night, larger than usual, but without sweat and uneasinesses, it is a sure sign of perfect health.

Explanation.—There are none of the evacuations that the same can be said of besides. For an encrease in any of them is always either critical of some distemper, or else brings one. But this only by a fuller meal, or drinking more than ordinary, or after watching longer than usual, in good constitutions is frequently encreased, and so far from being

attended with any ill consequences, that the body is much benefited thereby, and receives a greater stock of spirits and vigour. But it is thus only where there is a perfect state of health.

QUINCY.

APH. LXIII.

THE body is then most free from a distemper, when it is in the mean of a healthful standard, not by any spontaneous or medical evacuations, or by abstinence, but by the means only of such insensible perspiration as goes off in sleep, after a perfect digestion.

Explanation.—It is not to be supposed, that a body cannot gain or lose a little of its weight, with-

out falling into a distemper; therefore all that latitude of alteration a body is capable of undergoing with respect to its weight without being distempered, is called by *Sanctorius* here, and in several places of his *Aphorisms*, a *healthful standard;* the greatest weight it is capable of, is its greatest *healthful standard*, and its least, the *lowest standard*, and between both, the *mean*, or *middle healthful standard;* and all these are different, at different ages and seasons, as will hereafter further appear.

QUINCY.

APH. LXIV.

HOW much is necessary for every one to perspire, in order to preserve a state of perfect health,

may thus be known: Take notice, in the morning following a plentiful supper, of the greatest quantity that perspires in the space of twelve hours; suppose it be fifty ounces; some other morning observe the same, after eating no supper, (provided there was no excess in the former day's dinner) which suppose to be twenty ounces. Then choose such a settled quantity of food, and keep to such a use of the non-naturals, as will bring the quantity perspired to a mean between fifty and twenty ounces, which is thirty-five ounces; and by this means may a person be brought to such a perfect standard of health as will last to a hundred years.

Explanation.—This I believe will be thought too troublesome ever to be put in practise; and

if it should, it would be no certain rule, because some meats go off much more by perspiration than others, as we shall find hereafter in the *Third Section.* So that to keep rigidly to the same quantity in all meats, would sometimes underdo, and at others overcharge the body; according as they are more or less perspirable, or nourishing. And for a person to go through the experiment, with all the kinds of his food, to find the several quantities necessary to keep this standard, would be a task that very few would care for, as hardly to be rewarded by the largest enjoyments of this life.

Quincy.

APH. LXV.

EVEN those men who are in a perfect state of health, and observe the utmost moderation in living, once a month encrease beyond their usual weight, to the quantity of one or two pounds; and at the month's end, return again to their usual standard, in the same manner as women do; but then by a critical discharge of urine, it being either encreased in its quantity, or more turbid.

APH. LXVI.

EFORE the aforesaid crisis happens, there is felt a heaviness in the head, and a lassitude over the body, which

symptoms are afterwards removed.

EXPLANATION.—The contents of these two Aphorisms are of the greatest importance to be thoroughly acquainted with, notwithstanding which they are seldom talked of, and less understood. That women undergo such changes is taken notice of by every one. But they only who truly understand the reasons of it, are also apprised of the like alterations in men. The histories of diseases frequently take notice of distempers returning at certain periods and ages of the moon; and some of them such as plainly have their immediate rise from a *plethora*, or too great a fulness; the story of a *periodical hæmorrhage*, a man had at his *thumb*, in the *Philosophical Transactions*, is very no-

torius, and almost every one, but indifferently conversant in *physical practice*, must have at one time or other met with cases of the like nature; but nothing is more frequent than epileptic symptoms and pains in the head; of the latter, I now know a very remarkable instance in one between thirty and forty years of age, who for some years together has not missed one month having a very sharp fit of the headache, attended with a small fever; every paroxysm is preceded by a heaviness in the whole body, a general lassitude, a decay of appetite, and sometimes slight rigors, and goes off by sweat; if at any time a *diarrhœa* has happened, especially a little before the attack, it always prolongs the intervals between the fits. Bleeding also has done the same. All which very plainly

proves a periodical encrease of the bulk of the body, and that the overcharge is thrown off by those short fevers. But how such encrease is made cannot be understood, without knowing how the animal economy is affected by the external air, and its changes, and how that too is influenced by the revolutions of the heavenly bodies; but to enter into a *rationale* of those matters here, would be of too great a length, I shall therefore only recommend the reader, for a full satisfaction herein, to consult Dr. *Mead, De Imperio Solis ac Lunæ in Corpora humana;* and Dr. *Friend's Emmenologia*, where these matters are treated in a way truly mechanical and demonstrative.

QUINCY.

APH. LXVII.

EXTERNAL causes which are wont to hinder perspiration are the cold air, and that which is damp and foggy; swimming in cold water; a too gross and viscid food; an intermission of usual exercise, and disuse of venery.

EXPLANATION.—Cold air and swimming in cold water, may be so managed, as in some circumstances and constitutions to promote perspiration; as it is very well known in cold bathing, and likewise, that robust athletic bodies perspire most in a cold clear air. It is therefore here to be understood, by exposing the body beyond what is usual to the air,

and staying too long in cold water, and going into it at improper seasons, and without due perspiration. A damp foggy air cannot but be prejudicial to perspiration, for a great many reasons; its elasticity being much weakened, those particles which mix with the blood will not be able sufficiently to elevate and distend its globules, upon which they run into closer contacts with oneanother, and occasion stronger cohesions than are agreeable to the purposes that fluid is designed for, and render it too sizy to part with a sufficient quantity for perspiration. It relaxes also and supplies the fibres of the body, and hangs so much upon the cutaneous pores, that the weakened contractions of the vessels are not able to carry on the fluids with force enough to break thor-

ough those obstructions. Too viscid a food has the same effect, by rendering the juices too thick for perspiration; as also has an intermission of usual exercise, because thereby the blood wants those motions and attritions as are necessary to break it small enough to exhale through the skin. The consequences of an excess or disuse of venery, we shall see in the *Sixth Section*.

Quincy

APH. LXVIII.

EXTERNAL cold hinders perspiration in weak people, because their natural heat is dissipated; but in robust, it encreases it; for thereby the heat being drove to the centre, is doubled, and so nature

is strengthened, and by that means drives out the quantity of perspirable matter that was retained, and makes the body both seem, and really become lighter.

Explanation. — The proposition here is very true, but the reason for it hardly intelligible, although, according to the usual way of talking in such cases; for the term *vital heat* here conveys no determinate or distinct notion of any thing; and it is merely chimerical and dilusory, to say that cold dissipates it in a person that is weak, and drives it inward in one that is strong, which then expands itself *quaquaversum*, with such force towards the circumference, as to carry before it all obstructions that lie in its way. And this mistake, or ambiguity at least, is

owing to a want of a right application to the proper principles of knowledge in such matters, and by not keeping the mind steady to that evident and demonstrative procedure by which all physical agents operate. And without knowing the *mechanism* of the solids, it is not very likely that a person should ever understand much of the natures and properties of the fluids, and amongst others, the real causes of that heat, which is more especially sensible in the blood. That heat then which is commonly called *natural*, or *vital heat*, is nothing else than a due circulation of a peculiar fluid; for nothing is more plain than that its encrease and decrease are always as the different velocities of the blood. If then the velocity of the blood is as the force of the contracting vessels, which

is easy to be proved, then the smarter and stronger those vessels contract themselves, the greater will always be the *vital heat*, and è *contra*. Now why cold invigorates the contractions and vibrations of the vessels in those who are strong, and weakens it in such as are tender, is, because it both lays a greater weight upon th em, and acts likewise, as has been before mentioned, as a *stimulas*. For whenever we have a greater sense of cold from the circumambient air, the *barometers* will prove the atmospherical pressure at that time to be encreased; and that water is still heavier, and presses more upon the immersed body, is not to be disputed. A greater pressure therefore upon the vessels *ab extra*, especially when accompanied with a *stimulus*, cannot but assist them in their contrac-

tions, and carry on the faster the circulating fluid, and consequently encrease that heat which is a necessary effect of such motion; but if the fibres which constitute those vessels are weak, that is, have so much lost their springs, as not to be able to return with a quickness and strength equal to that of their contractions, then the vessels will, by any such cause, be only lessened in their capacities, and the blood by meeting with greater resistances, be retarded in its motion, and consequently the *vital heat* will be decreased. Now perspiration, that is, the quantity perspired, being *cæteris paribus* in proportion always to the *vital heat*, (as here explained) it follows of consequence, that whatsoever encreases or diminishes the one, will likewise have the same effect upon the other. When there-

fore by any external cold, whether by the air, or bathing, the *vital heat* is encreased, perspiration will therefore be promoted; and when the heat is lessened, perspiration will be so too.

QUINCY.

APH. LXIX.

THE health of that body is much more lasting and established, whose weight in the course of several years neither encreases nor decreases, than that which is changed every year.

EXPLANATION. — Frequent variations of the standard of weight cannot be so well as keeping to a settled one, because such changes must needs in some measure disturb the animal functions, and put the constitution into dis-

order, by sometimes overcharging and straining its springs, and at others, by defrauding some of the parts of their due supplies. *Quincy.*

APH. LXX.

TO return to the usual standard by an addition of indigested juices, is bad; but by what is well digested, healthful.

Explanation.--See Aphorism 44 and 45 of this Section.

APH. LXXI.

FOR a person to lose of his weight with the same way of living, is bad: For in the room of that healthful substance

which is wasted, there is made no supply.

Explanation.—This is an undoubted truth, as to the first part especially, though it be a case that can be seldom observed to happen. And the latter part, where it is said, *there is made no supply*, ought to be understood with restriction, and supposed that an insufficient supply only has been made. The consequences and remedies in this circumstance are too obvious to want any particular directions about them. QUINCY.

APH. LXXII.

THE excrements of the guts which are well digested, are large in bulk, but of small weight; they swim because

of the included air, and what is ejected at once, seldom exceeds the third of a pound.

Explanation.—That is, they are *specifically* very light, and of consequence very porous, and full of air, which makes them emerge in fluids of greater *specific gravities.* And their lightness arises from the straining all the more weighty parts into finer passages for further uses in the body, which cannot be done but by a good digestion, those particles which have more bulk and less matter, being thrown out by the larger outlets in excrement.

QUINCY.

APH. LXXIII.

IF through any error a pound of perspirable matter is detained in one day, nature is generally three days in discharging it.

EXPLANATION. — Which is commonly found true by experience; for upon taking cold, as it is usually called, which is nothing else but a lessened perspiration, as explained under Aphorism 6 of this Section, it is seldom less than three days before the inconveniences arising from it are removed; and by that time the body either gets quite rid of them, or is seized with the usual symptoms of an acute fever, of which, unless immediately removed by some evacuation that

carries off the overcharge, no body can see the consequences.

QUINCY.

APH. LXXIV.

A GREAT deal is insensibly discharged, when nature endeavours to get rid of the retained perspirable matter, by yawning and stretching of the limbs.

EXPLANATION.—These a person is most enclined to just after sleep, and the reason is, because during sleep, a greater quantity going off by the pores of the skin, than at other times, whensoever a person wakes, the encreased contraction that then happens, closes a great deal of the perspirable matter in the cutaneous passages, which will con-

tinually give such little irritations, as excite yawning and stretching; and such motions, by shaking the membranes of the whole body, and shifting the contacts of their fibres and the enclosed matter, by degrees throw it off. Hence we see the reason why healthful strong people are most enclined to such motions, because they perspire most in time of sleep, and therefore have more of the perspirable matter to lodge in the pores, and greater irritations thereunto.

I cannot easily pass by here, the vast advantages of some little exercises just after waking in the morning. At that time by the quantity which is gone off during sleep, the body is much emptied and lessened, and all the fibres invigorated with a fresh stock of spirits; that firmness therefore and due tension of the

solids which are so necessary to a good state of health, are then most easy to be obtained, because the fibres at that time may most conveniently be drawn up and hardened, by any such means as gently contracts them, and at the same time shakes off their grossest and most useless moistures. Now that exercise does contract the solids, nothing is more manifest, and therefore nothing can be of greater service than to use it at these times. But such is the best, as gives a gentle motion to all the parts, especially the membranes and cutaneous fibres; and this can be effected no surer way that I know of, than by the *flesh-brush*; which ought to be used just before rising and putting on any clothes; and if now and then the person would leap about, and stretch his arms on all sides, with weights in each

hand, it would wonderfully assist those good ends which are to be procured hereby. By this means all that matter which is digested enough for perspiration, would be drawn out, and the solids have no manner of weight left upon them but the necessary fluids, by which they would be enabled to perform their offices with ease and vigour, and as in a clock or watch new cleaned, the several motions of the whole machine would go on with great regularity. See Aphorism 34, Section 4. QUINCY.

APH. LXXV.

PERSPIRABLE matter is of two sorts, a lighter and heavier.

APH. LXXVI.

THE heavier part coalesces together, in its going off, in such manner as to produce animals; such as ticks, lice, and the like.

Explanation.—That the thicker part may lodge and adhere so much upon the surface of the body, as to afford such creatures nourishment, is not very unlikely; but that they are produced from this matter without animal parents, is a mistake, as is easy to prove. The most effectual way to keep clear of such inhabitants, is to use the methods prescribed in Explanation to Aphorism 34.

QUINCY.

APH. LXXVII.

FROM the grosser part proceeds contagious diseases amongst such as lye together; for the lighter flies away, and the heavier part gives the infection.

Explanation.--It is very likely to be thus in the propagation of cutaneous diseases, as the *itch*, which perhaps may be infectious only by contact and lying together, and may be occasioned by the heavier part of the perspirable matter lodging upon the skin. But it is likewise certain, that the infection of some diseases may be communicated by subtle particles that fly off, and are efficacious at a very considerable distance. QUINCY.

APH. LXXVIII.

TO those who have the perspirable matter obstructed in very hot weather, it is very troublesome. But to those who freely perspire their due quantity, the heat is not uneasy.

Explanation.—Because the obstructed matter not only encreases the weight, but also at such seasons is apt to raise preternatural ferments, and occasions putrefactions; or at least, to contract such qualities during its stagnation, as may render it irritating and troublesome; all which inconveniences are prevented, when the perspirable matter, as soon as made, flies off.

Quincy.

APH. LXXIX.

THE greatest healthful standard the body is capable of, differs from the least, as it more hastens old age. Suppose one enjoys perfect health at two hundred, equally with another of five pounds more; the excess of the latter has been observed to hasten old age five times as fast.

EXPLANATION.—It is certain, that the greater fulness there is, although not so great as immediately to bring on a distemper, the sooner will the solids lose their springs, and wear out, having by that means more labour to circulate and digest the fluids, than where by a temperate and sparing way of living, a person

always keeps to the lowest healthful standard.

QUINCY.

APH. LXXX.

WHY does animated flesh live, and not putrify and die? Because it is daily renewed. Why may children live longer than old persons? Because they may be oftener renewed, from the lowest standard of weight to the greatest. For they are capable of more weights than are healthful. Why do most old people of necessity die? Because they arrive to the only last healthful standard that they are capable of. But why to the last only? Because their fibres are grown hard, and such as

possibly cannot be renewed; whence proceeds death.

EXPLANATION.—The continual motions that the animal fluids have impressed upon them by the contractile vessels, prevents their falling into such intestine motions of themselves as tend to putrefaction; as we find it happens to all circulating liquors. But as soon as this motion ceases, which it must needs do, when the solids no longer continue their impulses, as in death, then as all heterogeneous fluids always will do, they will obey the natural gravities and attractions, under the power of which there is brought about such a change in the mass as is called putrefaction. What is meant by different healthful standards and their changes, has been already explained, Aphor. 63, above. *Old* persons die be-

cause their solids are quite worn out, that is, they have so far lost their textures, as not to admit any further supplies of such juices as are necessary to keep them in motion. As when the principal wheels of a clock are worn out, and they are capable no longer either of moving others, or being moved themselves, it is necessary that the whole machine must stand still.

QUINCY.

APH. LXXXI.

WHY do those who are seized with obstinate distempers, recover? Because they are capable of enjoying health under several weights, some persons have lost in a distemper thirty pounds, more or less, according to the

greater or lesser repletion, as before, and as the distemper has been more or less enflamed or protracted.

Explanation. — The reason here given is but a very obscure one; that the body is capable of encrease or waste is most certain, without bringing death, but it sounds very odd to say, that is the reason why a sick person does not die. When a person recovers from a distemper, it is because the cause of that distemper is removed before any of the principal parts are broke, or worn out and stand still, but even before that is done, sometimes in fevers, particularly by the acceleration of the motions of all the parts, there is so much substance worn away, as to lighten the body by a great many pounds, and vastly diminish its apparent bulk; and

such waste frequently happens where the person recovers, and is more or less, according as the disease is raised or continued.

APHORISMS

ADDED BY THE

AUTHOR.

APH. LXXXII.

OLD persons by frequent spitting, protract their lives; for if what they spit was retained, it being incapable

of digestion, would hinder perspiration, from whence would ensue suffocation and death.

Explanation.—It would be incapable of digestion by such aged persons, because their solids have very much lost their springs and force of contraction, upon which digestion depends; and therefore it must needs lodge in great quantities in the air-vessels, and parts about the lungs, insomuch as if in time it is not thrown off and brought away by coughing and spitting, it will entirely destroy respiration; whence death. But if by accident in young people whose lungs are sound, there happens to be any obstruction of the perspirable matter there, we often find that it is brought to digestion, and cleared away; and a due perspiration of that part again restored.

Sanctorius reckons the quantity perspired by the lungs and parts leading from them, as 1 to 10. But Dr *Lister* a great deal more; if then in old people, and others of weak and bad digestion, such discharge this way is hindered, it is necessary that it be brought away by cough and spitting, or else very great injuries must ensue, if not death. Hence may be collected the properest methods of treating those who are diseased, if there is not a *malâ conformatio*, or an absolute corruption of some of the substance of the lungs; which is first to bring away the obstructed matter by pectorals and such means as have been found to discharge this way; and then so to harden and restore the constitution, that the perspirable matter may be better digested for future, and carried off without

any such stoppage; but because the latter is not practicable with old people, who are much worn out, they must be contented only with the benefit of the former.

Quincy.

APH. LXXXIII.

OLD age may truly be reckoned a distemper, but it may be long protracted if the body perspires well.

APH. LXXXIV.

TENERY destroys those who are ancient, as also an actual coldness of the body, immoderate drinking and eating like young peo-

ple, passionate anger, and too much exercise.

EXPLANATION. — All these accelerate the motions of the several parts of the animal machine, more than the weakened and decayed springs of old age can admit of, without considerable damage.

QUINCY.

APH. LXXXV.

OLD people fail of reaching to a long decrepid old age, because of the decay of their excretory organs; whence they discharge not so much by urine as they drink, and perspire less than usual; the only remedy is to adjust as near as can be, the evacuations to the quantities taken in.

EXPLANATION.—In very old people the muscles and solid parts at the greatest distances from the heart and brain decay first, because those two principal instruments of motion themselves grow too weak and languid to propel the proper fluids into them, and envigorate them, in order to the performance of their respective functions; and therefore the proper discharges by them are hindered, before the stomach loses its power of digestion; the only remedy, or rather preventative, is a sparing light diet, and promoting evacuation sometimes by gentle cathartics.

QUINCY.

APH. LXXXVI.

A TOTAL stoppage of perspiration, not only of the principal parts, but also of the remotest, certainly brings death; of the principal parts, as the brain, it produces an apoplexy; in the heart, palpitation; in the liver, too much blood; in the womb, suffocation; and in the lower parts, a gangrene.

EXPLANATION.—The disorders herein mentioned, arise frequently without any injury immediately in the part itself, but from a general hinderance of perspiration, and several other causes, too long here to enter into. It is very plain, that Sanctorius was here in the dark, in not being

acquainted with the circulations of the animal fluids, and that mechanism by which any particular part may be distempered from a foreign cause.

Quincy.

APH. LXXXVI.

THE suffocations of women do not proceed from a pressure of the womb against the diaphragm, but from an actual coldness of a corrupted *semen.*

Explanation.—This is built upon a mistake of a *semen* in women, which latter discoveries in anatomy have better informed us about. The distemper here spoke of actually arises from some irritations and disorders of

the nerves in that part, which by their communication and consent with others, carry the malady further, as it happens in all convulsive cases.

QUINCY.

APH. LXXXVIII.

SUMOURS of gouty people, even the most thick, are carried off only by perspiration.

Explanation.--Because when they are got so far into the extreme parts, they are not easily brought back into any other emunctory.

Quincy

APH. LXXXIX.

VOMITING diverts urine and perspiration.

Explanation. — Because it makes a revulsion of the humours, and diverts the usual supply of those evacuations. But this is to be understood only of such vomiting as arises from a weakness and disorder of the stomach, by which it cannot retain its food, but throws it up again before digestion. For vomiting may be so ordered in several cases, as to promote perspiration, when it has before been obstructed. The muscles and fibres of the whole body are concerned in its operation, and shook with such force, as to conduce very much

in dislodging whatsoever has been retained, and fixed in the excretory passages, and this is the reason why it is of such mighty service in the beginning of a fever from taking cold, for if it be administered upon the first attack, it is a great chance but it breaks the encreasing *lentor* of the juices, and expels their overcharge by perspiration and sweat. Mr. *Fuller* therefore, in his *Medicina Gymnastica*, with a great deal of reason, places vomiting amongst those exercises of the greatest efficacy.

Quincy.

APH. XC.

FREQUENT turning in bed, so as to exercise all the muscles by it, weakens the constitution, and lessens

digestion and perspiration. The best remedy is resolutely to keep in the same posture.

Explanation.—Such restless motions keep the nerves too contracted to admit of that due perspiration which is best performed in time of sleep; which must of necessity weaken the body, by the retension of a superfluous load. But the remedy mentioned, I am afraid, is hardly practicable.

QUINCY.

APH. XCI.

IF the knees are actually made warm, the feet will become so too; and such will sleep well, perspire plentifully, but make less urine.

Explanation.—The circulat-

ing blood will carry that warmth which is occasioned in any particular part by external means, to all other parts of the body, as well as the feet; and likewise slacken the fibres, which by what has been said already, appears to be conducive both to sleep and perspiration; but it lessens the quantity usually discharged by urine, because, as was said before, the encrease of one perspiration necessarily lessens another. See Aphor. 53 above, and therefore for the same reason. QUINCY.

APH. XCII.

LOOSENESS may be removed by encreasing the quantity which is to be perspired, as it often happens in bathing.

Explanation.--There appears to be a mighty consent between the *intestines* and the *outer skin*, for we always find an encreased discharge by one, to lessen that of the other; and nothing is more common than a looseness upon checking perspiration by external cold, and therefore it must needs be a very likely way to remove a looseness by encreasing perspiration, which warm baths cannot fail to do.

QUINCY.

APH. XCIII.

AS a load-stone armed with much steel, and as a larger vessel of wine keeps its strength best; so the most weighty bodies better preserve themselves in a vigor-

ous health, than such as are sunk with abstinence.

Explanation.—It was taken notice of before, Aph. 36 above, that the larger the body is in bulk, *cæteris paribus*, it is the stronger; and consequently better preserved in a perfect health, because, the better able to resist external injuries, and rightly to perform the vital functions.

As to the strength of a body, the author of the *New Theory of Fevers* has demonstrated in *Lemma* 3, that, *It is in different animals of the same species, and at different times in the same animal, in a triplicate proportion of the quantities of blood.* And it is certain, that the strength of the same animal at all times is as the force of all his muscles taken together, which force is as the quantity of blood, and its

greater or lesser viscidity. For *Bellini* in his forty-ninth Proposition, *De Missione Sanguinis*, has proved at large, that in an encreased quantity of blood it may be so vitiated, as to impair the strength. Therefore, in the above-cited proportion, the blood is to be taken only in a healthful state; for upon every diminution of perspiration, the quantity of blood will be encreased, but then such encrease of blood is so far from adding to the strength of the body, that it lessens it, as *Sanctorius* frequently takes notice, and the difference lies here; an encreased quantity of healthful blood, gives a larger stock of animal spirits to the solids than it did before, (by Dr Wainwright's eighteenth Proposition of Animal Secretion, before taken notice of) and therefore adds to the strength of the body. But an

encreased quantity joined with an encreased viscidity, will lessen in proportion to that viscidity, the small separable parts of the blood; and consequently the secretion of a thin fluid to be performed in the brain for the invigoration of the solids, will be thereby lessened, and the strength impaired.

APH. XCIV.

THEY who piss more than they drink, perspire little or nothing.

EXPLANATION.—Because the perspirable matter is diverted by urine. And this may give a caution to such who are fond of the *mineral waters*, and such courses as work much by urine. For it is certain, that perspira-

tion is thereby hindered, which upon too long disuse may not be very easy to be restored to its natural state; for in time, not only the excretory passages may, for want of their usual attritions and impulses, subdue, but likewise be very much obstructed by too large an overcharge of a mineral gross matter; which may prove very difficult to remedy. And considering perspiration is the largest discharge, and of the most importance of all the evacuations for the preservation of health, the greatest care possible ought to be taken, that it be not interrupted without unavoidable necessity.

QUINCY.

'APH. XCV.

THY is perspiration hindered in intermitting fevers? Because the peccant humours are in the circumference of the body.

EXPLANATION.—What cause soever disposes the blood to be more viscid than natural, will likewise hinder perspiration, by obstructing the capillary vessels, and the cutaneous passages; it is demonstrated by Dr Wainwright, Propos. 16, of *Animal Secretion*, that such glands, whose compounding arteries are most complicated, separate the most viscid matter from the blood. And by Dr James Keil, on the same subject, Propos. 2,

6, and 9. That corpuscles which are the slowest in uniting, have the weakest attractive force, the least solidity, and the most extended surfaces; but when united, they cohere most strongly, compose the most viscid fluids, and therefore make the most viscid secretions, and are separated at the greatest distances from the heart, where the sum of the cavities of the arteries is greatest, and the *impetus* of the blood smallest; wherefore in all preternatural viscidities of the blood, the extreme parts are mostly overcharged with it, and there it adheres until it occasions rigours, and afterwards fevers. Now nothing is more plain, than that the peccant humours in intermitting fevers is the *lentor*, or too great viscidity of the blood, it causes see in Explanation to Aphor. 67, above. But how

such a disposition occasions intermitting fevers and agues, would be of too great a length here to enter into; I shall refer the reader to *Bellini de Febribus*, Propos. 18 and 19. Where he will meet with a full and demonstrative account of this matter.

Quincy

APH. XCVI.

IN dropsies, the water in the *abdomen* does not pass away, because it is too gross and sizy to perspire.

Explanation.—Another reason likewise may be owing to the ill constitution of the membranes inclosing it, which at such times must needs be flacid and pulpy, and thereby less porous.

Their elasticity likewise being much lost, there will be wanting those usual vibrations which are absolutely necessary for perspiration; the tonic, or vibrating motions of the membranes being to the included perspirable matter, as the motion of a sieve to what is designed to be shook through it. And further, would it not be too tedious here, it might easily be proved, that the membranes themselves without motion, are not porous enough to admit through them the most subtle steams whatsoever, and yet that when moved in such a manner as in a sound state of health, by the continual shiftings of the positions and contacts of their constituent fibres, there are openings alternately made from one part to another, large enough to let through a very gross matter; which may remove all the dif-

ficulties some make from experiments, wherein their subtle fluids will not pass membranous bodies, which are known in life to let through much grosser; and this also cannot but evince the necessity of promoting and maintaining those natural vibrations of the solids by proper exercise.

QUINCY.

APH. XCVII.

A COLLECTION of hot humours in any part, ought to be treated with warm digestives, in order to render it perspirable.

Explanation.—Therefore care ought to be taken, that in inflammatory swellings, there be not too much tampering, as is customary, with cooling applications,

because such will obstruct the cutaneous pores, thicken the collected matter, hinder the breathing of the part, and encrease the inflammation; unless by the strength of nature, or purgative medicines, there be made some sudden revulsion, which in many cases is not very safe to try.

QUINCY.

APH. XCVIII.

IN high fevers, fainting proves serviceable, because it helps sweat and perspiration.

Explanation.—In high burning fevers, the fibres are so violently contracted, that the skin is rendered almost hard and impervious, like parchment; at such times therefore, fainting does

good, if it can be procured without any violent means, because it so much relaxes the solids, and gives way to the circulating juices, as to admit a great deal through the skin, which ought to have been carried off through other passages; and thereby the body is both cooled and lightened; and the *equilibrium* between the contractile force of the vessels, and the resistance of their circulating fluids, more easily again restored. Nothing therefore can be of greater service in the beginning of those distempers, than to evacuate by bleeding, or gentle purgatives, or both.

Quincy.

APH. XCIX.

IF the puncture of a nerve is stopped with glutinous poultices, or such like applications, the obstructed *ichor* will contract such a sharpness, as to bring convulsions and death, unless the wound be again opened with some oily dressings.

EXPLANATION. — The common practice in Surgery, allows of this, and in such instances dresses with spiritous and warm applications; for the natural juices of such parts bears no affinity to the gross substances of unguents, but will be changed by their obstructions into a very noxious acrimony. We must therefore understand *oily dress-*

ings, in the Aphorism, as put in opposition to *glutinous poultices*, to consist of the more subtle and spirituous, as of turpentine, and the like.

QUINCY.

APH. C.

THAT breathing, which in tumours is promoted by applications, that are actually and potentially moistening, proves serviceable; but otherwise they degenerate into *schyrri*, by having only the thinner parts drawn off, and the thick remaining.

Explanation. — This is also very material to observe in Chirurgical practice, for moistening or humid applications leave the part obstructed soft and yielding,

whether they remove the obstruction or not, whereas those which are hot and dry, if they force away any part of the obstruction by their *stimulus*, it must be the thinnest, which should dilute the rest, and leave the remainder more hard and obstinate; so that sometimes it settles with invincible *nodes* and *schyrri*.

Quincy.

APH. CI.

ANY part obstructed with blood, or other juices, as in tumours, and even in a plurisy, is not to be cooled, because when the obstructed matter is removed, it will cool of itself.

Explanation. — See Aphor. 97, above, with the Explanation.

APH. CII.

HYPOCONDRIACAL persons are cured, by promoting perspiration by bathing, and using a moist diet.

Explanation.--There is a vast difference in hypocondriacal persons, as to the constitution of their solids, and therefore they must be very differently treated in order to their cure. In some the fibres are drawn up by a great deal too straight, and differ not much from *maniacs ;* others have too lax a state of solids, especially of the cutaneous fibres, and is generally owing to too tender a *regimen*, and wearing too thick apparel, and flannel next

the skin, than which nothing is more hurtful. With the former, warm bathing, and a most soft diet must be serviceable, because they relax the fibres, and give free passage for transpiration; the matter of which, when retained, not only irritates the membranes, and occasions sharp pains, but also so much disturbs the orderly vibrations of the solids, as to occasion irregular motions, and refluxes of the nervous fluid towards the brain, whereby the representations of external objects are confused, and fear, anger, or the like, frequently excited, when there is no just occasion for such passions. But in the latter sort, relaxing methods are hurtful, because the nervous fluids are too much wasted already by the openness of the pores, the want of which, spoils very much the elasticity of the

solids, occasions heaviness, flatulencies, and indigestion; and frequently consumptions; and upon any sudden external cold, cholic pains, and distensions of the *præcordia*, see further, Apho. 12, Sect. 3. The remedy here, is to strengthen, and give a firmness to the solids, whereby the relaxed pores may be drawn up, that nothing may pass which ought not to go off that way, and that the juices may be digested and broke fine enough to perform their several offices, and afterwards pass off by their proper outlets; and this is best obtained by gradually coming into a cold regimen, a solid drying food with generous wine, the use of *subastringents*, and moderate exercise.

QUINCY

APH. CIII.

PERSPIRATION made by fomenting, upon a full body, draws more than it disperses, as appears by the case of Simon.

EXPLANATION.—There will always be the greatest derivation of the fluids, where there is the least resistance; therefore because bathing or fomenting any particular part at that time, relaxes the solids of that part, that is, abates their resistance of the circulating blood, there must necessarily crowd into that part a greater store of fluids than before; and if such encrease exceeds the quantity drawn out through the pores by such bath-

ing, the collection of humours in that part will be encreased thereby; to prevent which, the best way is to abate the force of the circulating fluids before hand, by proper and cooling evacuations, and therefore such applications are never safe upon a full habit of body.

QUINCY.

APH. CIV.

THOSE bodies which perspire much insensibly as children, are neither to be let blood or purged.

Explanation. — Because they neither want any uncommon evacuations, nor cannot indeed admit of them without disturbing transpiration, which cannot be done without damage. But up-

on any hindrance of perspiration, they have the more need of such evacuations, because they are the sooner injured by it.

QUINCY.

APH. CV.

WHY do spots arise in the skin? Because the perspiration of a malignant *ichor* is obstructed.

Explanation.—Whether it be meant here of scorbutic, or fever spots, it is either way a mistake. For the spots in both are occasioned by the blood itself breaking through the extremities of the vessels, either by its thinness and sharpness, or by the acceleration of its motion, and stagnating under the *cuticula*. Though in-

deed its long continuance may change it into an *ichor*, of ill quality.

APH. CVI.

IF there is a good perspiration, a gangrene will go off, but if it suppurates, the part will mortify.

Explanation.—By a gangrene, we are here to understand a humour so acrimonious as to destroy the bone of the part where it lodges; and a good perspiration may indeed be the means to digest such a humour, unless it be supplied *de novo* in such quantity, as to cause an obstruction and collection of humours, in which case it will endanger the part very much, by changing all

that comes near it into the like nature, and corroding the fibres.

Quincy.

APH. CVII.

THE part affected with a gangrene perishes, because the arteries through too great a quantity of blood, subside at their extremities. The remedy is to evacuate sensibly and insensibly.

EXPLANATION.—Whensoever too great a quantity of blood, for want of sufficient motion grows thick and sizy, it may be the cause of the obstruction of the small arterial branches; but until it grows so sizy, the greater the quantity is, the greater impulse it will make upon the ves-

sels or any thing in the way of its direction, and consequently is less liable to stagnate in the small vessels.

QUINCY.

APH. CVIII.

GROSS humours in robust people, will pass through the narrowest passages, as it appears in the fat substance that will sometimes come away by urine, and the injections made in the breast upon a wound; which must be by insensible pores.

EXPLANATION. — There is something very extraordinary in tonic vibrating motions of the membranes. For it is very plain, that in a carcase they are not pervious, but may be blown up, and

remain distended and hard with the included air. And yet nothing is more certain, than that in a living body a great deal is continually sifted through them, and sometimes too of a matter not very fine; which cannot otherwise be counted for, but by the continual shiftings of the contacts of their constituent fibres, whereby there are openings alternately made from one part to another, greater or lesser in proportion to the smartness and length of their vibrations; and hence it is no wonder, why in robust persons, notwithstanding the hardness of their membranes, the matter which they perspire is much grosser than what will pass off from finer constitutions, where the parts are softer and more yielding. See back, Aphorism 96.

Quincy.

APH. CIX.

EATTER which goes off by steam is both such as is advantageous to part with, and such as is hurtful; and when the strength encreases upon its waste after sleep, it is a sign its obstruction would have been very injurious.

EXPLANATION. — Because what is well digested and fit to part with, mostly flies off during sleep, as appears by several of the preceding Aphorisms; and the more the strength is recruited thereby, it is the greater demonstration that it would have been very prejudicial, if it had been longer detained in the body.

Quincy

APH. CX.

INSPIRATION which is insensible, is natural, and a token of health; but sweat is the contrary.

Explanation.—For the reason see Aphorism 21, above.

APH. CXI.

IF any part of the body in winter is made very cold, the whole will so far be affected by it, as to have thereby both digestion and perspiration disturbed.

Explanation.— The partial

stimulus upon the place exposed to the cold, will immediately, by the communication of one part with another, be conveyed to the whole, so as to render the fibres more contracted, and consequently the pores more straightened, by which perspiration will be hindered, and digestion interrupted. See above, Explanation to Aphorism 68.

QUINCY

APH. CXII.

O swim in the evening is safest; for in the morning the water is colder, and may obstruct the pores, and endanger a fever.

Explanation.—The danger is not from the greater cold in the

morning (as will further appear in Explanation to the following Aphorism) but from staying in too long, and the dampness of the air at that time, which will be apt to hang upon and obstruct the pores.

QUINCY.

APH. CXIII.

IN summer time to be exposed to the open air will hinder perspiration; whence heaviness of the head, and a disorder of the whole body.

EXPLANATION.—A small encrease of cold hinders perspiration, and is followed by great disorders; whereas in others, a sudden sense of intense cold, so as it lasts not long, as in cold bath-

ing, has the contrary effects; because a small and gradual encrease of cold, by degrees, draws the nerves straighter, and almost insensibly lessens the excretory passages; but a sudden intense cold contracts them with such force and quickness, that by their natural springs, especially in strong constitutions, they return again with equal force and quickness, and so by repeating smarter and more frequent vibrations, put the fluids into brisker motions than before, promote the thinner secretions, especially that in the brain, and render the body more brisk and lightsome.

QUINCY.

APH. CXIV.

IF a body has been encreasing in weight for five or six days together, it is not suddenly, but by degrees to be drawn off again; for obstinate fasting injures the stomach, brain, and heart, and sometimes the whole constitution.

Explanation. — Although a body may be encreased or lessened in its bulk very considerably, by degrees, without much injury; yet a sudden change so alters the contractions of the solids, and destroys that *equilibrium* which is necessary to a healthful state, that is a great chance if it is not attended with consequences not easily to be removed. About

which, consult *Bellini de Missione Sanguinis*, where this whole matter is set in a clear light. Where therefore any quantity is either to be added or taken away, regard ought to be had to the time in which such encrease or decrease has been made, and the means used to bring it to its settled standard, proportioned accordingly.

QUINCY

APH. CXV.

IN autumn the weight of the body encreases; which, if it be beyond a healthful standard, will produce tertians and putrid fevers.

Explanation.—It has frequently been taken notice of before, as well as in the immediate pre-

ceding, that a body is capable of very different weights without prejudice, especially young people, but that in every constitution they have their bounds, which cannot be exceeded without falling into some distemper. In autumn the body is rendered heavier by the gradual encrease of cold, lessening the quantity perspired; and this retained matter is very apt to stagnate in the capillary arteries, encrease the quantity of blood, and occasion fevers, as in Aphor. 46 above, with its Explanation. But if upon the first attack it can be dislodged, and broke small enough to pass out by sweat, it only produces agues and intermitting fevers; otherwise, by its long continuance, it will be apt to degenerate into a state nearer to that of corruption, and produce what are commonly called putrid

fevers. See further, Aphorism 41, 48, and 49, Section 2.

APH. CXVI.

EXTREME cold things in acute fevers, unless they soon grow hot, are fatal, by hindering all perspiration.

EXPLANATION.—A sudden chillness in such cases, occasioned by too cold things, unless the natural heat soon overcomes it, produces a total stagnation and death.

APH. CXVII.

NOTHING is more hurtful to malignant ulcers, than those things which hinder perspiration, as suet, oil, and wax.

Explanation.—The dressings therefore in such cases ought to be of vinous spirits, and warm detergents, which is now the common practice in Surgery.

QUINCY.

APH. CXVIII.

quotidian only of the intermitting fevers, is attended with danger; because phlegmatic humours hinder perspiration most.

Explanation.—By phlegm, here is to be understood, that viscious matter which is produced by the hinderance of perspiration, and lodged in the extremities of the vessels; and this abounds in all intermitting fevers, but most in a quotidian, as appears by the frequent return of the fits; and

therefore there is the more danger of its changing into a continued fever, of which no body can foresee the consequence.

QUINCY.

APH. CXIX.

STOPPAGE of perspiration about the neck, occasions a numbness of the head; as likewise does the being exposed to winds and rain.

Explanation--By occasioning a hardness upon the muscles, and greater influx of blood into the head, which by its thick covering, it is most liable to on any external pressure, as in cold and rainy weather.

QUINCY.

APH. CXX.

NOTHING more prevents a corruption of the humours, than plentiful *ventillation;* not only by that which is drawn in by the lungs, but by what is drawn in through the imperceptible pores.

Explanation.—There is nothing undoubtedly of more importance to the constitution, than respiration by the lungs, but as to any ingress and return of air, by the cutaneous pores, in the manner herein hinted at, I do not understand, and conceive the author to have been in a mistake.

QUINCY.

APH. CXXI.

REFRIGERATIVES in acute distempers brings death, by destroying perspiration, as in the case of *Hermocrates*.

EXPLANATION.—See Aphorism 106, above.

APH. CXXII.

AFTER bathing the cutaneous passages are lessened by anointing with oil, on purpose that there might not be made too great a waste of the alimentary moisture. But it is therefore to be avoided in dangerous cases, because it closes the pores.

EXPLANATION.—It was undoubtedly for this reason, that

the ancients accustomed themselves to anointing with oil after warm bathing, and certainly with advantage. But in such cases where a large perspiration is necessary, it is not safe to use it.

Quincy.

APH. CXXIII.

A PERSON may happen upon such a way of living, even when he takes no care about it, as may preserve him to a good old age.

Explanation.—Which although it may, and does sometimes happen, yet a wise man that has any regard to his own happiness in this world, or that of his posterity after him, will hardly run such a risk, but always employ

his greatest care about that which is so conducive to it, as is a good state of health.

APH. CXXIV.

THE *midriff* by contraction enlarges the capacity of the breast, and upon that dilitation, inspiration is made; and upon its relaxation the breast is straightened, upon which the air is again forced out.

EXPLANATION. — This will appear very plain, when we consider the structure of this part. The *diaphragm* or *midriff* in its natural situation is very convex on the upper side next the lungs, and concave on the other towards the lower belly. Therefore to put it in a state of contraction,

that is, shorten its constituent fibres, as far as they will admit, must necessarily bring it to a *plane* on both sides, by which means the cavity of the breast will be much enlarged, and thereby the lungs distended with fresh air, forcing itself into them by its weight and elasticity, which is computed to be equal to a hundred pounds weight. And again, upon the *diaphragms* relaxing to its natural state, the breast becomes less capacious, upon which the air just before received into the lungs, is forced out again by the contraction of the muscles of the thorax and abdomen. But although the *diaphragm* in expiration is in a state of relaxation, yet its being so, is only the effect of a joint contraction of those muscles which are alloted for that purpose; and as *action* and *reaction* are always equal, so the

joint contractions of those muscles, must be equal to that weight by which the air was forced into the lungs, viz. a hundred pounds: For a particular calculation of which, see Dr *James Keil* on *Animal Secretions*, p. 24, 25.

QUINCY.

APH. CXXV.

THE sphincter of the bladder by contraction shuts it, and keeps in the urine. But by relaxing, opens it, and lets it out.

Explanation. — This is self-evident, and holds the same in all sphincters.

QUINCY.

OF THE

PLAGUE.

APH. CXXVI.

WHATSOEVER is infected with the *plague*, that infection will be propagated, as long as its proximate and remote causes remain; but either of them being taken away, the malignancy ceases, as the motion of a clock upon the loss of one of its wheels.

Explanation. — How many

causes may concur to propagate the infection of a plague, cannot easily be determined; but whatsoever they be, undoubtedly its violence will cease as soon as they are removed.

APH. CXXVII.

THE plague is communicated not by any immediate contact, but either by drawing in infectious air, or the steams of tainted furniture; and it is thus: The vital spirits are first infected by the air, and from the infected spirits the blood is coagulated, which produces *black spots*, *carbuncles*, and *buboes*; and if not sufficiently discharged, occasion death; but if it be all thrown out, they escape.

Explanation.—Authors abound who have wrote of pestilential diseases, and the manner of their attacks; but I believe there can no where be found so rational an account, as in Dr *Mead's Fifth* Essay *of Venomous* Exhalations, &c. in his *Account of Poisons;* and indeed throughout that whole book, the reader may be instructed in that mechanical procedure, by which great alterations are brought about in the animal fluids, by very minute and unheeded causes.

QUINCY

APH. CXXVIII.

IF the whole infection be forced out into *buboes* and *carbuncles*, it is well; otherwise fatal.

EXPLANATION—Because by such

exclusion, there is made a perfect *crisis*, and the whole peccant humours is discharged from the mass of blood, and other animal fluids, but if the constitution cannot hold out till this is done, the patient must sink. QUINCY.

APH. CXXIX.

THE PLAGUE is not produced in us, but arises from external causes; as is manifest from such who are shut up in *Cloisters*.

Explanation.—It is agreed on all hands, that such diseases have their rise from, and are propagated by a distemperature of the air; and it plainly appears to be so, by its affecting more or less, all kinds of living creatures.

Quincy.

APH. CXXX.

LL do not die of the plague, but about a third part, which may be known by those who view the dead bodies.

Explanation.—It is not easy to understand what is meant by this Aphorism, for of the persons who die in a contagion, there can be hardly any but owe their death to it, though indeed, some might in the same course of living have been carried off by other causes about the same age, yet not so many as a third by a great deal; in what symptoms therefore Sanctorius places the essence of this distemper is uncertain, for this cannot be true without some limitation of that kind.

QUINCY.

APH. CXXXI.

THEY who think *black spots* and *carbuncles* denote an adustion of the humours, are mistaken; for very often old people, both externally and internally cold, and without any fever, in the space of two days go off with the same symptoms, from a stagnation of the blood.

Explanation—By *adustion* of *humours*, is meant such a concoction as that which forms the bile, and is the consequence of a hot constitution, according to the sense of some ancient *institution writers*; but such a distinction is now out of use. That the spots in this distemper are from

stagnation, is certain beyond dispute, and therefore they are mistaken, who assign them to any other cause.

Quincy

APH. CXXXII.

IF part of the blood by infection of the vital spirits coagulates, and be wholly discharged by *buboes* and *carbuncles*, they recover; but otherwise they die, as in the *black spots*.

Explanation. — This differs very little from Aphorism 128, above.

QUINCY.

APH. CXXXIII.

WHERE the *buboes* and *carbuncles* are opened, and the tainted matter wholly discharged, they recover; but otherwise they die.

Explanation. — As to the three preceding they are much the same. It is plain from what has gone before, that whatever alters the contractions of the vessels, will likewise alter the textures and cohesions of the blood, by giving it a greater or lesser degree of motion than it had before. Where therefore the spirits are distempered, that is, when the solids are not duly supplied with that peculiar fluid, which is necessary to maintain their elasticity, their contractions will be

changed, and the blood consequently altered in such a manner as may dispose its parts to more forcible attractions and cohesions, by which such grumes and stagnations are generated; but if the constitution is strong enough to keep on the circulation for some time, they will gradually be thrown upon some particular part, and collected in a considerable quantity, so as to form those tumours; and in such there is much the greatest likelihood of recovery, because by those discharges, the blood will the sooner recover its natural constitution. Whereas, when it is not so thrown off, it is a great chance but it induces a total stagnation, which is death.

Quincy.

APH. CXXXIV.

THERE are two ways of checking a pestilence; one is by removing those who are sound to distant places, and the other, by giving room to the infected, to air themselves. The latter likewise is to be done two ways; by not confining the infected to places disagreeable to them; and by not burning their household-stuff.

Explanation.—We are here again under some obscurity, in what is meant by *burning of household-stuff*, for it is not easy to conceive how that can propagate a contagion, unless by scattering the infectious particles, but this is not easy to conceive in most cases, and experience has

confirmed the advantage of fire in many instances of this distemper.

APH. CXXXV.

THEY are soonest infected who have weak lungs; they who have sound ones the contrary. And it is a sign of weak lungs, when upon drawing in the breath with the greatest force, the strength of the pulse abates.

Explanation.— Because it is supposed, that the infection is chiefly taken from the air in breathing; although, perhaps, some noxious effluvia may insinuate themselves into the blood by the cutaneous pores, as *Bellini* endeavours to prove, Propos. 27, *De Febribus;* the weaker there-

fore the lungs are, the less able are they to resist the mixture of the infectious particles with the blood, drawn in from the air, or break them sufficiently to alter their figures, and destroy their efficacy upon it. And the reason why the pulse is weakened, where the lungs are weak upon drawing in a large quantity of air at once, is, because such an additional weight, presses so much upon the blood-vessels in the lungs, that they cannot through the decay of their springs, repeat their pulsations with the usual quickness and strength, and consequently the pulse at that time must be much abated.

QUINCY.

THE APHORISMS OF SANCTORIUS.

SECT. II.

Of AIR *and* WATER.

APHORISM I.

COLD air and cold bathing, give a greater warmth to strong constitutions, and by removing what is superfluous,

render them lighter; but they cool weak persons by overcoming their natural heat, and thereby also render them heavier.

Explanation—A thorough and clear understanding of the contents of this Aphorism is of very great concern and importance to every one who would be acquainted with the true causes of distempers and their cures, and what is absolutely necessary thereunto, the *mechanism* of a *human body*. See the explanation to Aphorism 68, 96, and 113, Section 1. But for bathing in particular, it may be here observed, that cold baths have been long banished out of medicine by the usurpations of chemistry and a monkish philosophy; for the ancients had them in the greatest esteem; and some improvements of reas-

oning in physic from geometry and mechanics, have brought them into tolerable good countenance again. And the present age can furnish us with abundance of noble cures performed by cold bathing, which were long attempted in vain by the most efficacious medicines. There are hardly any chronic diseases but the cold baths may be made use of to advantage, if there be nothing peculiar in the constitution to forbid its use; which is corpulency and unsound *viscera*. In very fat persons the fibres are so stuffed round, that they have not room to vibrate or contract with the sudden squeeze of the bath; instead therefore of enforcing their springs, and shaking off any unnecessary incumbrances, they will only be strained to no purpose, and consequently weakened; for wheresoever an effort

is made to remove any thing by an elastic body, if the first exertion fails, every *impetus* afterwards languishes, and the spring is spoiled. And in unsound *viscera*, or where any part is much weaker than the rest, such an additional force will press the fluids upon that part very much to its damage, which may be either the bursting of the vessels, or promoting the discharge of some ill humours upon that part, which otherwise might drain elsewhere. But where nothing of this nature forbids the use of the cold bath, whatsoever is to be effected by bracing the solids, invigorating their vibrations, and accelerating the blood's motion, is with certainty to be had from hence. All diseases therefore from a sizy blood, and a lentor upon the animal juices, if the elasticity of the vessels is not worn out with

age or debauches, will find relief from this practice. Whatsoever inconveniences likewise proceed from a bad transpiration, or when humours are thrown upon the surface which cannot get through the skin, this remedy will be of service; for upon immersion, the whole nervous system is so shook, that the very capillaries feel the influence, and the minutest passages are forced open by an encreased velocity of the circulating fluids, whereby the skin will be cleared, and instead of entertaining gross acrimonious humours, transmit only the imperceptible matter of perspiration. And this is the reason why people are so brisk and cheerful after bathing; because so much is thus forced away by the pressure upon the vessels, and forcing out their contents. A person two foot under water,

sustains a weight of water, added to that of air (supposing the *area* of his skin to be 15 foot)—2280 lb.; for 2, the number of cubical feet of water, pressing upon a foot square of the skin *x* 76, the number of pounds in a cubical foot of water is—152 *x* 15: the supposed numbers of square feet on the surface of the body is—2280 lb. troy.

Though it be a generally received notion, that *Bath*-water enters into the body, and so mixes itself with the blood, yet few attend to the manner how it is possible. That water hath a wonderful power of insinuating itself into the body, we see by a number of experiments. Deal-boards will swell against rainy weather, the watery particles floating in the air by the pressure of the air upon them, are forced into the slender tubes of the

wood, where they meet with no resistance, the particles of air being too large to enter the same. It is certain, however true the contrary may appear to be, that the compounding particles of water are less than those of air, being the former will pass through several bodies that the other will not. But nothing shews its force greater, than the fastening a piece of whip-cord, or a strong rope, of what length you please, to a hook or staple, and at the bottom of the cord, hanging any weight short of what will break it, though ever so great; for in this case the weight will rise by moistening the sides of the cord by a wet spunge, whereby a few particles of water may overcome any finite resistance, if the cord would bear it. Now since there is but a little quantity of water, and

that driven into the sides of the cord, with a force no greater than the weight of a cylinder of air incumbent upon the water, therefore must the water act by some property whereby its force is greatly augmented, and that can be no other than that of a *cuneus*. And the forces of wedges are to one another reciprocally proportional to the angles their edges make; but in spheres, the greater or lesser degree of curvity is to be considered as their angles, when spheres are considered as wedges; and the degrees of curvity in spheres are reciprocally as their *radii*. Now the particles of water being so infinitely small, less by much than those of air, must, when acting as wedges, have their powers infinitely encreased, so as to overcome any finite resistance. Now let the resistance the water meets with

in entering into our bodies, be what it will; yet it is hard to believe it is greater than what is mentioned, which yet a little quantity of water will overcome. The experiments usually made to know the force of water in penetrating into membranous substances, are generally with the skins of dead men or beasts, and therefore not so decisive as if made upon such as are alive. The only difference then being, that in the living, steams or vapours are continually raised into the air through the pores of the skin in insensible perspiration; which is not so in those that are dead. These vapours, though raised with a considerable force, are yet unable to withstand the *impetus*, with which water endeavours to insinuate itself into contiguous bodies, being so great as above explained. And though the quan-

tity of perspirable matter is very great in 24 hours, being $\frac{5}{8}$ of the meat and drink a man takes in a day; yet if we compute the quantity that expires from any part of the skin, in a given time, we shall find it too little by far to hinder the entrance of water into the body when we go into a bath. For it hath been demonstrated, that the matter of insensible perspiration in a minute is the 1200th part of the place it comes from, that is, 1 drachm of the skin perspires $\frac{1}{1200}$ of a scruple in a minute, and consequently 1 ounce of the skin perspires $\frac{1}{1200}$ of a drachm in a minute. Now suppose a square inch of the skin weigh 1 ounce, then a square inch perspires $\frac{1}{1200}$ of a drachm in a minute; but a square inch of the skin is pressed upon when we bath, more than in the open air,

equal to 96 drachms. For we may conclude that our bodies, taking one part with another, are two foot under water in bathing; so that every square inch of the skin must bear the weight of 24 cubical inches of water equal to 96 drachms; for a cubical inch of water being 4 ounces, $\frac{384}{1728}$, throwing away the fraction, 24 cubical inches must be 96 drachms. Now since only $\frac{1}{1200}$ 1 ounce of matter is perspired through a square inch of the skin in a minute, therefore is the elevation of the perspirable matter resisted by a weight 115,200 times greater than itself; for 1200 *x* 96— 115,200. How great then must be the celerity with which the perspirable matter moves, if we imagine it able to raise a body 115,200 times heavier than itself? Thus would it be, if the whole quantity of

perspirable matter evacuated in a minute, was to exert its force at once upon the incumbent weight of water; but it is so far from doing that, that if the exhalations of the steams be not continual as the pressure of the water is, yet the intervals betwixt the times they are propelled from the body, are very short. Suppose 60 of them in a minute, being about the number of pulses that a healthful man's artery beats in the same time; then will the quantity of vapour, which exerts its force at once against the incumbent water, be sixty times less than first assigned; which being multiplied by 1200—7,2000, the number of parts into which a drachm of perspirable matter is divided, one part only of which exerts its force against 96 drachms of water in a second; so that the perspirable matter that rises, must

every second raise a weight of 691,2000 times greater number than its self, if it resist the entrance of the incumbent water; for 90, the number of drachms of water, incumbent upon an inch square of the skin, multiplied by 7,2000, the number of parts into which a drachm of perspirable matter is divided, is—691,2000, the difference between the quantity of matter perspired in a second, and the quantity of water by which its motion is resisted. From the whole of which, it is beyond dispute, that *Bath*-waters enter into, and mix with the animal juices in bathing.

QUINCY.

APH. II.

WARM air and baths, actually warm, unless undigested humours prevent it, promote perspiration, cool the *viscera*, and render the body lighter.

EXPLANATION.—Any moderate external warmth relaxes the solids, and opens the cutaneous pores, and gives greater liberty thereby for the perspirable matter to pass off; but if the humours are crude, and not sufficiently digested, that is, if they are gross, and not broke small enough; that easy relaxation which otherwise would give them the more room to fly off, will only occasion a greater derivation of them towards the circumference, where,

by their grossness and indigestion, they will be obstructed in the capillary vessels; and such an obstruction by a continual supply from within, will encrease, until the solids are stimulated to make larger sensible evacuations, or raise a fever. But where such indigested matter does not hinder, the causes above-mentioned will much encrease perspiration, and of consequence lighten and cool the body. As for hot bathing, the chief in our country is that famous one near *Wells* in *Somersetshire*; another there is of inferior note at *Buxton*. We shall leave it to naturalists and philosphers to account for the production of those waters, and be contented with observing, that they greatly abound with a mineral sulphur. From the matter then with which this water is impregnated, it may be pronoun-

ced a soft, healing, subastringent balsamic. Subastringent is added, because we never meet with sulphur, even in the sublimed flowers, which has not some portion of a salt in its composition; which when boiled in oil, as in making the balsamic sulphurs shoot like needles, on the branchings of *sal amoniac;* so that it is very improbable these waters should take up any sulphur in their subterraneous current, without bringing also some of that saline part along with it, which it is never found without, above ground; and especially when we consider how much more it is in the nature of water to attract and join with such particles, than those which are purely sulphurous. Hence we are naturally directed to those cases, wherein these waters and bathing in them, must be of service. They are like a

fomentation, which both supplies and strengthens the parts all over the body at once, and by gentle shaking and undulating the fibres, helps forward those vital motions, which are almost at a stand. In old pains and aches, which have been the remains of nervous distempers, and where some particular part continues contracted, or has any humours fixed upon it which it cannot dislodge, these waters pumped upon it, hot from the spring, do more towards a cure, than all the compositions in pharmacy. Bathing all over in these springs cannot but wonderfully open that almost infinite number of secretory orifices upon the surface of the skin, and clear the cutaneous ducts of matter, which is apt to stick in them; by the aperture of which *spiracula*, the fluids of the whole body have more room to move in,

and have proper vents to reak out a great deal, which it is of service to the economy to get rid of.

Quincy.

APH. III.

THE external air which passes through the arteries into the body, may render the body heavier, or lighter; lighter, if it be subtle and warm; and heavier, when thick and moist.

Explanation.—A warm air will promote perspiration, for the reasons given in the preceding Aphorism, and of course, lighten the body; and likewise will a cold and moist air obstruct the perspirable matter, and render it heavier. As

for the effects of air in general, it may be observed, that our bodies are equally pressed upon by the incumbent atmosphere, and the weight they sustain is equal to a cylinder of air, whose base is equal to the superficies of our bodies. Now a cylinder of air of the height of the atmosphere, is equal to a cylinder of water of the same base, and 35 foot high, as appears by the experiment of pumping; so that every foot square of the superficies of our bodies, is pressed upon by a weight of air equal to 35 cubical feet of water; and a cubical foot of water being found by experiment to weigh 76 pound troy weight, therefore the compass of a foot square upon the superficies of our bodies, sustains a quantity of air equal to 2660 lb. for 76 *x* 35 —2660; and so many foot

square as is upon the superficies of a body, so many times 2660 lb. does that body bear; so that if the superficies of a man's body was to contain 15 square feet, which is pretty near the truth, he would sustain a weight equal to 39900 lb. for 2660 *x* 15—39900, which is above 13 ton. The difference of the weight of air which our bodies sustain at one time more than at another, is also very great. The whole weight of air which presses upon our bodies when the mercury is highest in the barometer, is equal to 39900 lb. The difference therefore between the greatest and the least pressure of air upon our bodies, may be proved to be equal to 3982 lb. The difference of the air's weight at different time, is measured by the different height to which the mercury is buoyed up in the barom-

ter; and the greatest variation of the height of the mercury being 3 inches, a column of air of any assignable base equal to the weight of a cylinder of mercury of the same base, and the altitude of three inches, will be taken off from the pressure upon a body of an equal base, at such times as the mercury is three inches lower in the barometer; so that every inch square of the surface of our bodies is pressed upon at one time more than another, by a weight of air equal to the weight of three cubical inches of mercury. Now a cubical foot of water being 76 lb. a cubical foot of mercury must be 1064 lb---10,2144 drachms. And as 10,2144 drachms is to a cubical foot, or, which is all one 1728 cubical inches:: $59\frac{192}{1728}$ drachms to one cubical inch; so

that a cubical inch of mercury (throwing away the fraction, which is inconsiderable) is — 59 drachms, and there being 144 square inches in a foot square, therefore a mass of mercury of a foot square base--144 square inches, and three inches high must contain 432 cubical inches of mercury, which x 59, (the number of drachms, in a cubical inch of mercury) makes 25488 drachms; and this weight, does a foot square of the surface of our bodies sustain at one time more than at another. Suppose again the superficies of a human body sustain at one time more than at another, a weight--15 x 25488--$\frac{382330}{8}$ drachms (—$\frac{47790}{12}$ ounces — 3982½ lb. troy.

Hence it is so far from being a wonder, that we sometimes suffer in our health by a change of weather, that it is the great-

est we do not always so; for when we consider that our bodies are sometimes pressed upon by near a ton and a half weight more than at another, and that this variation is often very sudden; it is surprising that every such change should not entirely break the frame of our bodies to pieces. And the vessels of our bodies being so much straightened by an encreased pressure, would stagnate the blood up to the very heart, and the circulation would quite cease, if nature had not wisely contrived, that when the resistance to the circulating blood is greatest, the *impetus*, by which the heart contracts, should be so too; for upon encrease of the weight of the air, the lungs will be more forcibly expanded, and thereby the blood more intimately broken and

divided, so that it becomes fitter for the more fluid secretions; such as that of the nervous fluid, by which the heart will be more strongly contracted. And the blood's motion towards the surface of the body being obstructed, it will pass in greater quantity to the brain, where the pressure of the air is taken off by the *cranium*; upon which score also, more spirits will be separated, and the heart on that account, too, more enabled to carry on the circulation through all passable canals, whilst some others towards the surface are obstructed. The most considerable alteration made in the blood upon the air's greater or lesser pressure on the surface of our bodies, is rendering the blood more or less compact, and making it crowd into a less, or expand into a greater space in the vessels it runs in.

For the air contained in the blood always keeps itself *in equilibrio* with the external air that presses upon our bodies; and this it does by a constant *nisus* to unbend itself, which is always proportional to the compressing weight by which it was bent; so that if the compression, or weight of the circumambient air be ever so little abated, the air contained within the blood unfolds its spring, and forces the blood to take up a larger space than it did before.

QUINCY.

APH. IV.

THE weight of water may easily be known by weighing heavy bodies in it; for that is the lightest, and consequently most wholesome, in

which a body weighs the heaviest. But that water in which such a body weighs less, is heavier, and not so wholesome.

Explanation.—Nothing likewise is now more common, than to learn the specific weight of any liquors by weighing heavy bodies in them; which is well known to all such who try it, to be a most certain and infallible rule. And this is done with scales, which are commonly sold for that purpose, by the name of *hydrostatical scales.* That the lighter water is, it is the more suitable to the constitution, the reason is plain, because as it answers all the purposes of diluting, as well as any other, if not better, it also passes afterwards the straineries of the body better. For the heavier the water is, it must needs be the more charged

with greater quantities of gross mineral particles, which will not only render it more unfit to get through the finest vessels and orifices of the glands, but likewise be very apt to form stony concretions in the body, by the attractions and adhesions of those mineral salts with which it is impregnated. It might therefore be of much service to such who are subject to the gravel and stone, or any diseases from obstructions, to take the utmost care about their water, and always be sure to use that which is lightest. This further affords a very good hint to such, to use as much as possible, a soft lubricating diet; for by such means those salts would in a great measure be sheathed, and as the constituent parts of an heterogenious fluid, more or less obey their attractive powers, that is, are more

or less attracted by one another, as they meet with greater or lesser resistances from the fluid they make a part of, so they would be prevented thereby from running into those contacts and cohesions, in order to form those little petrefactions in the bladder and kidneys. See Dr Mead's last Essay in his Book of Poisons, where this matter is more fully explained.

QUINCY.

APH. V.

IN a cold wholesome air, perspiration may be hindered; but if the fibres likewise thereby obtain a greater firmness and strength, the weight of the retained matter will not be injurious or perceivable.

Explanation.—From Aphorism 28 and 29, Section 1. it already appears, that the weight of the body, as to the perception the person has of it, is as the strength and vigour of the solids; where therefore the fluids are encreased by any cause whatsoever, and there be at the same time a proportionate addition to the strength of the solids; such an additional encrease of the fluids will not be perceived, or be prejudicial.

Quincy.

APH. VI.

IN a foggy air perspiration is lessened; the pores are obstructed, and the fibres weakened, and not rendered

more firm, and the weight of the retained matter is both perceivable and injurious.

Explanation.--Why a cold wholesome air (by which is to be understood, that which is cold and clear) should hinder perspiration, and yet strengthen the body, and a foggy cold air also hinder perspiration, but weaken the body; is a difficulty much like that in the 68 Aphorism, Section 1, where it is said, that external cold hinders perspiration in weak people, but increases it in the robust; and solvable only by the same way of reasoning. For the concentration and dissipation of the *vital heat*, so much talked of, is saying nothing, because they are terms which convey no idea of any mechanical procedure, by which only all physical agents operate, and their

effects are to be accounted for.

There is one enquiry, which, if pursued with penetration and judgment, would let in a surprising light to the true mechanism of the solids of a human body, and that is concerning the composition and texture of a *distractile fibre*; so far I mean, as to find out what order and texture of parts will serve to make up such a thread, as is capable of being drawn out to a considerable length without breaking; and that when the force which so extended it, is removed, will restore, or contract itself again to its former dimensions. *Bellini* has furnished us with a very good hint in this affair, in his *Opuscula, Prop.* 51, *de Villo contractili*; and has gone a little way towards its application. It

is to be wished, that, that great master of mechanical reasoning would have carried his theory something further, and been more particular. But from what he has said in the place above-mentioned, *De Stimulis*, and before upon the same head, in his Propositions, *De Missione Sanguinis*, any person who has rightly turned to that way of thinking, with pains and industry may do it himself. To which end, I have added the Essay on the *elasticity of a distractile fibre*, at the end of this work, whither the reader may turn for further information in this affair.

Quincy

APH. VII.

IF in a warm season a cold day happens, in the space of that day, supposing the way of living to be the same, about a third part of the perspirable matter will be obstructed, which unless it be diverted by some of the sensible evacuations, will be disposed to putrefaction, and disorder the whole constitution.

EXPLANATION. — A sudden change of weather from hot to cold, cannot but very much affect and disorder the constitution, by suddenly drawing up and straigthening the cutaneous pores; whereupon the perspirable matter will in a great measure be detained, and occasion fevers, un-

less by the strength of the constitution it be soon thrown off by an encrease of some of the sensible evacuations. And this is the reason why frequently upon change of weather, at the same time, we meet with a great many taken with diarrhœas, and some of them attended with vomitings, and very ill symptoms; or else for want of such discharges in time, with fevers.

QUINCY.

APH. VIII.

THE obstruction of the perspirable matter which happens in weak people, upon a sudden cold, is much worse than that which is made gradually.

EXPLANATION.—All changes of the constitution whatsoever,

are much more easily affected by degrees than of a sudden; because let it be to either excess, fulness, or want, the solids will stretch or draw up insensibly by a gradual procedure; whereas by a sudden change into either excess, their contractions must needs be so much altered, as cannot speedily be done without sensibly disturbing all the secretions; and therefore the weaker a body is, the secretory organs will be less able to discharge a greater quantity suddenly thrown upon them, than what is by a gradual encrease.

QUINCY

APH. IX.

BEING exposed to a cold air after heat, by leaving off garments, a body may perspire thereby in the space of a whole day about two pounds the less, and yet receive no harm from it.

EXPLANATION.—But this can be only in strong constitutions, and the robust, who afterwards will be able to throw off that additional load without receiving any damage thereby; their solids being only invigorated by such an encrease of cold, will vibrate the quicker and stronger, and thereby soon break the detained matter, and force it away; but the experiment therefore is not safe to be tried by any other.

Quincy.

APH. X.

SWIMMING in cold water after violent exercise is very delightful, but fatal; for nothing is more destructive than extremes are to one another.

Explantion.—By violent exercise the fluids will be very much broke, and a great deal of perspirable matter made ready for expulsion; and the solids also so very tense and strait, that upon swimming, immediately afterwards, if the water is not excessively cold, they will yield and relax in comparison to that contraction which the violent exercise had before drawn them up to. And this relaxation at the same time joined with the chill-

ness from the water, will occasion such a stagnation of the fluids upon a double account, as without a great deal of difficulty will hardly be removed, if it does not occasion immediate death.

QUINCY.

APH. XI.

THERE are several causes which gradually distemper the *viscera*, without any sensible encrease of weight, or uneasiness.

Explanation.—As in some constitutions not fitted for such ways of living, the frequent supping of *coffee*, tippling of hot *spiritous liquors*, smoking *tobacco*, and several other things, too long and tedious to enumer-

ate, which are often found by degrees to steal upon some constitutions, and by injuring one particular part of secretion, to induce a general disorder.

QUINCY.

APH. XII.

WHEN too cool an air is discerned after supper, the perspiration of those parts which are uncovered with clothes, will be obstructed. And the next day at night, in a great many will occasion a pain and heaviness of the head.

EXPLANATION.—The reason why taking cold is frequently attended with pain and heaviness of the head is, because from the

meninges, or coats of the brain, the solids of the whole body have their rise and invigoration; and as the hinderance of perspiration necessarily encreases the quantity and weight of the fluids, the sense and uneasiness occasioned by such an encrease, or addition, must need be first felt in the head, upon the account of a greater impulse of blood upon those membranes, as well as by the harder tack they have thereupon, to enable all the solids to carry on and manage such an additional weight. QUINCY.

APH. XIII.

A COOL wind always hinders perspiration, and is hurtful, but most to the head; because it is most exposed to it.

Explanation.—That a draught of wind upon any particular part, or a cool air upon the whole body, does hinder perspiration, and more particularly discompose the head, appears already from a great many of the foregoing Aphorisms, as well as from the 12th of this Section; and how such causes also render the body hotter, that is, how they raise a fever, may be seen explained at large in the explanation to Aphorism 66, Section 1.

Quincy.

APH. XIV.

F all the seasons of the air, the driest are most healthful, because they render bodies lighter.

Explanatiion.— That is, in

dry seasons, there is always a freer perspiration than in a wet damp air, and consequently more health. In a dry clear air, the perspirable matter is best discharged; because the skin is kept both drier and harder than in wet seasons, whereby there is both the freer passage for it, and more liberty for it to exhale and fly off afterwards; whereas in wet damp weather, the skin is moistened by the external air, and the pores foul and clogged with the gross particles hanging upon it, and less liberty left for the perspirable matter to get off.

QUINCY.

APH. XV.

TEMPERATE persons weigh in summer time about three pounds less than in winter.

EXPLANATION.—It has more than once been observed, that the body is capable of several different standards, and yet continue in a state of health; the difference therefore which is made between winter and summer, is such as the body gradually passes into, and receives no injury thereby; for such a change on a sudden would endanger its falling into some bad distemper. And the weight of the body is less in summer than in winter, because there is continually made a *larger* perspiration, that is, there is made a greater waste at that time through the pores of the skin, in proportion to the quantities taken in by eating and drinking, than what is made the same way, in winter, and in cold weather. A *larger* perspiration, I say, not a

better; because it appears already, that the most beneficial and serviceable perspiration is made, when the nerves are hardened and firm, as they are in clear cold seasons, and the body then enjoys the most perfect state of health, as will likewise appear further from the subsequent Aphorisms.

Quincy.

APH. XVI.

THE body becomes weaker in hot weather, because, with the perspirable matter, a great deal flies off which cannot be spared, and because the natural heat is not concentrated.

APH. XVII.

HEN bodies in hot weather, in sleep, either by day or night, perspire or sweat much, they become lighter, and are not sensible of any uneasiness from heat.

Explanation.—Because such a discharge removes and carries off all that digested matter, which if retained, would, for the reasons given in the preceding Explanation, occasion that uneasiness.

Quincy.

APH. XVIII.

SUDDEN cold upon hot weather, will occasion an obstruction of the perspirable matter, about a pound in one day.

Explanation.—The quantity obstructed will always be greater or lesser, according to the different diminution of the excretory passages, by such changes.

Quincy.

APH. XIX.

IF it be a mild sum-summer, the body is reduced to a standard suitable to the season, by sweating.

Explanation.—Sweating is insensible transpiration, either by a great encrease of the discharge of perspirable matter, or by the going off along with it, that which is gross and undigested, and not broke small enough to exhale by insensible steams. If therefore sweat be not immoderate, that is, if it does not carry off with it too much of the use-

ful and nutritious juices, it cannot but be the most easy and safe way, especially in warm seasons, to clear the body of any superfluities, or ill humours, occasioned by the obstruction of the perspirable matter.

Quincy.

APH. XX.

PERSPIRATION promoted by warm air or water is hurtful, unless it be to get rid of some greater evil.

Explanation.--The same likewise is true of the encrease of any of the sensible evacuations beyond what is natural, both because it puts a greater stress upon the excretory organs, and gradually weakens their springs, and because such encreased evacua-

tions always defraud the body of some parts, as cannot without injury be parted with; but the greatest damage is sustained by an encreased perspiration; because in this discharge the whole body is more generally concerned, and therefore all the solids sooner injured by it, and a greater waste made of the nutritious juices.

Quincy.

APH. XXI.

IN the summer seasons, strong persons perspire most in the day time, but in winter most in the night.

Explanation. -- Where the strength and vigour of the solids is preserved the same, the fluids will continue to be circulated with

their usual velocities and impulses; and as perspiration is a discharge of the most digested and finest parts of the juices through very fine and imperceptible pores, it follows, that whatsoever most favours any passage those ways, without lessening the strength of the solids, must undoubtedly most promote perspiration. And as it is certain that any warmth, so it be not too great to impair the strength of the body, enlarges the cutaneous pores, and such warmth in summer being greater in day time, by the near approach of the sun, and during winter, in the night, by the accustomed coverings of bed-clothes; it follows of consequence, that in healthful, robust constitutions, where the strength is not at all sunk by such external warmth, there will be made at those times,

the largest discharges by insensible transpiration.

QUINCY.

APH. XXII.

IN obstructed perspiration, in summer, disposes to malignant fevers; whereas, in winter, it makes but small alteration; for bodies are more subject to an acrimony or sharpness of the perspirable matter in summer, than in winter seasons.

Explanation.—When the fibres are weak, as in summer and sultry weather, and the perspirable matter by any cause whatsoever happens to be obstructed, the solids then must needs be the much less able to circulate it, and break

it small enough for transpiration, and the heat also of the external air will favour its sooner falling into fermentative and intestine motions, and dispose it thereby to corruption; from whence will arise such as are commonly called malignant and putrid fevers. But in cold weather, both the constitution is better able by degrees to overcome and wear away such an additional load, and the obstructed matter will, besides, be not so apt to putrefaction, but sometimes continue a considerable while without any great injury.

QUINCY.

APH. XXIII.

THERE is seldom much injury perceived from a liberal use of *venery*, when a sudden cold happens to succeed a hot season; but when the air again grow hot, the body will be sensible of much hurt.

APH. XXIV.

A SUDDEN change into a cold air after *venery*, makes amends for the loss sustained thereby, by its concentration of vital heat.

Explanation.--It is not at all to be disputed, but that excessive *venery* much weakens the strength

and elasticity of the solids, by the violent and intense contractions they are under at such times, insomuch that a considerable space of time is required to recruit them with a fresh stock of spirits and vigour; but before such recruit is made, if the weather suddenly changes from hot to cold, the fibres thereupon will immediately be so much drawn up and hardened, that all the limbs will be new braced, and the damage received hardly at all perceivable. But if such a constitution of the air does not continue until the solids are supplied and invigorated with a convenient fresh stock of spirits, from proper food; and the weather happens again to set in hot, the fibres will again slacken in such a manner, as to occasion the loss before received to be considerably felt. But by the advantages

arising from the cold concentrating the spirits, is to be understood as before explained, only as the solids are strengthened by it.

Quincy.

APH. XXV.

IN summer nights a body is most liable to fevers, because of the various alterations of the air; for in the beginning it is sultry; in the middle more temperate; and towards the morning, cool. By which the wonted perspiration is checked in time of sleep, by throwing off the clothes, and the body is thereby made heavier; which does not happen in winter time.

Explanation.—This is con-

firmed by all who travel likewise into hotter climates; and the reason is plain, because sudden cold after warmth, makes a greater alteration upon the constitution, by turning back the transpiring steams, which were rising in plenty. Experienced travellers therefore take great care, even in the most sultry climates, to keep warm covered when the night-dews fall, lest the pores should be too suddenly closed, which never fails of causing fevers of the worst kind. And for the same reason should the body be covered in the summer nights in any country, because the rarified state of the juices in such a season, and their great vent by the cutaneous passages, will expose to more injuries from a sudden change to a colder air, than being exposed to a much

colder, when gradually brought on in winter time.

Quincy.

APH. XXVI.

THE autumn is unhealthful, both because perspiration lessens upon the supervening cold, and because that which is obstructed acquires an acrimony, and a corrosive quality.

APH. XXVII.

THEY who in spring-time throw off their *winter* garments too hastily, and are too backward in putting them on again in the fall, in the summer-

time are subject to fevers, and in the winter to defluxions.

APH. XXVIII.

IF the obstructed perspirable matter acquires an acrimony, it produces fevers and inflammations; but when it offends only in quantity, it causes aposthumations, distillations, and cachexies.

THE APHORISMS OF SANCTORIUS.

SECT. III.

Of MEATS *and* DRINK.

APHORISM I.

IF upon a full stomach, the first concoction is perfected during sleep, for the most part about forty ounces will per-

spire that night. But if that concoction is not made, hardly above eighteen ounces.

APH. II.

MUTTON easily digests and perspires; for it will waste in a night the third part of a pound more than other usual food.

APH. III.

A HEALTHFUL person perspires insensibly in the space of one day, as much as by stool in two weeks, although every day in that time he has a consistent well-digested stool.

APH. IV.

LATUS is nothing else but a gross perspirable matter.

APH. V.

OBUST persons discharge their food for the most part by perspiration. Those not so strong by urine, and the weak, chiefly by an indigested chyle.

APH. VI.

F a person eats no supper, and continues with an empty stomach, it will hinder perspiration, and the obstructed mat-

ter will acquire a sharpness; whence, the body will be subject to distempered heats.

APH. VII.

SUCH fasting as reduces the weight of the body below its natural standard, is bad.

APH. VIII.

UNDIGESTED food, by how much the more nourishment it contains, is so much the worse, because it occasions either a greater encrease of weight or degenerates into a greater corruption.

APH IX.

 ORK and mushroons are bad, both because they do not perspire themselves, and because they hinder the perspiration of other things eat along with them.

APH. X.

 ORK and mushroons, occasion the body to perspire less than usual a third part.

APH. XI.

 HE body best perspires with that food, whose fæces, or recrements, pass through the guts hard and consistent

APH. XII.

THE body is more burthened from eight pounds taken in at one meal a day, than with ten pounds in a day, at three several meals.

APH. XIII.

QUANTITY (That) of food to every one is most healthful, which without any uneasiness can be perfectly digested; and that it is perfectly digested, may be known by the sums of the evacuations answering the quantities taken in; which will appear by weighing.

APH. XIV.

BODY (A) is reduced to its wonted weight with much less trouble, by eating four pounds at a dinner, and the same quantity again at supper, than by taking in six pounds at dinner and two at supper.

APH. XV.

HE destroys himself that eats once a day besides his ordinary meals, be it more or less.

EXPLANATION.--Because such a practice supplies the body faster than it is able to digest the food, and fit it for its proper offices and evacuations.

APH. XVI.

ODY (The) will be rendered heavier by four ounces of very nourishing food; as *pork*, *eels*, and all *fat meats*, than by six ounces of a slender nourishment, as *fish*, *chickens*, small *birds*, and others of the like kind.

Explanation. — Because that which is very nourishing remains longer in the body, as has been already proved, and is not so soon fitted for perspiration.

APH. XVII.

OOD of very small nourishment cools and lessens the bowels, is soon digested, and assists perspiration both in sleep and waking.

APH. XVIII.

HERE there is a difficulty of digestion, there perspiration is slow.

APH. XIX.

ROM a variety of meats, arise three inconveniences; — eating too much, digesting too little, and not perspiring enough.

APH. XX.

EAST perspiration is, when the stomach is full, especially if it be so with a variety of meats.

APH. XXI.

THEY who are used to immoderate eating when young, stretch the stomach too much, by which means afterwards they come to digest with great difficulty, even a moderate quantity.

APH. XXII.

IF too much drink makes the eyes watery after sleep, it is a sign the body has not sufficiently perspired.

APH. XXIII.

IF after hard drinking a person sweats much, or makes much urine, it is a sign of great strength or great weakness.

APH. XXIV.

DRINKING water hinders insensible perspiration, but promotes the sensible evacuations.

APH. XXV.

CUSTOMARY drinking, even amongst temperate persons in this age is ill proportioned, for to about twelve ounces

of meat they drink forty ounces or more.

APH. XXVI.

TEMPERATE liver generally perspires in a night three pounds; and such a one, if he be of a strong constitution, after a plentiful meal may perspire five pounds.

APH. XXVII.

FASTING is beneficial to a heavy full body, to a temperate one hurtful, but most of all so, to one that is weak.

APH. XXVIII.

PLENTIFUL meal after long fasting will encrease perspiration a pound more than usual.

APH. XXIX.

FTER immoderate exercise, to feed very plentifully is not good; because a weary body perspires with difficulty.

APH. XXX.

HYSICIANS who has the care of the health of *Princes*, and knows not what they daily perspire, deceives them, and

will never be able to cure them, unless by accident.

APH. XXXI.

IN the four first hours after eating, a great many perspire a pound, or near; and after that to the ninth, two pounds; and from the ninth to the sixteenth, scarce a pound.

APH. XXXII.

IF a debauch over night proves injurious, and can neither be well digested nor thrown off by a looseness, the advice of the following verses is good:

Si nocturna tibi noceat potatio vini,
Hoc tu mane bibas iterum, & fuerit medicini.

If over night's debauch does hurtful prove,
A glass next morning will your pains remove.

APH. XXXIII.

WEIGHT (If the) of a healthful body after supper, be two hundred pounds, and that body be afterwards weakened by too much venery, its weight will then not exceed a hundred and ninety-eight pounds; because the langour at that time contracted, will lessen the quantity of food usually converted into nourishment by two pounds.

Explanation.—This properly belongs to the Section on Venery.

APH. XXXIV.

ATTER of insensible perspiration is the excrement of the third concoction; and therefore if the first is not made, the third also will be wanting.

Explanation.—If the food passes the stomach without due digestion, which is called the first concoction, so much of it as gets into the blood, by its grossness and crudity, will of course hinder the rest of the secretions, by preventing the due attritions and secretions of such parts as are necessary thereunto, being in themselves too solid and bulky

to be broke by the force of the arteries.

APH. XXXV.

BY obstinate fasting, the head will be filled, the temples heated, the hypochrondres distended, and the arms and legs enervated.

APH. XXXVI.

ONE (If) meal a day of about four pounds proves injurious, the same quantity taken in two or three meals, may be of service; for too great a fulness of the belly diverts perspiration.

APH. XXXVII.

HOW does a putrefaction of the food occasion a lassitude? Because it hinders perspiration. But how? By causing a diarrhœa. How does a diarrhœa occasion a lassitude? By carrying off with the excrements a great deal of the useful and well-digested juices.

APH. XXXVIII.

VIOLENT exercise before food, is hurtful; both because it is not well received in the stomach, and because it hinders perspiration.

APH. XXXIX.

HE who eats with a troubled mind digests much less than one who is easy and cheerful.

APH. XL.

OLD (In) constitutions honey is serviceable, because it nourishes and perspires; but in hot it is hurtful, because it turns to bile.

APH. XLI.

OTHING hinders perspiration more than to drink during chylification.

APH. XLII.

SOUND (When in a) body the belly is loose, it is either because digestion is not well made in the stomach, or from an expulsion of the chyle by an obstructed perspiration.

Explanation. — An obstruction of the perspirable matter will so over-burthen the solids, that if they are strong, they will be irritated to throw it off by other evacuations, which is the reason why the stoppage of one evacuation is always the encrease of another.

APH. XLIII.

GOOD constitutions may suffer two ways; either by living entirely without exercise, or by eating before the digestion of a former meal.

THE APHORISMS OF SANCTORIUS.

SECT. IV.

Of SLEEP *and* WATCHING.

APHORISM I.

SOUND sleep so much promotes perspiration, that in about seven hours, strong constitutions will frequently perspire fifty ounces.

APH. II.

SEVEN (With) hours sleep the body insensibly perspires, and without any trouble, twice as much as when awake.

APH. III.

THE body is lighter after sleep, both by an encrease of strength, and the waste of, at least, three pound of excrement.

APH. IV.

NQUIET and interrupted sleep lessens the quantity usually thrown off by perspiration, about a third part.

APH. V.

ERSPIRATION in sound sleep is sometimes greater than what is made by exercise in the same compass of time.

APH. VI.

N the morning sleep, after the first digestion is perfected, about a pound of the perspirable matter goes off in an hour;

but if that is not perfected, not above a quarter so much.

APH. VII.

WHATSOEVER hinders sleep, hinders also the perspiration of that digested matter which ought to exhale.

APH. VIII.

THE acrimony of the obstructed perspirable matter most commonly affects the head, disturbs rest, and hinders the perspiration of the upper parts.

APH IX.

IF any one after sleep finds pains in his arms, or a more than ordinary weariness, it denotes the body to be heavier, and so much, that nature cannot long bear up under it.

APH. X.

HE that sleeps with his legs and hips bare, will perspire that night a pound less than usual.

APH. XI.

CONTINUAL restlessness in bed agitates the body more than swift running; for in the motion of one running, the mus-

cles of the lower parts only are moved, whereas by turning about in bed often, those of the whole are concerned.

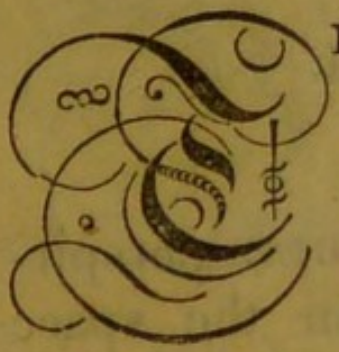
APH. XII.

PERSPIRATION is hindered more in the time of sleep, by a cool southern air, than when waking, by an intense cold.

APH. XIII.

EIGHT'S (If the) sleep is less than usual, the exhalation of the digested perspirable matter will be lessened; but that of the undigested encreased.

APH. XIV.



HE perspirable matter which goes off during sleep, differs specifically from what passes when awake; for the former is the result of a good digestion, without acrimony, and is refreshing to the whole body; but the latter arises from crudities, and is sharp, violent and laborious.

APH. XV.

PERSON when asleep, perspires as much more as when awake;—from whence is the accustomed saying, that "*an hour's rest*

with sleep, is as good as two waking."

APH. XVI.

INSENSIBLE perspiration, in the space of seven hours during sleep, has been found in a great many, to be about forty ounces, and in watching twenty.

APH. XVII.

SOES (Whosoever) to bed with an empty stomach, that night perspires about a third part less than usual.

APH. XVIII.

BILIOUS or choleric persons, who go to bed without supper, will be troubled with crudities in the head and belly; their temples will beat, their flesh waste, and strong tensions will arise in the arms and hands, and sometimes twitchings at the heart, vertigoes, and epilepsis, as it happened to Diodorus.

APH. XIX.

PLENTIFUL supper after a larger perspiration than usual, procures a larger and pleasanter sleep.

APH. XX.

LESS perspiration than is needful, is followed by unquiet sleep and a restless night.

APH. XXI.

IF after a short and restless sleep the flesh seems cold, and a little fever arises, in weak persons it is a token of death, but in the robust, a forerunner of some long distemper.

APH. XXII.

HANGING a bed occasions disturbed sleep, and lessens perspiration; for an unaccustomed place, although better than

before, disturbs both the body and mind.

APH. XXIII.

THEY who sleep in a strange bed, dream more than in their own.

Explanation.—These are obvious to every ones notice, and are undoubtedly occasioned only by the change of objects which are about a person, and take up his mind with some more than usual attention, and thereby prevent that easy relaxation which is necessary both to a good perspiration and sound sleep.

APH. XXIV.

SLEEP (They who) and do not dream, perspire well; and on the contrary, they who dream much perspire the less.

Explanation. — Dreaming is a state between sleeping and waking, wherein although the mind does not exercise such a power over the body, as to direct its motions in the same degree as when awake; yet by its attention to those confused ideas which pass through it, the solids are kept in some degree of contraction greater than is agreeable with sleep; and therefore perspiration, which depends upon a settled relaxation, cannot so well be performed at such times as when in quiet sleep.

APH. XXV.

SLEEP about four hours after eating is most serviceable; because nature is not so busy at that time about the first concoction, and she then better recruits what is lost, and better carries on the business of perspiration.

APH. XXVI.

FIVE (If) hours after supper, a person is suddenly awakened and weighed, he will be found to have perspired barely half a pound; but if eight hours after supper the same experiment be tried, three pounds.

APH. XXVII.

FROM sleep something shorter than usual, there will always be some part of the perspirable matter retained, which unless it be thrown off by an encreased quantity of perspiration the following days, will endanger a fever.

APH. XXVIII.

YAWNING and stretching the limbs after sleep, is a sign the body has perspired very well; as it is customary with the cocks to stretch and clap their wings before they crow.

APH. XXIX.

YAWNING (That) and stretching after sleep, is occasioned by a great plenty of perfectly digested perspirable matter, which is in readiness to be thrown off.

APH. XXX.

THE body by yawning and stretching, in the space of half an hour, perspires more than in three hours at any other time.

APH. XXXI.

HE who gives syrups and other medicines to sick persons, in the chief hours of perspiration, which

are commonly after sleep, do harm; but in the following hours good.

APH. XXXII.

STRETCHING and yawning in an ague fit, do not denote a concentration of the vital heat, but an excretion of a retained perspirable matter.

APH. XXXIII.

IN winter time sleep is more serviceable than in summer; not because the bowels are warmer, or sleep longer; but because early in the morning the body is actually warmer, and as

such perspires most, but in summer time it is really colder.

APH. XXXIV.

RISKNESS and activity after sleep denote that the body hath that night perspired near three pounds, for the most part.

APH. XXXV.

HEN the head seems light after sleep at noon, it is a sign that no part of the former day's perspiration hath been obstructed.

APH. XXXVI.

SLEEP universally moistens both the inward and outward parts, because it attenuates the perspirable matter, and dispenses it when so broke through all the members.

APH. XXXVII.

(When) person is awake, a greater quantity of blood not yet prepared for perspiration, is carried from the centre to the circumference, than when asleep.

APH. XXXVIII.

IN those who sleep uncovered, perspiration is more obstructed, than in such who go naked when awake; both because in sleep the body is without motion, and because the heat of the external parts retire inward.

APH. XXXIX.

IN seven hours sleep, after long watching, the quantity that perspires, will be encreased about a pound.

Explanation.—Perspiration is then encreased, because by the long state of contraction of the

solids, and the continual attritions whilst awake; there will be a greater quantity of the perspirable matter ready to pass off than usual, and therefore, as soon as the body is relaxed by sleep, and the diameters of the excretory passages are lengthened, it exhales much more plentifully than at other times, insomuch, as, according to *Sanctorius' balance*, to exceed by about one pound in seven hours.

APH. XL.

THE body in a morning is lightest, and perceives itself so: it is lighter than at any other time, because about three pounds of perspirable matter is gone off the preceding night; and it perceives itself so, both because

it is really lighter, and because by a good digestion of easily perspirable meats, the strength is renewed.

APH. XLI.

ARGE (So very) are the steams which arise from persons in sleep, that not only the distempered communicate bad qualities to those who are well, but even the healthful in lying together affect one another.

APH. XLII.

ROM eating comes sleep, from sleep digestion, and from digestion a good perspiration.

APH. XLIII.

RISE (When we) with our wonted weight, but with greater weariness, unless that weariness be removed with usual exercise, it denotes a collection of crudities, a corruption of the food, or too great a use of venery.

APH. XLIV.

IMMODERATE sleep after dinner injures all the bowels, and obstructs perspiration.

APH. XLV.

TO sleep with the body stretched, is hurtful; but with the limbs drawn up, beneficial; for the closer positions of the bowels assists concoction, whereas, to be more distant, hinders it.

APH. XLVI.

COOL sweat happens to healthful people after sleep, it is a sign that they have perspired too little; and that if it continues, in time they will have the gout.

THE APHORISMS OF SANCTORIUS.

SECT. V.

Of EXERCISE *and* REST.

APHORISM I.

THE BODY perspires much more plentifully during a quiet rest in bed, than by frequent tossing about.

APH. II.

HEERFUL and passionate persons, are less fatigued with long travelling, than those who are fearful and melancholy; because the former perspire much better than the latter.

APH. III.

E who feeds quickly after hard exercise injures himself thereby; because to be weary and filled with meat at the same time, will much hinder perspiration.

APH. IV.

EXERCISE promotes both the sensible and insensible evacuations: but rest only the insensible.

APH. V.

PERSON (If a) lies in bed ten hours after supper, he will perspire well; but if he lies longer, there will begin to be a decrease both of the sensible and insensible discharges.

APH. VI.

THERE are two kinds of exercises, one is of the mind, and the other of the body; that of the body discharges the

sensible excrements; but that of the mind, rather the insensible, and more especially, those of the heart and brain where its seat is.

APH. VII.

MUCH (Too) inactivity of the mind, checks perspiration, more than that of the body.

APH. VIII.

VIOLENT exercise, both of the mind and body, renders persons lighter, but it hastens old age, and threatens untimely death; for according to the philosopher, those who are exercised die sooner than those who are not.

APH IX.

BY exercise the body perspires the less, but the more by sleep, and the belly is rendered thereby more loose.

APH. X.

SWIMMING soon after violent exercise is bad: because it very much obstructs perspiration.

APH. XI.

RIDING seems rather to promote the perspiration of the parts above the loins, than below them; but a-

mongst the riding paces, the amble is the most wholesome, as the trot is the least so.

APH. XII.

CARRIAGE in a *litter* or a *boat*, does not so well promote perspiration as walking.

APH. XIII.

MODERATE dancing, without jumping, comes the nearest of any thing to the advantages of walking; for it leisurely expels the digested perspirable matter.

APH. XIV.

WHEN perspiration falls short of its proper quantity in sound persons, it is to be remedied by exercise.

APH. XV.

BY too much exercise the fibres become hard; whence old age, which is a universal hardness of the fibres; this, by condensing the pores, suffocates the vital heat; but moisture, by keeping them open, procures long life.

APH. XVI.

HE who would preserve a youthful countenance, ought to take care not to sweat; or that he does not perspire too much with heat

THE APHORISMS OF SANCTORIUS.

SECT. VI.

Of AFFECTIONS *of the* MIND.

APHORISM I.

AMONGST the affections of the mind, those of anger and joy, make persons lighter; those of fear and

sorrow more heavy; and the other affections operate in proportion to their participation of these.

APH. II.

IN fear and sorrow the lightest perspires, but the heaviest matter remains behind; in anger and joy there is a good perspiration of both.

APH. III.

HENCE it comes to pass, that those who are subject to fear and sorrow, are apt to be troubled with obstructions, a hardness in some parts, and to hypochondriacal affections.

APH. IV.

THOSE who are angry, or cheerful, do not feel much weariness in travelling; because their bodies easily perspire the gross matter; but it happens quite contrary to this when they are troubled with fear and sorrow.

APH. V.

THE heavy part of the perspirable matter, being more than usually retained in the body, it will dispose a person to fear and sorrow; but the lighter part being obstructed, to anger or joy.

APH. VI.

NOTHING more contributes to a free respiration than comfort and satisfaction of mind.

APH. VII.

BY fear and sorrow those parts which are fullest of moisture, are most apt to be rendered hard.

APH. VIII.

SORROW and fear hinder the exhalation of the gross perspirable matter; and the obstruction of perspiration, from what cause soever it proceeds, occasions fear and sorrow.

APH. IX.

IF grief continues long, it will bring on a coldness of the flesh, because it hinders the exhalations of the grossest of the perspirable matter.

APH. X.

FROM hence it happens, that those fevers which a persons falls into after much grief, discover themselves in cold sweats, and sometimes prove mortal.